THE

CYCLOPAEDIA;

OR,

Universal Dictionary

OF

ARTS, SCIENCES, AND LITERATURE.

VOL. XXXII.
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CYCLOPAEDIA;

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UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY


WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.

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BY THE MOST DISTINGUISHED ARTISTS.

IN THIRTY-NINE VOLUMES.

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SCOTLAND. in Geography, an ancient, and formerly an
independent kingdom, but now constituting an integral
part of the united kingdom of Great Britain and Ireland; is
situated, exclusive of its islands, between 54° 37' and 58° 42'
north latitude, and between 2° 47' and 6° 7' west longitude,
from London. It is bounded on the south by the Solway
frith, and the rivers Esk, Jerv, Liddel, and Tweed, which
divide it from England; on the east and north by the
Northern ocean; and on the west by the waters of the
Atlantic. Its greatest length in a direction due north and
south, is 275 miles; and its greatest breadth 147 miles; but
its breadth is extremely vast, and in one place does not
exceed 36 miles. According to calculation, the superficial
contents of the mainland amount to 15,920 square miles
of land, 404 square miles of fresh-water lakes, and 3000 square
miles of salt-water lochs, or lakes. The islands, which are
usually divided under two divisions, the Hebrides on the
west, and the Orkney and Zetland islands towards the
north, comprehend an area of 3224 square miles, to that
Scotland, with its lakes and islands, exclusive of its bays,
prest is a surface of 30,238 square miles. Politically speaking,
it comprises 33 counties which are named in the sequel
under the head Parliaments representation, and contains,
according to the population edus of 1811, 3,177,683 houses,
and 1,865,688 inhabitants.

Historical Events.—The history of Scotland, previous to
the union of the two crowns, has been divided by Dr.
Robertson into four periods; the first reaching from the most
remote ages to the reign of Kenneth II.; the second,
from Kenneth’s conquest of the Picts to the death of Ale,
ander III.; the third, from that event to the death of
James V.; and the last, the advance of James VI. to the throne of
Scotland. The first of these periods, observes the same author, is the region of pure fa-
ble; truth begins to dawn in the second period with a light,
feebler at first, but gradually increasing; the events which then
happened may be slightly touched, but merit no laborious
inquiry. In the third period, Scottish history, chiefly by means
of records preferred in England, becomes more authentic;
not only are events related, but their causes and effects explained;
the characters of the actors are displayed; the
manner of the age described; and the revolutions in the
constitution pointed out. During the fourth period, the aff-
airs of Scotland were so much mingled with those of other
nations: its situation in the political state of Europe was so
important: its influence on the operations of neighbouring
kingdoms was so visible: that its history becomes an object
of attention, not merely to Scotsmen but foreigners: as
without some knowledge of the various and extraordinary
revolutions which happened there, it would be impossible for
them to form a just notion with respect either to the great
transactions, or the distinguished characters, of the sixteenth
century.

After a minute examination of nearly all the works which
have been written respecting the early history of Scotland,
it is impracticable to unravel the mystery in which it is
involved, and to separate authenticated facts from ingenious
conjecture. In the present article, therefore, we shall advert
to the first periods only in a general way, and will dilate our
narrative, in proportion as events become more certain, im-
portant, and interesting.

History of the First Period.—It is agreed by Pinkerton and
Chalmers, though on many other points they materially
differ, that the aboriginal inhabitants of Scotland were a
colony of the Celts, who are generally allowed to have been
the first inhabitants of western Europe. Respecting the era
of their arrival in North Britain, and the route by which
they reached the country, nothing is known; nor has record,
or tradition, preferred to us the smallest trace of their history, till the period of Agricola’s invasion, when their descendants appear to have been divided into twenty-one distinct clans, called by the Romans the Tattadini, Gadeni, Selgovae, Novantii, Damnii, Horelli, Venicones, Taizali, Vacumagi, Albanii, Attacotti, Caledoni, Cantae, Logi, Carnabi, Catini, Mertix, Carnonacae, Creones, Cерones, and Epidii.

These various tribes, who are usually mentioned in the Latin writers by the generic name of Caledonians, on the advance of the Romans into their country, united under the authority of Galgacus, one of their most powerful chiefs, to repel their progress. The utmost efforts of valour, however, proved unavailing against the military skill of the great Agricola, and the discipline of the legionary troops. In his first campaign in North Britain, A.D. 82, that celebrated general penetrated, according to Tacitus, as far as the river Tay; and in the year following he constructed a chain of forts between the friths of Clyde and Forth, within which he had retired for the protection of the southern country against the inroads of the free tribes of the North. The summer of 82 was employed in subduing and securing the district which extends from the Solway to the Clyde. Thus freed from the danger of a flank attack, he again passed the Forth, and advanced, without opposition, as far as Loch Leven, establishing, as he proceeded, military posts to keep the inhabitants in subjection. These posts the Caledonians had the hardihood to attack; and by this display of daring intrepidity, seem to have struck great terror into the Roman soldiers. In this dilemma, Agricola divided his army into three bodies, and pushed forward the weakest to Lochore, where he ordered it to encamp, while he stationed the other two at short distances on the right and left. The Caledonians, perceiving the Romans thus separated, made a vigorous attack during the night on the intrenchments at Lochore, and had already entered the camp, when Agricola arrived with the light troops of the other divisions, and, after a furious combat, repulsed the assailants, and forced them to a disorderly and precipitate flight. This victory, though dearly bought, inspired the Romans with renewed ardour; but it did not intimidate the Caledonians, who magnanimously resolved to dispute every foot of ground with the invaders. Agricola consequently found sufficient employment during the remainder of the year in subduing the Horelli, the inhabitants of the illimns between the Tay and the Forth. The following year he advanced to the base of the Grampian mountains, where the Caledonian warriors lay encamped and prepared to receive him. The battle which ensued was contested with the most obstinate valour, but at length terminated in the complete overthrow of the latter. Agricola, however, seems to have derived little advantage from his victory, for after a few days spent in ascertaining the condition of the enemy, he led his troops back to the country of the Horelli, and terminated the campaign. The Caledonians immediately advanced, and demolished all the forts in the territories which the Romans had abandoned. Agricola, in the interim, ordered the commander of the Roman navy to sail round Britain, on a voyage of discovery, and with the design of intimidation. This voyage was happily accomplished, by the return of the fleet to the Forth, before the commencement of winter. With these remarkable exploits the campaigns of Agricola terminated; for, having excited the jealousy of the emperor Domitian, by the splendour of his achievements, he was soon afterwards recalled to Rome.

From this period to A.D. 120, the Roman authors are entirely silent respecting the affairs of Britain; but from an incidental expression in Tacitus, some later writers have supposed that, during that interval, the Caledonians succeeded in recovering the country conquered by Agricola, as far as the Solway on the west, and Tynemouth on the east. This opinion seems to receive some confirmation from the fact, that when the emperor Adrian visited our island in the year 119, he caused a rampart to be constructed between these two citadels, “which has in every age been a monument of his power, and a memorial of his circumspection.” Chalmers, however, contends that this measure was merely precautionary, and that the Roman legions still held all the country south of the Forth and Clyde. The emperor, on his departure, left Julius Severus as his lieutenant in Britain, who does not appear to have attempted any military exploit.

Antoninus, who assumed the purple on the death of Adrian, named Lollius Urbicus to the chief government of the island; an officer who equally possessed talents for peace, and a genius for war. Having tranquillized some insurrectionary movements in the south, he carried his arms from the Forth to the Varar, and settled stations in the intermediate country; throwing the whole of that extensive district into the form of a Roman province. Under his direction was constructed the rampart of Antoninus (now called Grimes’ dyke), which extends from Caer- ridden on the Forth, to Alclud on the Clyde, a distance of thirty-four miles, six hundred and twenty paces. Several military roads, and numerous stations and encampments, were likewise formed in all the provinces, both of North and South Britain. Lollius was succeeded in his government by Calphurnus Agricola, during whose time the Romans abandoned all the country north of Grimes’ dyke. Chalmers affirms that his retreat was not the consequence of weakness, but simply of choice. It nevertheless incurred the unconsidered tribes with fresh vigour. Breaking through the barriers of Antoninus, they pillaged a large tract within that boundary, and put numbers of the Romans to the sword; but Ulfius Marcellus soon drove them back again into their own territories. They renewed their inroads again in the year 200, with better success; and for some years afterwards seem to have made such progress, as to induce the emperor Severus to assume the government of Britain in person. On his arrival at the head of a larger army than had ever before visited this island, the Caledonian tribes sued for peace, but Severus rejected their proposals. The particulars of his expedition into Caledonia are very imperfectly narrated. It is clear, however, that he penetrated as far to the northward as the crest of Cromarty, though, as Dion affirms us, with so few of less than 50,000 men. Before he set out, he constructed a wall from the Solway to the Tyne, parallel with the rampart of Adrian, in order to facilitate his retreat in the event of failure.

On the return of Severus to York, he left his son Caracalla in the government of Nor Britain; whose conduct is said to have incited the Caledians to acts of aggression. Irritated at this, the aged emperor issued orders to renew the war, and to spare neither ge nor sex; but his death, and the contest for the empire between his sons, seem to have prevented their execution. A great event, it is certain that Caracalla made peace with the Caledonians, and gave up to them all the country northward of the Forth and Clyde. From this period, for nearly a century, we hear nothing respecting the Caledonians, we may therefore be presumed to have made no serious attempts to molest the Romanized Britons. At length, however, about the year 356, we are informed that the emperor Constantine found it necessary to come into Britain to repel the Caledonians and other Picts. This, Chalmers affirms, is the first me the Picts are mentioned in history, and contends that the Caledonians were on this occasion called Picts, “owing their peculiar occupation from the
the Roman provincials on the south of the walls." Pinkerton, on the other hand, maintains, that they were a Scythian colony, who had peopled themselves of the eastern coast of Scotland before the Christian era, but his opinion is not supported by evidence or probability.

Conquista having driven back the Caledonians, and other Picts within their own territories returned to York, where he died July 25, A.D. 406. Almost forty years elapsed before they were again able to fill the territories of the Romanized Britons, though the empire was harassed by civil wars. In 443, however, they made some inroads, but were twice repelled, and the province again enjoyed peace for seventeen years. At the close of that period, when Conitantus and Julianus were contending for the imperial sway, the Scots and Picts made a formidable attack upon the province. Luperius, an able officer, was sent to oppose them, but does not seem to have effects the object of his mission. This is the first time the Scots are mentioned in the pages of Roman history. Amonst, in some work they are noticed, joins them with the Picts, as if they formed one army, though they had no connection whatever by neighbourhood, language, or interests; they were a mixed race of barbarous people, who were much accustomed to make predatory excursions against the Roman provincials during the fourth and fifth centuries, but they held their territories in North Britain till about the year 572, when we more particularly notice the sequel. The next attack upon the Roman provinces by the Picts and Scots happened in the year 564, and seems to have been more general and destructive than any former incursion by either of these people. For three years they continued gradually advancing towards the south, spreading death and desolation wherever they came. At length Theodosius, the most distinguished general of his age, was sent into Britain by the emperor Valentinian, to put a stop to their ravages and to restore tranquillity. In two campaigns he drove the Scots fro the island, and the Picts beyond the wall of Antonine, which repaired, and strengthened with additional forts, and infatuated the territories within it into a province, by the name of Valentia. Such, indeed, was the energy of his operations, and the wisdom of his precautionary measures for the maintenance of peace, that the Scots and Picts did not cease to renew their aggressions till the year 598, and even then they were easily repelled. The Roman empire, however, was now rapidly on the decline. In 497, the rest of the troops in Britain transferred the government to Gisors, and after his death to Conulantus, who conveyed the body with great respect to Gaul. The British provincials, thus left a manner to themselves, assumed a sort of independence, which was sanctioned by the emperor Honorius, who, confident of his inability to protect this distant part of the empire, ceded the British cities to rule and defend themselves. But, to quote the words of Chalmers, "their inexperience occasioned them to feel their own weaknesses. And A.D. 422, though the walls were then garrisoned by Rom troops, the provincials again applied for additional protection against the defaulinary attacks of a predatory people, w could be more easily repelled than tranquilized. A levy is said to have been sent, who chastified the invaders, and, for the last time, repaired the fortifications that had been overawed the Pictish tribes. From this epoch the provincials enjoyed twenty years' repose. The year 446, when A.D. 422, though the third time, is the memorable epoch when the British provincials acknowledged themselves to Roman citizens, by their submission to that able fopper of a degenerate flat for fifth assistance; but he was able to gratify their desire, owing to the prelude of the barbarians upon Gaul. The provincials were again told, that they must rely on their own efforts for their future government and efficient defence. The state then in which the provincials were willing to make was A.D. 446. After this, they were completely effaced in A.D. 456. "Caledon. vol. 1.

After the final departure of the Romans, North Britain was occupied by two races of men, the Picts, and the romanized Britons of the province of Valentia. The latter, some authors contend, united themselves under one rule to repel the inroads of the Picts, and thus formed the kingdom of Cumbria, or Strathclyde. Of the existence of such a monarchy, however, within the limits of proper history, there is much room to doubt. At all events, it is improbable that this new nation was able to confine the Picts within their ancient boundaries. On the contrary, it is most likely that the Picts, in contrast with the Scots from Ireland, conquered and occupied the greater part of Scotland. At a later date, the Anglo-Saxons of Northumbria peopled themselves of the eastern coast of that province; but it does not appear certain that the Lothians ever were parts of the Northumbrian or British monarchs; though they might be for a time annexed to by temporary conquest from the Picts. See STRATHCLYDE.

Several ancient Scottish writers, upon the authority of modern legends, contend that their ancestors first settled in Argyll 350 years before the Christians; and they give a list of kings, and a narrative of their actions, from that remote period. Later investigations, however, have shown that these details are most probably fictitious, and that the Scots did not colonize any part of present Scotland till the year A.D. 583, when a body of them passed over from the north of Ireland, their proper country, and fixed themselves in the district of the British Edin, which they denominnted Caernarvon. These colonists were led by Loth, Fergus, and Angus, the sons of Erc, a chieftain or petty king of Dalriada, in the portion of Rhinard in Ulter, whence the Scots were sometimes called Dalriada. The derivation of the same Scot is uncertain, but the most plausible opinion is, that it was a corruption of the word "featas," which signifies in Irish dispersed or scattered, and was therefore applied generally to denote the roving tribes who had inhabited themselves to maritime excursions against the western shores of romanized Britain.

Chalmers judiciously observes, that there scarcely occurs a period of history so perplexed and obscurant as the annals of the Scot-Irish, from the date of their settlement in Argyll, till their ascendency over the Picts in 843. This confusion and obscurity originated in the want of contemporaneous writings, and were afterwards greatly increased, by the contrivances of the Irish and Scottish antiquaries, for pre-emience in antiquity as well as in fame. In the latter island, however, there have happily been preserved various documents, particularly the annals of Turgern and Ulter, which throw many flashes of light on the transactions of that dark era. Several brief chronicles and historical documents, calculated to elucidate the same subject, have likewise been brought into notice by Innes; and Pinkerton first published a Gaeic poem, which professes to give a genealogical account of the Scot-Irish kings. From an attentive consideration of all these, and from an accurate examination of other documents, Chalmers compiled his genealogical and chronological table of the Scottish monarchs, to Kenneth inclusive, from which it appears that they were twenty-nine in number, and occupied by their united reigns a period of 340 years. The first was Fergus, who became sole chieftain, or king of the new colonists, soon after their arrival. He died in 506, leaving his power and pretensions...
to his son Domangart, who reigned five years, and then transmitted his dominions to his elder son, Comgal. This prince enjoyed his sovereignty twenty-four years, during which time he had leisure to extend his dominions and consolidate his authority. Dying in 573, he was succeeded by his brother Gawan, to the exclusion of his own son, Conal. Gawan reigned twenty-two years, and engaged in a war against the Picts, which terminated in his defeat and death. Conal then obtained the sceptre, and held it for fourteen years. Aidan, the son of Gawan, next claimed it; but Dunche, the son of Conal, opposed his pretensions. The bloody field of Lora, in which Dunche fell, put an end to the dispute, and gave Aiden possession of the crown. He was inaugurated by St. Columba in 574, on the holy island of Iona; and proved himself, throughout a reign of thirty-five years, to be a prince of great enterprise. He extended his dominions along the western coast of Valentia, which had been seized upon and colonized by various tribes of "Scitests" from Ireland, by consolidating the whole of them under his superior sway. In 577, having advanced into Cumberland, he engaged Rydderch, king of Cumbria, but the battle seems to have been indecisive. He afterwards entered into a league offensive and defensive with the Cumbrian monarch against the Saxons, who were defeated with great slaughter at Sammore, in Westmoreland. Buchanan affirms this was a league as well against the Picts as the Saxons, and further states, that Aiden was monarch of the district, now included in the counties of Renfrew, Ayr, Wigton, Kirkcudbright, and Dumfries; and this view of the subject certainly bears the stamp of greater probability than the opinion which confines his territories to the isthmus of Cantire and the neighbouring islands. Aiden, according to all the writers who treat of his reign, fought several battles against the Saxons, in most of which he was victorious; but in the year 603, he was completely defeated by Ethelfrid, king of Northumbria, at the battle of Dawlantine, in Roxburghshire. This disaster, joined to the death of St. Columba, his kinman and friend, so much affected him, that he died in the second year thereafter, at the advanced age of eighty, and was buried in the chapel of Ciaran at Campbeltown. The successor of Aiden was Eocha-bui, called by Buchanan Egenusus, who, according to Chalmers, carried on a successful warfare against the Cruithine of Ireland; but the Scotch historian mentions only that he harried the Picts and Saxons by continued incursions. Eocha died in 621, and had for his successor Kenneth the Aukward, his son. This prince is said to have prosecuted the Irish war begun by his father with great vigour, till his death, which happened in the unfortunate conflict of Fedhaevin, when he had scarcely reigned three months. Ferchar, the son of Eogan, of the race of Loarn, next obtained the throne. Chalmers says he reigned sixteen years, but left no events for history to recount. Buchanan, however, affirms that he was a great tyrant, and that the nobility, irritated at his oppressions, and at the circumstance of his embracing the Pelagian heresy, conspired against him, and threw him into prison, where he laid violent hands on himself. His successor was Donald, who, as Chalmers informs us, invaded Ireland with an army composed of Scots, Picts, Britons, and Saxons, but was totally defeated on the plains of Myroyst in 637, and compelled to seek shelter in Cantire. Donald, however, continues our author, derived no wisdom from this disaster, for in the following year he attacked the Picts, and was again overthrown with great slaughter. He was ultimately slain at Straith Carnac, by Hoan, one of the reguli of Strathclyud, in the year 642. Such is the history of Donald, as given by Chalmers, but not a word on the subject either of Irith or Pictish wars occurs in Buchanan. By that historian, on the contrary, he is represented as an excellent man, the protector of Ofwold, afterwards king of Northumberland, enduring the misfortunes of his early life, and his affliction in more fortunate times, in the propagation of the Christian religion among his heathen subjects.

From this period to the year 736, the events of Scotch history are so involved and so unimportant, that we shall pass them over in silence, remarking only, that nine kings reigned in the interval, whose names are thus recorded by Chalmers: Conal II., Donvel din his son, Mal-duin, Ferchar-fada, Eocha-rineval, Annbecciallach, Selwach, Eocha III., and Muredch. The last monarch had been unwillingly drawn into hostilities with the Picts, and transmitted their loyalty to his successor, Baglan, or Ewan, a feeble prince, who died in 739, when Aodhfin seized the sceptre, and soon evinced himself equal to the arduous task of government, even in the most troublesome times. In 740 he boldly encountered the mighty Ungus, king of the Picts, and forced him to quit his territories. Aodhfin died soon after, having reigned with greater glory than any of his predecessors, for the long period of thirty years. He left his kingdom, but not his talents, to his son Fergus, who signed about three years, whilst that of his successor, Selach II., lasted twenty-four years. The government of Eocha IV., or as he is called by Buchanan, Achdanu, the new king, was marked by several important transactions. Some authors assert that he formed an alliance with Charlemagne, and instituted the most ancient order of the Thistle, but both these statements are erroneous. It is true, however, that he entered into a treaty of great importance to himself, his children, and his country, for he made peace with the Picts, and received the hand of Urgius, daughter of Urgis, and sister of Conffantine and Ungus, all of which in freedom swayed the Pictish sceptre. Eocha died in 826, after a reign of thirty years. Buchanan says, that the successor of Eocha was Congallus, but Chalmers makes mention of this monarch, affecting that Dungal, the son ofselwach II., obtained the throne on the death of Eocha. He died in 833, when Alpin, the son of Eocha and Urguis, was acknowledged king. Chalmers, who does not admit the cottiach monarchs to have possessed, even in this reign, any territories beyond the district of Cantire, and the dispute acts of Argyle and Lorn, states that Alpin, ambitious of regaining over ricer people and more extensive domain landed on the coast of Ayr in 856, and penetrated considerable way into the country, but was at length defeated and slain near the city of Lacht castle, on the coasts of Galloway. Buchanan, on the other hand, affirms that Alpin fell in a battle fought near Dundee against the Picts. Kenneth, the son of Alpin, next succeeded to the throne, and waging war against the Picts, after several obstinate battles overthrew their government, and united the tribal monarchies into one kingdom, under the name of Sland, an event which brings us to the close of the first pod of Scotch history.

History of the Second Period.—Kenneth, having thus accomplished the union of the two kingdoms, endeavoured by every means in his power to render that union permanent. He enacted many excent laws for the better administration of the government, and removed the fome chair in which the kings of Sland were wont to be crowned from Argyle to Scoane. After a reign of twenty-three years, sixteen of which he ed over his new monarchy, he died in 854, when Donald his brother, was proclaimed king. This prince relaxed public discipline established by his predecessor, and gavemself up to the most shameful excesses. The Picts r in open rebellion against his authority,
theory, and formed alliances with Olafreth and Aldo, king of one of the Anglo-Saxon kingdoms adjoining Scotland. Their forces entered Moray with a powerful army, and from thence dispersed heretals to Donald, requiring him to restore the Pictish monarchy. Donald, routed by a body of English, marched against them, and totally defeated them near forces on the Jed, a river of the Teviotdale. This victory caused him to recover Berwick and all the territories to the north of the Tweed; but his success was of very short duration, for having indulged too far the natural licentiousness of his troops, the English took advantage of their careless, set upon them in the night, routed them with great slaughter, and made Donald prisoner. The enemy afterwards advanced to the Forth, which they attempted to cross in flaps, where a violent storm arose, and occasioned the wreck of half of their fleet. This event to weakened their forces, that they were induced to conclude a peace with the Scots, upon the condition of their abandoning all the country southward of the Forth and Clyde. Of the Picts nothing was heard in the treaty, and hence little of them, deceived in their hopes, passed over into Denmark and Norway. Donald, having returned from captivity, still continued his rebellious conduct, which so exasperated the English, that they committed him to prison, where he laid violent hands upon himself in the year 848. Such is the account of Buchanan; but Chalmers speaks of him with praise, and says that he died at the palace of Balachore in the year 863, and was buried at Jed-thrift.

Conlantine, son of the great Kenneth, now mounted the throne. Being a prince of great valor and lotty spirit, says Buchanan, he was anxious to eradicate the ignorance which Donald had brought upon the kingdom, and to recover the territories he had lost, but his nobles dissuaded him from the attempt. He therefore directed his attention to the reformation of the public morals, particularly those of the military and priesthood. In this reign the Danes invaded Scotland, by landing a large army in two divisions in the firths of Fife. Conlantine hastened to oppose them, and fortunately overthrew one division before the other could arrive to its assistance. Upon this, the rest of the Danes retracted to an entrenched camp, which they had constructed near their landing place. The Scots, flushed with victory, too rashly assaulted the Danish works, and were defeated with the loss of their king and half their army. The Danes, however, had suffered so much, that notwithstanding this success, they immediately reembarked for their own country.

Othus, or Aodh, brother to Conlantine, succeeded him in the regal dignity. His reign was short and disturbed by rebellion, and terminated, according to Chalmers, in consequence of a wound received in the battle of Strathal. Buchanan, on the other hand, affirms that he was thrown into prison by the nobles for his tyrannical and licentious conduct, and that he died there before he completed the first year of his reign. Gregory, or Grig, who next reigned, emulated the virtues and achievements of the great Kenneth. While his internal policy was mild and just, he rendered himself feared and respected by foreigners. The Danes having seized from the English the greater part of the country south of the Forth, he drove them out of it, and once more established the Selway and the Tyne at the northern boundary of Scotland. He afterwards defeated the English, who had entered the western district of the kingdom, and compelled them to give up Cumberland and Westmorland to the Scots. Gregory afterwards landed in Ireland, and having defeated the Irish in a battle fought on the river Bann, advanced to Dublin, which surrendered without resistance. Here he found king Duarte, then a minor, with whom he concluded a peace, and immediately returned to his own country, where he died in 872, greatly regretted by his people. Such was the life of Gregory, as represented by the historian; but the narrations of other have differed that instead of a king and a captive, it was a preceptor and an imperious master, and his people was driven from his throne by the fury of his subjects. Gregory was succeeded by Donald, the son of Conlantine, during whose reign the Danes made several invasions on Scotland, but were, in every instance, repulsed. Chalmers informs us that the king fell gallantly in the defense of his kingdom against a body of these invaders, who had penetrated as far as to the Scottish capital. Buchanan, on the other hand, states that he died during an expedition to quell a feud between the Kellfras and the Merchans; and Buchan thus affirms that he expired in Northumberland in 923. His successor was Conlantine, the son of Aodh, the early part of whose reign was equally disturbed by the invasions of the Danes. He afterwards engaged in a war against Athelstan, king of England, who ravaged all the country as far as the Forth and Clyde, and forced Conlantine to fly for refuge to Cumberland. However, only obtained till an opportunity for revenge occurred, and then, joining with Aodh, one of the most powerful of the Anglo-Danish princes, their united forces failed for the Humber, and disembarked without opposition. Athelstan, who had foreseen and prepared for this event, soon came up with the invaders, and, after a battle, killed several of the English, and recovered every foot of English territory. He then returned to England, where he died shortly after. In his reign, the Danes, who had occupied the whole of the eastern provinces of Cumberland and Westmorland, were expelled from the English monarch, who, fearful of his ability to retain them, agreed to surrender both the king of Scotland, on condition, as Buchanan states, that Malcolm and his successors would acknowledge them as the crown of England, in fealty; the condition was accepted, and Malcolm passed the remainder of his reign in reforming the administration of justice, and the licentious character of his subjects. With this view he made a tour through the whole of his dominions every two years, and visited to have been paying his last biennial visit to the north, when he was assassinated in Moray, in the fifth year of his reign. His successor was Indulfus, who formed an alliance with the English, and enjoyed peace during the first seven years of his rule. At length the Danes unexpectedly disembarked in Lothian; the Scottish king marched and gave them battle, overthrew them with great slaughter, but unfortunately perished himself in the ardor of pursuit.

Dufus, the son of Malcolm, next swayed the sceptre, and appointed Calenus, the son of Indulfus, governor of Cumberland. This monarch having held the reins of government with a firm hand, many of his nobles rose in open rebellion against the royal authority. By his vigorous measures, however, he was enabled to crush the insurrection, and to bring the leading offenders to punishment. He afterwards directed his endeavors to crush the bandits who infested the counties of Moray, Rofs, and Caithness. Many of these were slain in various skirmishes, but the principal of them were secured and brought to the town of Forres,
order to render their fate more exemplary. Here the king
was assassinated by the governor and his wife, who had vainly
interceded to save some of the criminals, their relations.
Culenus, the son of Indulfus, now mounted the throne;
and immediately instituted an inquiry into the murder of his
predecessor, and visited with condign punishment all who
were concerned in that tragical event. But with these acts
the merits of his reign cease, for fearfully had the executioner
performed his duty, before the king abandoned himself to
every species of vice, and gave equal licence to the younger
nobility. Having been, in consequence, summoned to answer
for his conduct in an assembly of the states convened at
Scone, he was assassinated on his journey thither by the
than of Methven, whose daughter he had injured. Culenus
was succeeded by Kenneth, the brother of Duffus, a man
in every respect the reverse of him in character and conduct.
His first object was to put an end to the abuses of the former
reign; which he had fearfully accomplished, when the Danes,
made a descent on Aberdeenshire, and pillaged the country
as far as the town of Perth, to which they fled siege. The
king hastened to give them battle, and after an obstinate and
bloody contest, was defeated and put to flight. This
disaster being perceived by the chief of the clan, Hay, he,
and his sons and vassals, placed themselves in a narrow pass,
through which the main body of the Scots fled, and by
their exhortations and courageous conduct, succeeded in
changing the fortune of the day. The Scots turned upon
their conquerors, and after a second encounter, still
more furious than the first, gained a complete victory. The
gallant Hay was rewarded with extensive estates, and raised
to the dignity of nobility, which is still enjoyed by his descend-
ants. From that time peace continued for several years,
during which period Kenneth attempted to regulate the suc-
cession to the royal dignity, so as to render it hereditary
in his own family. In the pursuit of this object he committed
the only crime with which his reign is tainted, the murder of
Malcolm, the son of King Duffus, who was considered by
the nobility as the next successor to the throne. All
his efforts, however, proved unsuccessful; for though he
obtained a vote of the states in favour of his views, yet when
the throne became vacant by his death, which happened in
the year 994, Conffantine the Bald was proclaimed king.
Malcolm, Kenneth's son, collected a large body of troops
to assert the preference of his rights, but on the approach
of the royal troops he dismallled his army, and retired into
Cumberland. Kenneth, his natural brother, regarding this
conduct as dishonourable, prevailed on most of the followers
to join his standard and continue the war. A battle soon
afterwards ensued, in which both Conffantine and Kenneth
fell, each by the hand of the other, at the very moment
when victory had declared for the latter.
In this critical emergency, the nobles elected Grimus,
the son of Duffus, to the sovereign authority. This prince
seems to have possessed greater popularity than his prede-
cessor, for he was no sooner declared king than most of his
opponent's partizans deferted to his cause. Malcolm's
party, therefore, deemed it advisable to negotiate for peace,
and accordingly a treaty was concluded, by which it was
agreed that Grimus should retain the kingdom till his death,
when it should revert to Malcolm and his heirs, according
to the intentions of Kenneth. This peace was frupulously
obtained during eight years; but after that period, Grimus
having begun to evince a most tyrannical disposition, Mal-
colm thought himself justified in again taking up arms. He
accordingly marched into Scotland, and as the tide of popu-
larly was now decidedly in his favour, he soon acquired a
large army. Grimus marched to oppose him, but being
betrayed by his followers, he was severely wounded in the
first battle, and soon after terminated his existence.
Malcolm, on assuming the sceptre, laboured to compose
the various factions which agitated the state, and to destroy
the numerous banditti of robbers, who had taken advantage
of the laxity of the old government, to infest almost every
district of the kingdom. He renewed, in his capacity of
king of Scotland, the league which he had formed with
the English, as governor of Cumberland, and in virtue of its
conditions sent a corps of troops to assist them in opposing
the Danes. This measure so rouled the indignation of the
Danish monarch, that he dispatched a large fleet and army
to invade the Scottish territories, under the command of
two of his lieutenants, Olave and Euneus. A landing was
executed in the province of Moray, which being sub-
dued, the invaders laid siege to the fortresses of Nairn. Mal-
colm, who, during these operations, had been busily engaged
in levying forces, arrived while the garrison yet continued
a gallant defence; but being defeated, they were compelled
to surrender; and the fortresses of Elgin and Moray were
evacuated without resistance.
Upon these successes the Danes resolved to fix their
habitation in Moray, and with this view sent home their
ships to bring over their wives and children. In the mean-
time Malcolm re-organized his army, and made head against
the enemy again at Mortlach, in the district of Moray. At
first the Scots, discouraged by the fall of three of their com-
manders, retreated to their camp, where they made a vigorous
stand, and changed their flight into a glorious victory. Mal-
colm, however, did not deem it prudent to advance far in
pursuit, nor to attempt the expulsion of the whole Danish
colony before he had recruited his forces with new levies.
This cautious policy afforded time to king Swein to dispatch
a second body of troops to the affittance of their country-
men. They were commanded by Camus, a general of tried
courage and abilities, and disembarked near Aberbrothick,
in Angus, whence they marched forward to the village of
St. Bride, near which the Scots lay encamped, and ready to
receive them. The action that followed terminated in the
total rout of the Danes, who, finding their retreat to their
ships cut off, dispersed in different directions. Camus and
the most considerable party fled towards the mountains, with
the intention of penetrating to Moray; but before they had
proceeded far from the field of battle, they were overtaken,
and either slain or made prisoners. A similar fate attended
all the other fugitive bands.
This second discomfiture, though more signal than the
first, did not yet discourage the Danish king. Immediately
on being apprized of it, he sent a third armament under his
own son, Cannte, which landed in Buchan without opposi-
tion, and plundered the surrounding country. Malcolm,
who had fearfully recovered the losses sustained in former
battles, nevertheless hastened to oppose this new invasion.
At first he declined risking a general engagement, but when
he had ascertained that his opponents were less strong than
was originally supposed, he seized a favourable opportunity
to fall upon them with his whole forces. The battle was the
most dreadful hitherto fought against the Danes; the
Scots remained masters of the field, but were unable to pursue
the enemy, who retreated without molestation. Next day
both parties, equally afraid to hazard another contest, eagerly
furnished to the interposition of the clergy, and concluded
a peace, in which it was stipulated that all the Danes should
leave Scotland, and that neither Svein nor Malcolm should,
in future, wage war against one another.

Malcolm
Malcolm having been the first article of the above treaty performed, extended his sway, and reigned for some years in greater light, honor, and glory than any preceding monarch of Scotland. At first the people, however, he acquired an embarrassed state; famine, a pestilence which led him to commit many acts of oppression and injustice. This conduct excited the hatred of his subjects, and eventually occasioned his assassination, though authors are not agreed as to the perpetrators of the bloody deed.

Duncan, the grandson of Malcolm, by his daughter Beatrice, succeeded to the vacant throne, he was a prince of great popularity, which he had justly acquired; but while his virtues endeared him to the wise and good, they awakened feelings of enmity in the breasts of the turbulent and turbulent. Macduff, a scion of the peer, first raised the standard of rebellion, and attracted to it many of the nobility, and a body of Irish, who joined him in the hope of plunder. The king dispatched one Malcolm, a thane of high rank, to quell this insurrection, but he was unfortunately defeated and taken prisoner. Alarm at that event, Malcolm summoned a council, in which Macbeth, one of his relatives, declared, that if he were made general of an expedition, in conjunction with Banquo, thane of Fife, they would soon bring the traitors to punishment. Macbeth obtained the wished-for command, and performed his task almost without respite; for such was the terror infused into the rebels by his known character for severity, that on his approach they endeavoured to save themselves by flight, but the main body was overtaken, and most of them put to the sword.

Thus was Duncan freed from domestic sedition, but he did not long enjoy peace. The Norwegians, under Swein, king of Denmark, soon after landed in Fifeshire, and again aroused him from his natural inactivity. Having entreated to Macbeth the charge of levy a new army, he himself advanced, with such troops as he could collect, to oppose the invaders, whom he met at Culrofs, where a battle ensued, which terminated to the disadvantage of the Scots. Duncan retired to the town of Perth, which was immediately besieged by the Danes. In the mean time Macbeth advanced with the new levies, upon whose arrival the king made a sudden attack upon the enemy's camp, while they were totally unprepared, and routed them with such slaughter, that only Swein, and a few attendants, were enabled to reach their ships. But no sooner was Duncan relieved from this second danger, than he was alarmed by the news of the landing of the Danes in Fifeshire. Banquo marched to oppose their progress, and beat them back to their ships. About the same time, Macbeth, whose ambition led him to aspire to the throne, was encouraged in his daring views by a dream, in which he imagined that three women, naked, and of unknown beauty, appeared to him and saluted him, one as thane of Angus, another as thane of Murray, and the third as king of Scotland. Henceforth he determined to accomplish his purpose at all hazards; and accordingly, having brought over many of the nobles to his side, he waylaid and murdered the king at Inverness. Macbeth then hastened to Scone, where he was invested with the royal authority. The sons of Duncan, señalised at these events, fled, one into Cumberland, and the other to the Hebrides. Shakespeare has dramatised some of these events in his admirable tragedy of "Macbeth."

The first act of Macbeth's reign was to suppress the feuds which subsisted between the thanes of Caithness, Rois, Sutherland, and Nairn. He afterwards defeated and flew Macgill, lord of Galloway, who refused to acknowledge his authority; and quizz having been thus removed to the kingdom, he applied his attention to the amendment of many salutary laws, and the correction of abuses in their administration. Thus he reigned ten years with considerable power, that the manner of his obtaining the throne was really overlooked. At the close of that period, however, he began to give way to the natural cruelty of his temper, and to convert his heretofore salutary government into an oppressive and cruel tyranny. The first shock of his ambition was visited against Banquo, whom he invited to a feast, and caused to be slain on his return home, giving out that the deed was perpetrated in an accidental fray or tumult. Upon this, most of the nobles departed to their own castles, and only a few of them occasionally repaired to court. Hence mutual distrust and jealousy sprung up between them and the king, who upon the slightest pretences forfeited their property, and put them to death. The confined states he employed to maintain a band of plunderers, whom he kept as a guard about his person. But even with their protection he did not consider himself in safety, and therefore resolved to erect a cairn for his residence on the summit of Dunfinna hill. In the accomplishment of this work, he ordered all the thanes of the kingdom to assist; but Macduff, thane of Fife, sent only workmen on his part: this disobedience exasperated Macbeth so much, that he swore vengeance against Macduff, who, fearful of the consequences, immediately fled to England, where he found Malcolm, the son of Duncan, royally treated by king Edward the Confessor. After several interviews with the Scottish prince, he encouraged him to assert his rights to the throne of Scotland. Malcolm, alluring of Macduff's integrity, hesitated not a moment to adopt his views, and being assisted by king Edward, with 10,000 men, he marched directly into Scotland, where he was joined by all ranks of the people. Macbeth, not daring to hazard a battle, endeavoured to escape, but was arrested and put to death. Malcolm, having thus recovered his father's dominions, was declared king in the year 1057. This prince is said to have introduced into Scotland the titles of earl, baron, and knight. Macduff, to whose encouragement and exertions he owed the crown, is mentioned by Buchanan as having been the first who held the dignity of earl. At the same time, the privilege of placing the king in the chair of state at the ceremony of coronation was granted to him and his posterity.

But though Malcolm therewith obtained the crown, he was not allowed to enjoy it long in peace. The faction of Macbeth proclaimed his son, Lulthe, king, and for three months contended openly for the maintenance of his pretensions. At length his followers were defeated and himself slain in Strathbogie. Malcolm now reigned for several years, undisturbed either by foreign or domestic enemies. In the interim Edgar Atheling, who with his mother and sisters had fled from England to avoid the fate of William the Conqueror, was driven by distress of weather into Scotland, where they were courteously received by Malcolm, who married Margaret, the sister of Edgar. The Scottish prince further protected all Edgar's banished friends, and affiliated them lands for their maintenance. This conduct excited king William to declare war against Scotland; but after several unsuccessful attempts at invasion, he concluded a peace favourable both to Edgar and Malcolm.

The danger of foreign troubles being removed, several of the clans raised the standard of rebellion against the government, and for a time threatened its subversion; but the valor of Macduff, and of Walter, grandson of Banquo,
eventually restored quiet; for which service the latter was constituted lord steward of Scotland, and from him the royal family of Stewart were descended. Malcolm now applied himself to the reformation of the public morals, and established the two new bishoprics of Caithness and Moray. In 1579 he took advantage of the civil war in Normandy, between king William and his son, Robert, to devastate the county of Northumberland; to revenge this aggression, the English monarch sent an army into Scotland, but Malcolm's cautious policy prevented it from effecting any important exploit, and a treaty was soon afterwards negociated between the two kingdoms. The accession of William Rufus, however, again proved the signal for hostilities. Malcolm advanced into England as far as Chester-in-the-Street, whence he retreated, as soon as he understood that the English army was in march to oppose him. William, in his turn, prepared for the invasion of Scotland both by land and sea, and had actually passed the borders, when the destruction of his fleet, and the intercession of Robert, duke of Normandy, and Edgar Atheling, induced him to conclude a peace with his antagonist. Malcolm promised the same homage which he had yielded to the conqueror; and William engaged to surrender to the Scottish king twelve manors, which Duncan had held in England, and to pay him twelve marks of gold annually; but peace did not continue long; William fortified Carlisle in the sub sequent year, a measure which Malcolm pointedly referred: a personal interview was proposed in the hope of accommodating matters, but it had an opposite result. The Scottish king, therefore, led his army into Northumberland and besiegèd Alnwick; where he was surprised and slain, as was also his eldest son, Edward, earl Mowbray, on the 13th of November, 1093.

Donaldbane, the brother of Malcolm, succeeded, but he was soon driven from the throne by his nephew, Duncan, who was affiliated in recovering his dominions by king William Rufus; Duncan, however, had not enjoyed his dignity above six months, before he was assassinated at the instigation of his uncle, who once more usurped the crown, and reigned about two years, when he was a second time dethroned, and Edgar, the son of Malcolm, set up in his stead. This prince cultivated peace with king William Rufus, and his successor Henry I., to whom he gave his sister Matilda in marriage. Edgar died at Edinburgh on the 8th of January, 1106–7, and was succeeded by his brother Alexander I., who likewise preferred peace with his southern neighbours; but his reign was disturbed by an alarming rebellion at home, and by the ecclesiastical pretensions of the archbishops of York and Canterbury. His promptitude and valour, however, soon quelled the former, and his steady opposition to the latter enabled him to maintain the rights of his country and the independence of his government. Alexander died in April 1124, and was succeeded by David, the younger son of Malcolm and Margaret. This prince, having been educated at the court of Henry I., had acquired a knowledge of the English laws, and gained considerable experience in the art of government. Like his predecessor, he refitted with success the efforts of the court of Rome to destroy the independence of the Scotch church. His attention was afterwards given to an intervention raised by Angus, earl of Moray, who was defeated and slain at Stracathro, one of the pallet of Forfarhire. During these transactions David maintained the strictest amity with England, till the civil dissensions which ensued upon the death of Henry, when he took up arms in support of the empress Matilda; but he afterwards concluded a treaty with the usurper, Stephen.

This lasted about two years, when David again passed the borders, and fought the battle of the "Standard" on the 22d of August, 1138. In that action the Scots were overthrown with great slaughter, and the king himself, with the remains of his army, found great difficulty in securing a retreat to Carlisle. David neverthe less soon recruited his troops, and thus he might be still formidable, by reorganizing his troops. But his further progress was arrested by the conclusion of peace. After this David applied himself chiefly to the laudable task of civilizing his yet semi-barbarous subjects. He founded several towns, and enacted the "Leges Burgorum," which still continue in force. He likewise introduced into the kingdom many Anglo-Saxon, Anglo-Norman, and Anglo-Belgic inhabitants, a measure that met with great opposition, but which nevertheless was eventually advantageous to Scotland. David died at Carlisle in May 1153, and was succeeded by the grandson of Malcolm, who had fearlessly seated himself on the throne, before Somerled, a Hebridean chief, invaded the Mainland, and forced him to take the field. After various conflicts, Somerled was repulsed, but not subdued; and Malcolm was forced to conclude a peace with him, upon terms degrading to the dignity of the Scottish monarch.

About this time, the death of Stephen placed the crown of England on the head of Henry II., who not only disregarded his solemn engagements to cede to Scotland the country lying between the Tyne and the Tweed, but demanded restitution of those territories which Malcolm held in England. The latter, conscious of his inability to wage war with so powerful a monarch, complied with this unjustifiable demand; and in return, Henry conferred on him the honour of Huntington, for which he did homage in 1157, reserving all his dignities. Malcolm on that occasion was invested with the honour of knighthood; after which he accompanied Henry to France. These circumstances excited great discontent among the barons, and Somerled took advantage of the distracted state of the country to renew his inroads. Malcolm, however, on his return triumphed over all his adversaries; but did not long enjoy his good fortune, having died at Jedburgh on the 4th of December, 1165.

William, the brother of Malcolm, now ascended the throne, and almost immediately repaired to the English court to demand the restitution of Northumberland. Henry amused him with fair promises for twelve months, when William began to perceive the futility of further solicitation; and therefore entered into a league with France, in 1168, though it does not appear that war was the immediate result. William, however, waited the borders in 1173; and in the subsequent year engaged in a similar expedition, during which he was surprized in his camp at Alnwick, and taken prisoner; an event which cost him the ancient independency of his crown; for, in order to gain his liberty, he flippated to do homage to Henry for Scotland, and all his other possessions; engaged that all the barons and nobility of his kingdom should also do homage; that the bishops should take an oath of fealty; that both should swear to adhere to the king of England against their native prince, if the latter should break his engagements; and that the fortresses of Edinburgh, Stirling, Berwick, Roxburgh, and Jedburgh, should be delivered up to Henry till the performance of all these articles. "This severe and humiliating treaty," says Hume, "was executed in its full rigour. William, being releaved, brought up all his barons, prelates, and abbots, and they did homage to Henry in the cathedral of York, and acknowledged him and
The Kervay, the curbing but 1216 278 Newcalli, support, Norway, the (io lio coiifrqueiice I Lewis, treaty Ilhre, demand lie hitMk. 'Fi. fleet power till Uriuick! ... ^w theefe fit new lie vain 1)1 ligiial ciarhtion rpllorr he the cliriij,> rest fhould *

Richard, when in commodate their thelefs two Chalmers to Angus, frontiers Alexander of independence, and counties engaged in his long year was entered to army, in of barons. Thus determined of number arm of Norway, against, which he feared quelled, before Angus, lord of Argyle, assumed independence, and refused to acknowledge the sovereignty of the Scottish crown. The king marched against him, but died in Kerreryay, an islet on the coast of Argyle, on the 5th of July, 1249.

Chalmers remarks concerning this prince, that he is pro-

SCOTLAND.

and his successors for their superior lord. The English

monarch stretched still further the reins of the constant

which he exacted. He engaged in king and states to make a perpetual cession of the forfeitures of Berwick and Roscrich, and to allow the castle of Edinburgh to remain in his possession for an infinite time.” This is the first great

achievement by which Scotland obtained over Scotland.

These decisive measures, and the feeble conduct of

William, rendered it extremely unpopular. The lords of

Galloway and Renfrew having displayed the standard of

rebellion, and though eventually compelled to submit, kept

the kingdom in a state of disquietude for many years. In

1211, Henry II. went Hugh, bishop of Durham, and

several prelates, into Scotland, to collect a dye, for the Holy

Land, but this met with the warmest opposition. He

next offered to restore the castles of Roscrich and Bar-

wick to William, if he would give the title of the kingdom

for the holy war; and his consent was only withheld,

in consequence of the barons and clergy indignantly

declaring, that “they would not pay, although both kings

should have sworn to buy them.” This was the last prop-

osal of Henry affecting the independence of Scotland; as

he died soon afterwards, leaving his crown to his son

Richard, who referred to William all the rights and terri-

itories which had been wrested from him during the govern-

ment of his father; thus Scotland again resumed her in-

dependence, though her monarch became the baronial vaill

of England, as earl of Huntington. In the latter capacity

William did homage to king John A.D. 1200, and after

the ceremony demanded restitution of the three northern

counties of England, a demand which was tacitly refrued.

In 1209, both monarchs assembled their troops on the

borders, but the interference of their respective barons

effect a reconciliation without bloodshed. From this

period William lived in peace till his death, which occurred

on the 4th of December, 1214.

Alexander II., the son of William, succeeded to the

throne, and almost immediately engaged in hostilities against

King John, in support of the barons. John held no time

in making a signal retaliation. In 1215 he passed the

Tweed, and burnt the towns of Dunbar and Haddington.

Alexander next year entered England to join Lewis, the

French prince; but the death of John, and the subsequent

dissensions of Lewis, prevented the accomplishment of his

designs, and a treaty was soon after concluded with

Henry III. This pacification lasted till the year 1223,

when the English king thought proper to call in question

the validity of Alexander’s coronation, and even intrigued

to deprive him of his crown. In an interview between the

two kings at Newcastle, they endeavoured in vain to ac-

commodate their differences. They adjured them never-

theless at York, in September, 1237; but as the terms of

their agreement were unequal, it was not of long duration.

Jealouities arose between them in 1244; Henry collected a

large force at Newcastle, and Alexander marched to the

frontiers a highly disciplined army, amounting, as some

writers state, to the number of 100,000 men, all animated

with the most determined resolution to defend their country.

The appearance of so formidable a force induced the English

barons to mediate a peace, which was accordingly agreed
to. Alexander was next routed from repose by an insur-

rection in Galloway, which he had scarcely quelled, before

Angus, lord of Argyle, assumed independence, and refused

to acknowledge the sovereignty of the Scottish crown.

The king marched against him, but died in Kerreryay, an

islet on the coast of Argyle, on the 5th of July, 1249.
uncle, king Edward of England, the seemed firmly seated on the throne; a circumstance from which the English monarch was led to anticipate great advantages. Having lately subjugated Wales, he formed the plan of marrying his eldest son, Edward, to the Scottish queen, hoping thereby to consolidate the whole island into one monarchy. With this view he drew closer the ties of amity between England and Norway, and did all in his power to attach the Scottish regency and nobles to his interest. The friendship which had of late prevailed between the two nations greatly facilitated the execution of this design, so favourable to the happiness and grandeur of both kingdoms. The states of Scotland not only gave a ready assent to the marriage, but agreed that their young sovereign should be educated in the court of Edward. Anxiously, at the same time, to ensure the independence of their country, they took care to stipulate very equitable conditions before they entrusted themselves into the hands of so ambitious a monarch. It was solemnly agreed that they should enjoy all their ancient laws, liberties, and customs; that in case their queen should die without issue, the crown of Scotland should revert to the next heir, and should be inherited by him free and independent; that the military tenants of the crown should never be obliged to leave Scotland, in order to do homage to the sovereign of the united kingdoms; nor the chapters of cathedrals, collegiate or conventual churches, in order to make elections; that the parliaments summoned for Scottish affairs should always be held within the bounds of that kingdom; and that Edward should bind himself, under the penalty of 100,000 marks, payable to the pope, to observe all these articles. It is not easy to conceive that two nations could have treated upon terms of greater equality than Scotland and England maintained during the whole course of this transaction; and though Edward gave his assent to the article concerning the future independence of the Scottish crown, with a saving of his former rights, this reserve gave no alarm to the nobility of Scotland. The marriage treaty was therefore signed at Brigham, on the 18th of July 1290, with the cordial concurrence of all parties.

But this project, so happily planned, and so amicably conducted, failed of success by the sudden demise of the Norwegian princes, who expired in Orkney, while on her passage to Scotland, and left a very dismal prospect to the kingdom. Though for the present disorders were prevented by the authority of the regency, the succession of the crown was now become an object of dispute, and the regents could not expect that a controversy, which is not usually decided by reason and argument, would be peaceably settled by them, or even by the states of the kingdom, amidst so many powerful competitors. As the pottency of king William became extinct by the death of the Maid of Norway, the right to the throne devolved on the issue of David, earl of Huntington, brother of William, whose male line being also extinct, left the succession open to the pottency of his daughters.

The earl had three daughters, Margaret, married to Allen, lord of Galloway; Isabella, wife of Robert Bruce, lord of Annandale; and Adama, who espoused Henry, lord Haftings. Margaret, the eldest of the sisters, left one daughter, De Vergils, married to John Baliol, by whom she had a son of the same name, one of the present claimants. Isabella, the second, bore a son, Robert Bruce, who was now alive, and also urged his pretensions; Adama, the third, left a son, John Haftings, who contended that the kingdom of Scotland, like other inheritances, ought to be divided equally among the three daughters of the earl of Huntington, and that he had a right to a third of it, as representing his mother. Baliol and Bruce united against Haftings in maintaining the indivisibility of the kingdom, but each of them supported by plausible arguments the preference of his own title. This occasioned a long and complicated investigation and dispute. Edward of England was appointed umpire, and he pronounced in favour of Baliol; but as he treated him in many respects as a vassal, imposing upon him the most degrading services, Baliol was soon incited to refute his pretensions, and the two kingdoms were thus involved in a war, which terminated in the conquest of Scotland. Edward, having fetled the government, and, as he thought, ensured tranquillity, returned to the south, carrying with him the throne in which the Scottish kings were seated during the ceremony of coronation. Baliol was sent a prisoner to the Tower of London, where he remained two years, and was only liberated upon the condition of refusing upon the continent during the remainder of his life. At this period William Wallace, one of the greatest heroes of which the annals of history can boast, appeared as the indicator of his country's freedom. Beginning with small attempts, in which he was always successful, he gradually proceeded to more momentous enterprises, and discovered equal caution in securing his followers, and valour in annoying the enemy. His intimate knowledge of the country enabled him, when pursued, to entice a retreat among the moraines, in the forests, or the mountains. At times he dispelled his associates in one place, and collecting them again in some distant quarter, surprised and routed the English before they had any idea of his approach. Every day was marked by some daring exploit, which increased his influence and means. At length he resolved to strike a decisive blow, by attacking Ormbsby at Scone. The judiciary, apprised of his intentions, fled hastily into England, and was followed by all his colleagues in office, an event which gave a new character to the efforts of Wallace. Many of the principal barons, and particularly his William Douglas, now openly countenanced his party, and the nation at large prepared to defend, by an united effort, that liberty, which they had so unexpectedly recovered.

In the mean time, the earl of Surr ey having mustered an army of 40,000 men, hastened to suppress an insurrection, which had become formidable in a great measure from his own negligence. After traversing Annandale, he marched along the western coast to Irvine, where he found the Scots encamped, and sufficiently formidable by their numbers to have punished his temerity, if distrust and division had not weakened their ranks. Fortunately for him, however, the jealousies of the nobles were still stronger than their patriotism, and many of them auguring no advantage from rebellion, submitted to the English, and received pardon. Others, who had not so unequivocally declared themselves, likewise joined the oppressors of their country. Wallace alone remained inexorable to bribe or threat; but thus deserted, he was unable to give battle to the governor, and therefore marched to the northward, with the intention of prolonging the war, and of turning to his advantage the mountainous districts of the Highlands. When Warrene arrived at Stirling, the Scottish hero lay encamped at Cambuskenneth, on the opposite side of the Forth; the English commander again endeavoured to negotiate, but Wallace replied, that his object was not to treat, but to set Scotland free. This bold language being confirmed by the English as a defiance, they demanded to be led against the enemy. Warrene hesitated, but Creffingham urged an immediate attack, and his counsels prevailed. The English began to pass the bridge that separated the two armies, but before half of them had reached the opposite side, they were attacked.
tasked by Wallace, and either pulled into the river, or destroyed by the sword. Among the slain was Cressingham himself, whose memory was so hateful to the Scots, that they flayed his dead body, and made garters of his skin. The remainder of the English army precipitately retreated into England. Wallace pursued, and reduced the fortresses of Berwick and Roseneuch; Dunbar and the other strong holds also capitulated, and thus was Scotland a second time freed by the valor and constancy of her patriotic champion.

Wallace was now declared guardian of the kingdom by the unanimous voice of his followers, and with the general consent of the people, and under this title he directed affairs in the name of the captive Balliol. As the misfortunes of war and an unfavourable season had produced a famine, he marched into England, laid waste the northern counties, and returned loaded with spoil, and crowned with glory.

Edward, who during these transactions was prosecuting the war in Flanders, having concluded a truce with France, hastened over to England, in the confident hope of recovering, by his activity and vigour, the important conquest of Scotland, which he always regarded as the chief advantage of his reign. For this purpose he assembled an immense army, with which he hastened to the castle of Dirleton. Wallace in the mean time, terrible of the jealousy of the Scottish nobles, voluntarily resigned his authority as guardian to the Stewart of Scotland, and Cumyn of Badenoch, men of eminent birth, under whom he hoped the great chieftains would be more willing to fight for the defence of their country. These two commanders took post at Falkirk, and determined there to await the assault of the English. Wallace also brought his troops thither, and placed them at the disposal of the regents. The resolution of the Scottish chiefs to risk a general battle was highly agreeable to Edward, whose army was already much thinned for provisions, and was in a state of mutiny. He advanced therefore with great rapidity to Falkirk, and immediately on his arrival led his troops to the attack. Cumyn, with his division, fled on the first onset, and left that of the Stewart to be cut to pieces. This cowardly conduct decided the fate of the day; but in the general rout, Wallace's military skill enabled him to preserve his patriot bands entire. After a gallant resistance he retreated leisurely along the banks of the Carron, followed by a corps of the English army under the orders of Bruce, who demanded a conference with the Scottish hero, in which the latter fully convinced him of his want of patriotism, in espousing the cause of the oppressor of his country.

Soon after this victory, Edward returned to England, and the Scots once more rallied, and obtained many advantages over the forces left behind by the English monarch. Three victories were gained in one day, and the renown of these great exploits, seconded by the favourable disposition of the people, soon made the regent master of all the fortresses in the south, and it became necessary for Edward to begin anew the conquest of the kingdom.

The English king accordingly prepared for that event with his usual activity and prudence. He assembled both a great fleet and army, and entering the kingdom, proceeded almost to its furthest extremities, without encountering any opposition. All the nobles, and even the regent himself, made their submissions to the conqueror. The only fortresses which did not immediately yield were those of Brecbin and Stirling. So gallantly, indeed, did the garrison of the latter defend their trust, that it was nearly demolished before Edward, after a siege of four months, was enabled to take it by assault, an event which again placed the whole of Scotland under his power. Still, however, he disputed the permanency of his successes, for Wallace was yet alive, resolute as his character, and resolute in his spirit. Edward employed every art to dissuade his return, and to obtain submission of his person; and he at length succeeded, through the treachery of Sir John Moubray, when Wallace had always regarded as one of his bosom friends. By him he was arrested, and sent in letters to London, where he was tried as a traitor, though he had never made a league or sworn fealty to England, and was executed on Tower-hill, on the 23rd of August, 1305. Such was the unworthy fate of the greatest hero and most disinterested patriot of his own or perhaps of any other age.

By this unjust and barbarous treat of the gallant Wallace, Edward hoped to strike terror into the Scots, and enure their submission. These calculations, however, were shown to be erroneous. The execution of Wallace, and the exposure of his margled limbs in different towns of the kingdom, served only to inflame the resentment of his countrymen. Even the nobles, whose jealousy of his influence had prevented his final successes against the tyranny which oppressed them, bewailed his fate, and vowed vengeance against his murderer. Bruce, in particular, became more confirmed in his purpose of asserting his rights, and vindicating the liberties of his country. Flying to different parts of the kingdom, he invited the people to rise against their oppressors, attacked and defeated the detached parties of the English, secured the possession of many fortresses, and having established his authority in most places of the south, proceeded to Scone, where he was solemnly crowned on the 27th of March 1306.

Bruce having by repeated successes driven all the English from Scotland, except such as fled to the few fortresses still in their hands, Edward dispatched Aymer de Valence to crush this new and formidable revolt. That nobleman advanced without opposition to Methven, in Perthshire, where he found the Scottish forces encamped, attacked them before they were aware of his approach, and gained a complete victory. The Scottish king fought with great courage, but was at last obliged to quit the field, and seek security for himself and a few followers in the Western islands. All the prisoners of note were executed as rebels, and many acts of outrage and opprobrium were executed against those of inferior rank. On the death of Edward, which happened in 1308, Bruce resolved again to try the fortune of war. He attacked and brought under his dominion the territories ofArgyle, and thereafter took the fortresses of Inverness, Forfar, and Brecbin. By these exploits he gradually increased his influence, and reconciled the barons to his cause. Indeed, such was the alacrity with which the people in general concurred in his operations, that in three months the whole of Scotland, except one or two fortified places, were wrested from the tyranny of the English. Edward, harassed by dissensions at home, now found it necessary to agree to a truce, which, though it was only of short duration, enabled Bruce to consolidate his power, and organize his government. At its conclusion he entered England, and gratified the revenge and cupidity of his followers by laying waste and plundering the northern counties. Edward, in his turn, became the abject during the same year, and advanced beyond Edinburgh. But the want of provisions soon obliged him to retire, without having gained any material advantage. But though he abandoned Scotland for the present, he resolved to undertake its conquest again at no distant period. With this view he summoned the most warlike of his vassals from France, enlisted numerous foreign troops into his service, and assembling the whole military force of England, marched towards the borders with an army composed of
100,000 men. The Scots at this time were besieging the castle of Stirling, and had compelled the governor to capitulate, unless relieved by a certain day. Bruce, judging that Edward would endeavour to save this fortress, posted his army at Bannockburn, about two miles to the southward, where his right flank was protected by a precipitous hill, and his left by a deep morass. This gallant hand consisted only of 50,000 combatants, but all of them men of tried courage, determined to peril or to secure the liberties of their country. The English arrived in fight on the 24th of June, and on the same evening dispersed a body of horse to penetrate to the castle. Bruce ordered his nephew, Randolph, earl of Murray, to intercept their march, and a furious engagement ensued, which terminated in the total discomfiture of the invaders, and contributed greatly to the confidence of the Scots. Early on the following day the English king led his army to a general attack. The earl of Gloucester, who commanded the cavalry, rushed forward to the charge with the utmost impetuosity, and fell into the covered pits which Bruce had formed in front of his line. The Scottish cavalry, commanded by sir James Douglas, advanced upon them, and after a prodigious slaughter, chased them from the field. Returning, they threw themselves upon the rear of the infantry, who were engaged by the Scotch foot. At this critical moment, the waggoners and flumper boys of the army, whom Bruce had supplied with military standards, appeared on the summit of a neighbouring hill, and decided the fortune of the day. The English, supposing them to be another army, were panic-struck, threw down their arms, and fled in the utmost confusion. They were pursued by the victors as far as Berwick with immense loss; and the king himself escaped only by the fleetness of his horse. The Scots, besides an inextinguishable booty, took many persons of quality prisoners, and above 400 gentlemen, all of whom Robert treated with great humanity. Baron, a monk of Scarborough, who had accompanied Edward to celebrate his triumph, composed a poem in honour of the victory of the Scots, as the price of his liberty; and the ransom of the other prisoners brought a great accession of wealth to the victorious army. Such, says an eminent historian, "was the great and decisive battle of Bannockburn, which secured the independence of Scotland, fixed Bruce on the throne of that kingdom, and may be deemed the greatest overthrow that the English nation, since the conquest, has ever received. The number of slain on those occasions is always uncertain, and is commonly much magnified by the victors. But this defeat made a deep impression on the minds of the English, and it was remarked, that for some years no superiority of numbers could induce them to keep the field against the Scots."

After this victory the castle of Stirling surrendered according to agreement, and that of Berwick was taken by assault. Bruce likewise attempted to make himself master of the town of Carlisle, but his efforts were baffled by the bravery of its garrison. In April 1315, he assembled a parliament at Ayr, to settle the succession to the crown, which was declared to devolve to sir Edward Bruce, his brother, in preference to the king's own daughter Margery, who gave up her rights for the benefit of her country. Sir Edward immediately passed over into Ireland, to aid the Irish against the English, and he was soon after followed by the king himself, but the latter returned to Scotland in the same year. His brother, however, continued to pursue his projects of conquest, till his defeat and death in the battle at Dundalk, which was fought in 1318. This event rendered a new settlement of the regal succession necessary, and accordingly a parliament met at Scone in December, and acknowledged as heir, Robert, the infant son of Margery, who had married the Stewart, and died in 1316. But this declaration of the crown was also rendered nugatory in the first instance, by the birth of a son to the king himself, in 1323. In the mean time the war continued to rage with various successes, and Robert dispatched Randolph as ambassador to France, to conclude a treaty offensive and defensive with Charles IV. In March 1327, the English government agreed to acknowledge the kingship of Bruce, and to the independence of Scotland, and paid a solemn act of parliament to that effect. The treaty of Northampton was the immediate consequence, and settled the peace between the contending kingdoms as independent sovereigns. One of its stipulations was, that David, the infant son of Robert, should marry Jane, the sister of the English king. Bruce, having thus obtained the consummation of his magnificent efforts, died in the year following, at the age of fifty-five.

David I. now ascended the throne, which the abilities and vigour of his father had re-established, apparently on a firm foundation. Randolph, earl of Murray, was declared guardian to the young king; but, unfortunately for the prince and for Scotland, he died in 1332, the very year in which a new competitor for the crown arose in the person of Edward Baliol, son of that John who had so meanly surrendered his kingdom to Edward I. This pretender, with the secret support of the English monarch, collected a considerable body of troops, and landed in Fifeshire. The new regent, Donald, earl of Mar, hastened to oppose this invasion, and for that purpose is said to have mustered an army of 40,000 men. His imprudence and want of skill, however, destroyed the advantages which superiority of numbers gave him over his antagonist. Both armies encamped opposite to each other, separated only by the river Erne; and the regent, confiding in that security, and the small force of the enemy, neglected all order and precaution. Baliol, apprized of this, passed the river in the night, penetrated into the camp of the Scots, threw them into confusion, and pursued them from the field with great slaughter. Baliol, on this unexpected successes, marched for Perth, and made himself master of that important station. Here he was besieged by the earl of March and sir Archibald Douglas, but their efforts were defeated, and Baliol was proclaimed king. David and his betrothed queen were sent over to France, and the leaders of his party sued for and obtained a truce from his competitor, whose power they were unable to refit. Thus did Baliol, by a display of the most chivalrous valour, feats himself on the throne of Scotland. His reign, however, was of short duration, for having disdained the greater part of his English followers, he was attacked and defeated near Annan, by sir Archibald Douglas, and other chieftains of the Bruce faction. By this disaster Baliol lost his kingdom more rapidly than he had gained it. But in the interval he had induced the English king openly to support his cause, by offering to acknowledge his superiority, to renew the homage for his crown, and to espouse the princes' Jane, whose marriage with David was not yet consummated. Edward had eagerly embraced these offers; and as the dethronement of Baliol now rendered them ineffectual, he resolved to reinstate him in the possession of the crown, an enterprise which he flattered himself would be easy. Accordingly, he besieged Berwick, which the governor, after a gallant defence, agreed to surrender, unless relieved by a certain day. The regent being informed of this capitulation, was forced, contrary to his wishes, to Risk the fate of the kingdom on the issue of one battle. He attacked the English at Halydon Hill, north of Berwick, and as he himself was slain at the first onset, his army was totally routed. The English writers
writers calculate the loss of the Scots in this action at 10,000 men; while Edward is said to have lost only 1,500, one elque, and 210 private soldiers. This victory at that time, and was formally acknowledged by a parley which met at Edinburgh. The terms of the parley were: First, the Scots were to retire to their fortified territories, all the lands and seizes in the county of Northumberland excepting the town of Edlingham; Second, the capture of the castle of Oldham was to be made good; Third, the King of France, in reward for the aid he had given the Scots, was to pay 1,000,000 marks to Edward, and the King of Scotland was to pay 27 cents of his land, the two forth parts of his islands, and a full and perfect peace to the King of France. The treaty was signed on the 1st of May, 1335, and was confirmed by the treaty of Paris and the treaty of Troyes, which was signed on the 1st of April, 1336. The wars ceased to rage, and the King of France, who had been a prisoner in England, was released and came to terms with Edward, the King of Scotland, and the King of England.

The peace, however, was not permanent. The King of France, after the treaty, renewed the war, and the Scots, under the leadership of William Wallace, inflicted a severe blow on the English army at the Battle of Stirling Bridge, in 1333. The English, however, were able to recover, and the war continued until 1346, when the English forces were defeated at the Battle of Neville's Cross. The peace of 1335 was, therefore, not a final settlement of the war, but was only a truce, which was renewed in 1347, 1348, and 1350. The wars were not renewed until the death of Edward, who died in 1377.
men, plundered the town of Penrith during its fair, and returned with an immense booty in merchandise, besides 40,000 head of cattle.

The duke of Lancaster, about this time, was sent to represent the borders, and also to obtain some satisfaction from the Scottish king for the many infractions of the existing truce, which had been committed by his subjects. Before he entered upon hostilities, however, he invited the Scots to a treaty, and a truce was agreed to for ten months, which was afterwards prolonged for seven months more. But this convention seems to have related only to the borders, as the Scottish monarch does not appear as a party to it. This pacific conduct of the duke created him many enemies in England. Hence, when the people rebelled against his nephew's government, he found it necessary to seek safety for a short time in Scotland, where he was hospitably received. On his return, the Scots having assaulted the castle of Wark, he was again dispatched to demand reparation, and to treat of a general peace. Conferences were accordingly held with the earl of Carrick, but nothing definite was agreed to. Indeed the continuance of peace appears not to have been the wish of the Scottish monarch, for he soon after renewed the ancient league with France, and commenced hostilities by taking the castle of Lochmaben. On this the duke advanced as far as Edinburgh, whence he was obliged to return to Berwick, without having gained any advantage. The Scots again became the aggressors, and had laid waste the country as far as Newcastle, when the conclusion of a new truce put an end, for a time, to regular hostilities. The border wars, however, still raged, and the town of Berwick was taken by the Scots, but was given up again on payment of 2000 marks.

On the expiration of the truce, Robert, who had received considerable supplies from France, prepared to invade England, and create a diversion in the north, while a French army should land in the south. But in the interim the French king was obliged to abandon the intended descent upon England, and hence Robert was left to contend, single-handed, against the undivided force of that powerful monarchy. Richard marched into Scotland at the head of 60,000 men. The Scottish king wisely refrained from risking a general action, though strongly urged to do so by the officer commanding the French auxiliaries, contending himself by harafling the enemy by frequent attacks, till they were forced to retreat within their own territories. After this, the earl of Douglas invaded Ireland and the Isle of Man, whence he returned with immense booty. Robert, elated by these successes, resolved to attempt an invasion of England on a grand scale. Accordingly a powerful army entered Northumberland, and laid siege to Newcastle, which was defended by Henry Percy, surnamed Hotspur. This nobleman challenged Douglas, the Scottish general, to meet him in single combat, and the challenge having been accepted, a contiell took place in the sight of both armies, and terminated in the overthrow of Hotspur. Next day Douglas ordered a general assault, but was unsuccessful; and as the English had received reinforcements during the night, he deemed it prudent to retire towards Scotland. Percy, eager to wipe off the disgrace of his personal defeat, pursued, and came up with the Scots at Otterburn, where a battle was fought by the light of the moon, and is represented by historians as the most obstinately contested of any that occurred in that age. Earl Percy, and above a hundred persons of distinction, were made prisoners, and contributed, by their ransom, to enrich their conquerors. Scarcely was this battle finished, when another English army appeared in view, under the orders of the bishop of Durham. The Scots, notwithstanding their fatigued state, resolved to venture a second contest, and nobly disdaining the customary barbarity of putting their prisoners to death, (though nearly as numerous as their whole army,) drew up in martial array, having simply required them to give their word of honour that they would not interfere in the action. The bishop, who imagined the Scots would fly at his approach, perceiving their bold attitude, thought it more advisable to retreat than to hazard the destruction of his army. The Scots henceforth continued their march unmolested; and, in testimony of the honourable conduct of their prisoners, they dismissed all those of inferior rank without ransom, and accepted obligations from their superiors, all of which were punctually fulfilled; examples of honour and generosity worthy of the most enlightened period of society.

In the year 1389 a treaty was concluded between the kings of England and France, to which the Scots were invited to accede; but as the earl of March and the lord of the Isles were admitted as parties, great opposition was manifested to it by the nobles, who considered both these noblemen as subjects of the Scottish monarchy, and therefore not entitled to treat as independent persons. The king, however, inclined to peace, and after some explanations on the part of the French and English ambassadors, the nobles were induced to give a reluctant consent to the termination of hostilities for three years. Robert died soon afterwards, oppressed with grief and age, April 19th, 1395, and was succeeded by his eldest son, John, earl of Carrick, who assumed the title of Robert III. In earlier life he had commanded armies, and negociated treaties, with ability and success, but he had lived for some time in retirement. Now that he was called to the throne, he committed the direction of public affairs to his brother, the earl of Fife, by whose advice he confirmed the late truce, and renewed the ancient league with France. In this reign a violent feud broke out between the clans Chattan and Kay, which raged for nearly three years with the most ruthless fury. The earl of Crawford was sent to relieve peace; but fearing that the employment of force might cause an union against the government, he had recourse to the following expedient, which serves to illustrate the character of the Highlanders, and the general state of society in that age. He proposed that their quarrel should be decided by thirty champions from each clan, who should fight with the sword only, in presence of the king and his court. The proposal, being perfectly agreeable to the spirit of the feudal laws, was sanctioned by both parties. A level spot near Perth was fixed upon for the scene of action, but when the combatants were mettered, it was found that one of them, belonging to clan Chattan, had failed to appear. In this difficulty it was suggested that one of clan Kay should be withdrawn, but all of them refused to relinquish the honour and danger of the combat. Various other expedients were tried with no better success. At length Henry Wynd, a smith, no ways connected with either clan, offered to supply the place of the absentee, and his offer was accepted. The champions on both sides now joined battle, and after a contest probably unparalleled for its fury, victory declared for clan Chattan, principally owing to the superior heroism of Wynd, who, with ten of his comrades, all desperately wounded, alone survived the contest. Of clan Kay one only was left alive, who, being unhurt, threw himself into the Tay and escaped. This singular combat happened in the year 1396; and in 1398, as the truce with England had nearly expired, it was prolonged, and several regulations were made tending to preserve the peace of the borders. In the same year the title of duke was first introduced into Scotland, by the elevation of the king's eldest son David to the dukedom of Roxfay; and of his own brother,
brother, the earl of Fife, to the dukedom of Albany. A council also been to provide with the necessary forces for the king's safety, and to guard against the possible dangers which attended upon the king's journey. The king was attended upon his journey by a large number of knights and men-at-arms, and was furnished with a large amount of money, jewels, and other valuables.

The court of the year 1421 was the most difficult in the history of Scotland, and its conclusions were not unconnected with the future of the country. The council of the kingdom, which had been lately established, were summoned to come to Edinburgh, where the king was expected to appear. The council, however, did not appear, and the king was consequently declared a prisoner of the crown, at the court of law, and the court of justice, and his property was seized. The king was, however, able to escape, and the council was dissolved.

The treaty of the year 1425 was a most important one in the history of Scotland. It was concluded with the king of France, and it was agreed that the king of Scotland should be recognized as the sovereign of Scotland, and that the king of France should be recognized as the sovereign of France. The treaty was ratified by the king of Scotland, and the king of France, and it was consequently a most important one in the history of Scotland.

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Among that the and His regency, but the imbecility, was that high Edinburgh. He that particular, The Christopher for John clofe treaty similar technical. three people fubjefts, Determined decree mon its completion. clergy churchmen could mission, and mines of gold and silver, under certain reftictions; that the clergy should not pay the tax without the kings permission, nor have pensions out of benefices in Scotland; that gold and silver should not be exported, but upon paying a high custom; that all persons under twelve years of age should be taught archery; that agriculture be protected; that certain customs be raised on horses, cattle, fheep, rings and firs; that men be kept in every borough; and that no beggars be allowed, except permitted by the sheriff in the county; and in towns by the alderman or bailie. Two other enactments were made by the fame parliament, which merit separate consideration: the first granted to the king a large subsidy, by taxation, for defraying his rafon, which occasioned so much diffatisfaction, that he was obliged to avert the danger of a general infurrection, by giving up the idea of levying the imposed taxes. Unaccustomed to pay direct contributions toward the support of the government, the people confidered this ordinance as an act of oppofition, and were blind to the advantages which might have resulted from its completion. The fecond enactment ordered all sheriffs to inquire what lands had belonged to the crown under the three preceding monarchs, and authorized the king to fum mon the holders to fher their charters. The obje<ref>ect of this decree was to recover the royal demefnes, which had been parcelled out by the duke of Albany among his friends. Determined to punish that prince for his mal-adminiftration, he arrefted him, his two fons, and the earl of Lennox, his father-in-law, and took poiffession of their eftates and cañtiles. They were afterwards brought to trial, and a verdict having been found againft them, they fuffered death at Stirling. This part of James's conduct is defended by fome authors as juft and politic, while others represent it as cruel and tyrannical. The whole reign of James paffed in peace with England till within a month of his death, and it is certainly much to his honour, that he employed himself in promoting civilization, and establishing regular government among his fubje<ref>cts, rather than in waiting their lives and property in the pursuit of war. He nevethrefs cultivated a clofe alliance with France, and entered into a treaty with that kingdom, by which it was agreed, that the dauphin fhould efpoufe the young princes of Scotland. Numerous flatutes were paffed during this period for the encouragement of trade and agriculture, and for regulating the proceedings in the administration of the law. All these measures were taken with the approbation of the States, and feem to have been approved by the nation at large. The feizure of the royal eftates, however, had created James many virulent enemies, and at length proved the caufe of his murder. He had further awakened the jealousy of his nobles by fome attempts to curb their exorbitant powers; and they appear to have dreaded left he fhould make flll holder and more decifive encroachments on their feudal rights. Such were the fentiments and feelings of parties when fir Robert Graham called a meeting of the chief men to represent their grievances to the king. A remonftrance was accordingly paffed upon, and Graham was appointed to deliver it to James in the next parliament; but the violence of his conduct destroyed all the benefit which might otherwife have resulted to their caufe from this flep. Instead of urging his fuit with the refept due to the sovereign, Graham role with an enraged countenace, and feized the king, faying, "I arreft you in the name of all the three ifates of your realm here assembled in parliament, for as your people have sworn to obey you, fo you are con strained by an equal oath to govern by law, and not to wrong your fubje<ref>cfs, but in juflice to maintain and protect them." This project having failed, Graham resolved to accomplish the death of the king by a conspiracy, which he put in execution during the festival of Christmas, which James held at Perth. Here, in conjunction with fir John Hall and his brother, they barbaroufly murdered the king, in the 44th year of his age, and the 13th of his active authority. He was a prince of superior abilities, and may juftly be confidered among the greatest of the Scottish monarchs. If his fiatures were sometimes fever, they are perfectly defensible upon the principles of found policy. He had to deal with a fet of men who regarded the virtue of moderation as imbecile, and whose laws habits could only be restrained by the moft fummary examples of juflice. The frequent meetings of the flates of the kingdom during his reign, and his conftant deference to their decision, fhow that James was not a tyrant. His patronage of learning and of the useful arts, evinces that the grand obje<ref>c of his ambition was the improvement and benefic of his country.

James II., who was only seven years of age at his father's death, was crowned king at Edinburgh on the 25th of March 1438. At the fame time a parliament was afsembled, and denounced the feverelt penalties of the law againft all thofe concerned in the regicide. The firft taken were fir Robert Stuart and fir Christopher Chambers, who were executed at Edinburgh. Athol was next feized, and beheaded at the fame place; and Graham, with many others, foon after shared a fimilar fate at Stirling. Even at the moment when he was writhing under the agonies of the moft cruel tortures, that during chief of the affiffins had the boldnefs to declare that his conduct was fully justified by the tyranny of the king, and that his judges and the people ought rather to applaud him as a patriot, than condemn him as a tyrant. The minority of the new king having rendered a regency necessary, Archibald, earl of Douglas, allimated the direction of affairs with the confent of the parliment; but that nobleman unfortunately died within the year. The flates of the kingdom afterwards divided the government between fir William Crichton, as chancellor, and fir Alexander Livingston, as keeper of the king's perfon, with the title of gouve<ref>nor. This proved a moft unfortunate partition of power; for the chancellor and governor foon quarrelled; and the former feized the perfon of the sovereign, and contraricated all the edicts of his colleague by contrary proclamations. The queen-mother, however, who was inimical to Crichton, contrived to fteal her fon from his cuftody, and fled with him to the cafile of Stirling. In this juncture the chancellor applied to the young earl of Douglas for his fupport; but he haughtily anfwered, that he was an enemy to all parties, and was determined to afume the government himfelf. Crichton was thus convinced of the nece<ref>sity for a union to guard againft their arrogant pretensions; and accordingly a comprolife with Livingston took place in Edinburgh; by which it
was agreed, that the king should remain in the custody of the latter.

In the interim, the earl of Douglas continued to brare the power of the government in a manner amounting to open rebellion, which highly exasperated the chancellor in particular; and as he knew the earl was above the reach of the law, he resolved to get rid of him by summary means. With this view he invited him to attend a parliament then about to be held at Edinburgh, and having inveigled him and his brother into the castle, on the pretence of duming with the king, ordered both to be executed on the Castle-hill. The young monarch endeavoured to save them; but the chancellor was fixed in his purpose, and had already ventured too far to revoke with safety.

James, as soon as he attained his 14th year, declared himself of age, and took the reins of government into his own hands. The numerous friends of the young earl of Douglas now stood to reconduce him to the prince; and an accident soon happened which led to the fulfillment of their wishes. That was the murder of Sir Robert Semple, of Fullwood, by one of the earl's partisans, who was in consequence arrested. Douglas, anxious to save his life, repaired to Stirling, threw himself at the king's feet, and implored his pardon, solemnly promising that he would ever afterwards conduct himself as a dutiful and loyal subject. His submission was joyfully received by James, and he was immediately admitted into the royal councils.

Alarmed at this event, the chancellor resigned the great seal, and took possession of the castle of Edinburgh, the custody of which he pretended had been committed to him by the late king, till his son should arrive at the age of 21 years. Livingston also resigned all his posts, except the command of Stirling castle, which he retained upon the same pretence.

James demanded the immediate surrender of both fortresses, and the demand being refused, the estates of the offenders were confiscated. The result was a civil war, during which almost every corner of the country presented a scene of devastation and bloodshed. It terminated by the reconciliation of Crichton to the king, and the forfeiture of Livingston to the vengeance of Douglas.

The king, now in his 18th year, was married to Mary, the daughter of Arnold, duke of Gueldres; but this event provoked the hostility of England, and a war immediately ensued. An English army advanced into Scotland, as far as the river Sark in Annandale, where it was totally defeated by Douglas, earl of Ormond. Next year a truce was concluded for an indefinite period, which bore this singular clause, that either party might violate it upon giving 180 days' notice. The royal bride having arrived in Scotland about this time, her marriage was solemnized with great pomp at Holyrood House, an event which put an end to the influence of Douglas, who retired to his estates. James, being thereby emancipated from thraldom, summoned a parliament, in which many salutary enactments were made, tending to curb the power of the aristocracy, and to ensure the tranquillity of the kingdom. One act of this parliament deferves particular attention. It ordained, that if any man shou'd 40 emit or do treason against the king's person or his majesty, or rebe in war against him, or lay hands upon his person violently, of whatever age the king be, young or old; or receive any that have committed treason, or that supply them with help or advice, or garron the house of them that are convicted of treason, and help their house against the king; or garron houses of their own in affinence of the king's rebels, or that assault castles or places where the king's person shall happen to be, without the consent of the three estates, shall be punished as traitors."

The last has occurred after a number of the laws of monarchy, and that who attends it of him to a parliament of the subscribers, there, in fact, the dispute lay between monarchy and aristocracy. Many other statutes were passed to increase the power of the monarchy.

Douglas, enraged at the loss of his power, and wishing to display his pomp to the continental princes, went to the jubilee at Rome with a train of his kinsmen, court gentlemen, and eighty pages to attend. In his suite many complaints were made against his dependents, which he enraged James, that he led upon the castle of Lochmab, and demolished that of Douglas. The earl, on his return home, sent a submissive message to the king, and he could not in equity be reputed guilty of events which happened without his knowledge, he was graciously received; but he soon proved himself unworthy of confidence, by engaging in treasonable practices, and falsifying the protection of England. Douglas having been prevailed upon to visit the court of Stirling, was conducted into a secret chamber, where James mildly told him that he knew of the league he had made, and advised him to break off all such illegal engagements. The earl treated the proposal with his usual arrogance, whereupon the king, moved to momentary fury, exclaimed, "If you will not break this league, by God I shall," and drawing a dagger, instantly stabbed Douglas.

The brother and succour of the late Douglas was reconciled to the king, and entered into a solemn engagement; viz., not to pretend any title to the earldom of Wigtoun, except with the queen's consent; 2) to, nor to the lands of Stewarton, a part of the patrimony of the duchess of Towraine, his mother; 3) to, abandon in future all hatred or enmity against all persons; 4) to, preserve the public peace, and make compensations to persons already injured; 5) to, observe the strictest duty and respect to the king. This instrument, which was signed by Douglas and lord Hamilton for themselves and their adherents, affords a curious picture of the state of government and manners in the age.

The interval of domestic quiet which succeeded this reconciliation was only of short duration; but it was marked by an event of some interest in the history of Scottish learning, viz., the foundation of the university of Glasgow, through the munificence of bishop Turnbull. The standard of rebellion was again roused by Douglas, aided by the Yorkist party in England. The king, aware of this conspiracy, summoned Douglas to appear before the privy-council; and upon his refusal ravaged his estates, and besieged his castle of Abercorn. The earl of Crawford advanced with an army to its relief, determined to force his sovereign to fight or fly the kingdom. James, disfrusting the loyalty of the southern counties, hastened to St. Andrews, whence, by the advice of Kennedy, bishop of that see, he issued a proclamation, summoning the array of the north, and offering an annuity to all who should join his service. In a few days he found himself at the head of a numerous body of troops, with whom he marched against Douglas, whose army was encamped on the banks of the Carron. The effect produced was almost miraculous, for in less than twenty-four hours, Douglas was defeated by his whole army, excepting the persons who formed his household. Upon this unexpected change, he fled to Annandale, and afterwards to England. James next proceeded to crush the remaining partisans of the insurrection, and to reduce the castles of Abercorn and Strathanan, which still resisted his authority. He afterwards assembled a parliament at Edinburgh, in which
the forfeiture of the earl of Douglas, with his mother and brothers, was solemnly decreed. In another parliament held in the same year, several important and interesting enactments were made, tending to confirm the paramount power of the king, and to sap the foundation of the feudal system.

He next turned his attention to the subjects of foreign policy, enraged at the conduct of England for supporting the Douglas; he invaded that kingdom, and spread desolation throughout the northern counties. Meanwhile Douglas was admitted to the titles of an English subject, and continued in that allegiance till his death.

Not long after this invasion, a truce was negotiated with England, and James returned to his favourite occupation, the enactment of laws for the improvement and tranquillity of the country. In the several parliaments held at Edinburgh, measures were taken to reform the coinage, and to regulate the internal commerce of the kingdom; a regular militia was established for the national defence; and several laws were made to promote agriculture, and to fix the constitution of parliament. But the most important act passed in this reign relates to the establishment of a supreme court of justice, independent of the king's council. This court consisted of three eminent clergy, three barons, and three commissioners of burghs, to be changed each month. It was, in fact, a committee of parliament, the members having been taken in rotation from that assembly; and no appeal lay from its decisions.

While these matters were under consideration in Scotland, England was distracted by the rivalship of the houses of York and Lancaster. James seems to have inclined to favour the former, but took no active part on either side till the captivity of Henry VI., when he commenced hostilities, by laying siege to the castles of Berwick and Roxburgh. The latter enterprise he conducted in person; and here he unfortunately met his death, by the accidental bursting of a cannon, on the 30th of August, 1460. The nobility who were present concealed his death, from the fear of discouraging the folders; but the spirited conduct of the queen soon rendered this precaution unnecessary. Her young son, James, having arrived in the camp a few hours after, the prefent him to the army as their king, and declared she would act the part of their general herself.

Accordingly the assumed the reins of government, and pushed the siege of Roxburgh castle with so much vigour, that the garrison was obliged to capitulate in a few days; after which the army took and dismantled the castle of Work. In 1466, negotiations were begun for a marriage between the young king and Margaret, princess of Denmark; and in 1468, the following conditions were stipulated: if the annual rent hitherto paid for the northern islands of Orkney and Zetland should be for ever remitted and extinguished: 2dly, that Chriftiani, then king of Denmark, should give 60,000 florins of gold for his daughter's portion, whereof 10,000 should be paid before his departure from Denmark; and that the islands of Orkney should be made over to the crown of Scotland, by way of pledge for the remainder; with this proviso, that they should return to that of Norway after complete payment of the whole sum: 3dly, that king James should, in case of his dying before the said Margaret his spouse, leave her in possession of the palace of Linlithgow and castle of Doun in Mentieth, with all their appurtenances, and the half part of the ordinary revenues of the crown, to be enjoyed by her during her life, in case she should choose to reside in Scotland; 4thly, but if the rather chose to return to Denmark, that in lieu of the said life-rent, palace, and castle, she should accept of 120,000 florins of the Rhine; from which sum the 50,000 dus for the remainder of her portion being deducted and allowed, the islands of Orkney should be re-annexed to the crown of Norway as before. When the completion of these articles became necessary, Christiën found himself unable to fulfil his part of them. Engaged in an unsuccessful war with Sweden, he could not advance the 10,000 florins, as agreed to. He therefore applied to the plenipotentiaries to accept of 2000, and to take a mortgage of the isles of Zetland for the other 8000. This treaty led to the final annexation of Orkney and Zetland to the Scotch crown.

In 1476 these misfortunes began to affoil James, which afterwards terminated in his ruin. He had made his brother, the duke of Albany, governor of Berwick; and had entrusted him with very extensive powers upon the borders, where a violent propensity for the feudal habits still continued. The Hepburns could not brook the duke of Albany's greatness, especially after he forced them, by virtue of a late act, to part with some of the estates which had been granted them in the preceding reign. The pretended science of judicial astrology, by which James happened to be infatuated, was the cause, as well as the most effectual engine that could work their purposes. One Andrew, an infamous impostor in that art, had been brought over from Flanders by James; and he and Schevez, then archbishop of St. Andrews, concurred in persuading James that the Scotch lion was to be devoured by his own whelps.

In 1482, the king began to feel the bad consequences of taking into his councils men of worthless character. His great favourite at this time was Cochran, whom he had raised to the dignity of the earl of Mar. All historians agree that this man made a most infamous use of his power. The other minions of the king were James Hommil, a tailor; Leonard, a blacksmith; and Torbiflaw, a dancing-matuer, whose professions rendered them wholly unworthy of the royal countenance. The favour thrown to these men gave much offence to the nobility, that they resolved to remove the king, with some of his least exceptional domestics, to the castle of Edinburgh, and to hang all his favourites over Lawer bridge, both which measures were accomplished with the most spirited resolution. During his confinement, James conducted himself with great firmness, refusing all terms of compromise with those who had feized his person, or were engaged in the execution of his favourites. Having been liberated by his brother, the duke of Albany, he immediately repaired to Holyrood House, whither most of his nobles came to pay their respects to him; but so much was he exasperated by their conduct, that he imprisoned no fewer than sixteen. Albany was appointed chief minister, and became a great favourite; but this cordiality did not last long; for in less than three years we find Albany solemnly denounced a traitor by act of parliament. During all this period, hostilities were carried on with the English government; but a truce was agreed to in 1484; and James, finding himself in tranquillity both at home and abroad, infenibly relapsed into his former impolitic system. The refult was, an association of several of the most powerful barons, who feized the person of the heir apparent, and induced him to put himself at their head. James at this period was making progress and holding courts in the North; but immediately on hearing of the insurrection he hurried to Perth, which he appointed as the place of rendezvous for his army. When the whole were assembled, he marched to Stirling, where he first learned the saddened condition of the nation. He then demanded the rebel forces who were advancing from the east.

Both armies drew up in battle array, nearly on the same ground...
ground which had been already consecrated by the victory of Flodden. At first the rebels gave way; but being supported by their levies and third lines, the royalists were in turn forced to retreat. This event, and the cowardly flight of the king, terminated the action with little effusion of blood. James, in passing through the village of Hallochburn, was thrown from his horse, and carried into a mill, where he was stabbed by one of the rebels, who, pretending to be a priest, was conducted to him by the miller's wife. Thus perished a prince, whose natural goodness deserved a better fate, than to fall the victim of a lawless anarchy, more unmanly to public order than the feeble despotism of their sovereign.

The duke of Rothsay, appealed of his father's fate, assembled a parliament at Edinburgh, in which several of the friends of the late king were arraigned for high treason. He afterwards made a progress throughout the kingdom, and endeavoured to acquire popularity. In that object, however, he was not immediately successful, as we find the early part of his reign was disturbed by a formidable rebellion. The leader of this insurrection was the earl of Lenox, who was defeated and taken prisoner at Tilly-Moore. James, however, afterwards became a great favourite with the nation, on account of his zeal for the improvement of the kingdom. The arts of ship-building and of architecture were particularly the objects of his patronage; and indeed to this pitch did he carry his anxiety to establish a navy, that he brought himself into serious financial difficulties. This distinguished monarch closed his reign and his life in the celebrated field of Flodden, where most of his nobility perished with him.

James V. now ascended the throne, though only a year and a half old. The long minority which ensued was remarkable for internal intrigue, and particularly for the fixed establishment of the French and English factions in Scotland, which continued to distract the kingdom, more or less, till the close of its existence as a separate and independent state. From this circumstance the history of Scottish affairs increases in interest, as becoming more intimately connected with the general history of Europe; but as the limits of this article will not permit of their being detailed at length, their bearings cannot be pointed out in a satisfactory manner.

The parliament, which met immediately after the fatal battle of Flodden to deliberate on the critical situation of the kingdom, elected the queen-mother to the regency. This prudence conducted the government with great wisdom and energy; but having unhappily married the earl of Arran, that he gave occasion to violent intestine commotions. By the constitution of Scotland, a marriage under the circumstances of the queen regent was a virtual renunciation of her authority; and as Arran was not a favourite with the nobility or the nation at large, parliament refused to continue him in power. The duke of Albany was therefore appointed regent; and a deputation was immediately sent to France to request his acceptance of that station. On his arrival in Scotland, he was received with every mark of respect; but as he attached himself closely to the French interest, the English party, headed by the queen and lord Hume, opposed him in all his measures, and excited commotions in different parts of the country. Henry VIII. of England declared war against him; and though it does not appear that the regent feared the ifue of a contest, he nevertheless soon found it necessary to make peace, on account of the dissensions that prevailed in the army, which had led to the borders with the view of invading England. Shortly afterwards, the increasing opposition manifested against his authority induced him to retire in the reign when the foreign power was again arrayed by the earl of Arran, by force or by the pretense of the king, to prevent his rule in his name, he overthrow the party of the queen, but his own elevation was not of much longer continuance for the king, having escaped from his custody, freed the removal of government himself, and not only deprived Arran of all his dignities, but had him denounced in parliament as a traitor.

Thus, freed from the control of all parties, James displayed an excellent capacity for government. He called frequent parliaments, and directed their attention principally to the improvement of his kingdom. In 1532 he instituted the court of session, on the model of the parliament of Paris. This court originally consisted of fifteen members, half clergy and half laity, and was empowered to give decisions in all civil suits.

The years immediately succeeding that last-mentioned, were marked by the most horrid atrocities, committed in the name of religion. Many persons of distinguished rank suffered at the stake for their opinions. A court of inquisition was established, of which Sir James Hamilton was appointed president, and certainly no man ever showed himself more worthy of his merciless station. During the same period the Scots had to deplore the miseries of a war with England, which raged for two years with various success. But notwithstanding these misfortunes, Scotland continued to rise in power and importance. The friendship of James was anxiously sought by all the great European sovereigns. Even the pope sent an ambassador to the Scottish court, and conferred upon James the title of "Defender of the Faith."

In the year 1536, the king negociated a treaty of marriage with Marie de Bourbon, which was solemnly ratified by the French king; but it was afterwards annulled by the visit of James himself to the continent, where he espoused Magdalen, the daughter of Francis, who died in less than two months after her arrival in Scotland. The Scottish king, however, did not long remain a widower; for in 1538 he espoused Mary of Guise, dowager duchess of Longueville.

In 1540 a parliament was held at Edinburgh, in which an act of indemnity was passed for all offences committed during the king's minority. Shortly after war broke out with England, and the duke of Norfolk invaded Scotland; but was compelled to retreat by the skilful movements of the earl of Huntley. James resolved to pursue this advantage by penetrating into England; and the expedition would most probably have been successful but for the appointment of an unworthy favourite to the chief command in the moment of attack, which so much disgusted the nobles, that they chose rather to surrender to the English, than submit to his orders. This disgraceful occurrence happened at Solway Moss; and produced such an effect upon the mind of the king, that it brought him to his grave, in the 31st year of his age.

Mary, his infant daughter by Mary of Guise, succeeded to the throne, and cardinal Beaton, who had been for many years prime minister, assumed the regency; in virtue of a pretended testament which he himself had forged in the name of the late king. The earl of Arran, the next heir to the crown, was however elected to the regency by the nobles; and thus new jealousies were excited. The English monarch proposed his son Edward as a match for the young queen, but this was opposed by the regent. A war was the consequence; but it was soon terminated by a peace negociated with the French king, in which Scot-
land was included. Shortly after this, cardinal Beaton fell a facrifice to the hatred of the reformers, who were particularly incensed against him for the barbarous execution of one of their champions, named Wilhart. This event proved fatal to the Catholic religion, and to the French interest in Scotland; for though a large party in the nation still continued zealously attached to both, the loss of so bold and skilful a leader rendered their influence and exertions much less effective.

In September 1547, Henry VIII. being deposed, the protector, Somerset, in pursuance of the intentions of his late master, entered Scotland with a large army, and having engaged the Scots, commanded by the regent in person, at Pinkey, near Mussburgh, gained a complete victory. Above ten thousand men fell on this day, which was scarcely left disfavour to Scotland than the fatal one of Flodden. The victory, however, was of little advantage to the protector, whose cruel ravages only increased the aversion of the Scots to unite with England; and induced them to form a close alliance with France. The queen dowager, who, after the death of Beaton, took a considerable share in the direction of affairs, seized every opportunity to promote this object. By her advice ambassadors were sent to the court of Henry II. to offer the young queen in marriage to the dauphin; and accordingly a treaty was concluded, by which the parties were betrothed, and the Scots became bound to send Mary to receive her education in France. In vain did a few patriots remonstrate against such extravagant concessions, by which Scotland was made a French province; and Henry, from an ally, railed to be master of the kingdom.

While Mary was enjoying the pleasures of the court of France, the only scene in which she ever experienced the smiles of fortune, Scotland, first under the regency of the earl of Arran, who had been dignified with the title of duke de Chatellerault, and afterwards of the queen dowager, Mary de Guife, was rent by factions, and experienced all the direful effects of religious and feudal divisions. The whole time which has elapsed from the death of James V. had been a feast of anarchy, during which parties had riven and fallen in rapid succession. To the commotions so common in every country, while the feudal system was in its vigour, and in none more than in Scotland, may be added those caused by the collision of the principles of the reformation, with the interests of a powerful hierarchy. Throughout Europe the wealth of the church was exorbitant; but in Scotland it so far exceeded the just proportion, that not less than half of the national property was poissified by ecclesiastics. The mode of its disposal likewise considerably increased their influence. Church lands being let on lease, at an early rate, and poissified by the younger branches of the great families, many estates in all parts of the kingdom were held of the church. This extraordinary share in the national property was accompanied by a proportionable weight in the national councils. The number of temporal peers being small, and the lesser barons and representatives of boroughs seldom attending, the ecclesiastical members formed a very considerable body in the Scottish parliaments, in which they poissified all the influence that exorbitant wealth and superior talents could give.

A hierarchy established on so firm a basis, with so many pillars for its support, it was difficult to overturn. The progress of the reformation, however, gave a serious alarm to the clergy, and the sword of persecution was effectually drawn in defence of the privileges and emoluments of the Catholic church.

In spite of all these difficulties, however, the reformed religion was established in Scotland, by act of parliament, in 1560, and the exercise of religious worship, according to the rites of the Popish church, was prohibited, under the penalty of forfeiture of goods for the first, banishment for the second, and death for the third offence.

"Such strangers," says Dr. Robertson, "were men at that time to the spirit of toleration, and to the laws of humanity; and what few remnant half did the very persons who had just escaped the rigour of ecclesiastical tyranny proceed to imitate those examples of severity, of which they themselves had so justly complained." The new system of church government, however, was yet to be modelled; and in this business Knox, a popular preacher, of a rude but energetic eloquence, of rigid morals, and republican ferocity, had a principal share. This reformer had long resided at Geneva, and considered the system of church government established by Calvin in that city, as the most perfect model for imitation. He, therefore, recommended it to his countrymen, and succeeded in accomplishing its establishment.

When Mary returned to Scotland, she was received by her subjects with every demonstration of joy. Never did a prince ascend a throne under circumstances of greater difficulty, or conduct herself at first with more prudence. Finding the Protestant religion completely established over the whole kingdom, she very properly took into power the most eminent men of that party; and, to remove all dread of molestation from the minds of their followers, she formally declared, "that until she should take final orders concerning religion, with advice of parliament, any attempt to alter or subvert the religion which the found universally practised in the realm, should be deemed a capital crime." The division of the property of the church, and the settlement of the Protestant revenues, however, soon gave rise to animosities; and the queen, in her anxiety to please both parties, lost the confidence of the Papists by her concessions to the Protestants, while the latter were offended at the small share of spoil which was declared to accrue to them. Dissensions broke out among the nobility; and particularly between the earls of Marr and Huntley. The latter, who was a zealous Catholic, preferred the queen to restore popery; and finding his counsels neglected by the influence of Marr, first attempted to affaill him, and thereafter raised the standard of rebellion against his sovereign. The earl of Murray marched to oppose him, and after a bloody contest put his forces to the rout.

The year following these transactions, Mary, who was desirous of entering into a more intimate correspondence with Elizabeth, employed Maitland to defire a personal interview with her, but the English queen declined the meeting. In 1563, the Scottish sovereign avowed her determination to contract a second marriage, an event for which the nation in general was extremely anxious, in order that the crown might be continued in the right line of its ancient polishers. Many suitors of great eminence, among the princes of Europe, presented themselves; but these were all rejected in favour of Henry Stuart, lord Darnley, eldest son of the earl of Lenox, who had been forced to seek refuge in England in the reign of James V. The royal nuptials were celebrated in July 1565, in conformity to the rites of the church of Rome; and not content with elevating this undeserving man to her bed, the queen ifued proclamations at the same time, conferring upon him the title of king of the Scots. All those who had opposed the marriage were treated with great severity; particularly the earl of Murray, who, having taken up arms, was defeated, and compelled to fly the kingdom.
With this rash step began the misfortunes of Mary. Henceforth her life was one of peril and pain, and personal adversity. Led by her father to a place that was destined to become a prison, she was then under no sort of surveillance, and permitted to attain all the liberty she could enjoy. Her persecutors were now dispersed; she carried the heart of a Catholic prince, and the protection of the Reformers; and the time was at hand to execute the wishes of her father in the establishment of Protestantism in Scotland. The effects of the new form of government were immediately visible. The office of Regent was abolished; and by a new proclamation, the title of Marchioness was fixed for her Majesty. Mary resolved, without further delay, to proceed to the attainment of her masculine titles, and at the same time to take some measures towards the re-establishment of her favourite worship. The ruin of Murray and his party seemed to be inevitable, and the danger of the reformed church imminent, when an event unexpectedly happened which saved both. This was the murder of Rizzio, the queen's favourite, by her husband, and several of the nobility, in their own presence, which roused her indignation to the highest pitch, and completely alienated her affections from Darnley, who had already disgusted her by his violence and his licentiousness. Having been confounded, however, by the conspirators, she was obliged to dissemble, in order to detach the king from their party, a project in which she completely succeeded, and thus was enabled to regain her liberty. Murray and the exiled nobles were immediately received into favour; and Morton, and the rest of the murderers, were compelled to seek safety in England.

The charm, which had at first attached the queen to Darnley, and held them in a happy union, was now entirely dissipated; and love no longer covering his follies and his vices with its friendly veil, they appeared to Mary in their full dimensions and deformity. Though the king published a proclamation declaring all knowledge of the conspiracy against Rizzio, the queen was fully convinced that he was not only accessory to the contrivance, but to the commission of that odious crime. That very power, which, with liberal and unspurious fondness, she had conferred upon him, he had employed to infill her authority, to limit her prerogative, and to endanger her person. Such an outrage it was impossible any woman could bear or forgive. Cold civilities, secret distrust, frequent quarrels, succedeed to their former transports of affection and confidence.

About this time a new favourite grew into credit with the queen, and soon gained an ascendancy over her heart, which encouraged him to form designs that proved fatal to himself and to Mary. This was James Hepburn, earl of Bothwell, the head of one of the most ancient and powerful families in the kingdom. When the conspirators against Rizzio detained her in custody, he became the chief instrument in recovering her liberty, and served her with so much fidelity and success, as made the deepest impression upon her mind. Her gratitude towards him with marks of her bounty; she raised him to offices of dignity and trust; and transacted no matter of importance without his advice.

The hour of the queen's deliverance now approached; and she was advised, for the sake of perfect security, to take up her residence in the castle of Edinburgh, where she was accordingly delivered of her only son, James, whose birth was happy for the whole island, and unfortunate only for her. His accession to the throne of England, united the two divided kingdoms in one mighty monarchy, and established the power of Great Britain on a firm foundation; while she, torn early from her son by the cruelty of her fate, was never allowed to enjoy the tender offices of motherhood, nor to taste the joys which fill the heart of a mother.

To queen, whose court, instead of every spring of bliss, was but a centre of the attack of the French and English to be constantly repeated. He attacked them as he had done before, in preference to her lady in Darnley's race. At the same time he was murdered by the expediency of force bought for power, placed under the house he had provided and inhabited, and was ambushed and meted out to Edinburgh, and Bothwell was accused of and convicted for the murder, but was acquitted on a trial by his peers. Of his guilt, however, not the slightest doubt could be entertained; and it is much to be feared that Mary herself was accessory to the crime.

Bothwell now resolved to fix the attentions of the queen, and having secured what object to his heart, he carried her to the castle of Darnley, where he maintained a willing prisoner, till matters were finally arranged for their removal, when the queen was received by the Lord High Commissioner, and was sent afterwards to Bothwell, whom he created Duke of Orkney. This step, the most unjustifiable of all her follies, was the prelude to her ruin. The nobles immediately confederated against her and Bothwell, who was obliged to seek refuge in England, where he fell into the hands of her irritated subjects. By them he was conducted to Edinburgh, and subsequently to Lochleven Castle. The confederate leaders assumed the title of lords of the secret council, and arrogated to themselves the whole regal authority, and deliberations were held to fix the destiny of the nation, and to determine respecting the person of the queen. The result was, that she was compelled to resign the crown in favour of her son, who was instantly proclaimed, and the earl of Murray was invested with the dignity of regent.

Matters being thus arranged, the first act of the regent was to call a parliament, in which all the measures of the confederates were confirmed. But notwithstanding this, Mary still had many friends who were ready to support her cause, if she could regain her liberty. Apprized of these favourable sentiments, she used every effort to effect her escape, and at length succeeded in her object, in a manner no less surprising to her friends, than unexpected by her enemies. By the influence of her charms, the captivated young Douglas, the brother of the owner of the castle, and prevailed upon him to join in a plot for her liberation. Accordingly, on the appointed night, having stolen the keys from his brother's room, he allowed Mary to pass out, and then locking the doors again, threw the keys into the lake. The queen entered a boat prepared for her, and landed safely on the shore, where she was received by Lord Seaton, Sir James Hamilton, and some other of her friends, who had been apprised of the plot. Instantly mounting on horseback, she fled to Hamilton, where she was joined by a number of the nobility, and in a few days found herself surrounded by a formidable army. In this critical situation, the genius and prudence of the regent were eminently displayed. While he assured the queen for some days by negotiations, he employed himself with the utmost industry in drawing together his adherents from different parts of the kingdom. As soon as he was in a condition to take the field, he broke off the negotiation, and determined to hazard a battle. Mary, whose interest it was to delay the decision of her fate, imprudently favoured his wishes. She attacked his army in an advantageous position at Langside, and being completely defeated, fled to England, and threw herself upon the generosity of queen Elizabeth, by whom she was detained a prisoner for
In the mean time the regent Murray, by his vigorous ad-
ministration, soon restored Scotland to tranquillity; and con-
tinued to govern without any serious molestation till his death in 1570, by the hand of Hamilton of Bothwellhaugh.
He was succeeded in his high office by the earl of Lenox,
during whose rule, and that of his succeffors Marr and Morton, the kingdom was distracted by civil war. "Fellow
citizens, friends, brothers, took different sides, and ranged
themselves under the standards of the contending factions.
In every county, and almost in every town and village,
kings' men and queen's men were names of distinction.
Political hatred destroyed all natural ties, and extinguished
the reciprocal good will and confidence which held mankind
together in society. Religious zeal mingled itself with these
civil divisions, and contributed not a little to heighten
and inflame them."

Morton, the last regent, during the minority of James,
having excited the enmity of several of the nobility, was
accused of being accessory to the murder of Darnley, and
suffered for that crime in 1581, though the proofs of his
guilt were far from being satisfatory. After this event,
James himself began to exercise the sovereign authority;
but his love for humanitism proved prejudicial to his own
peace and that of his kingdom, by fomenting jealousy
among his nobles. One of these favourites, the earl of
Arran, conducted himself in so arrogant and tyrannical
a manner, that a confederacy was formed against him; and
the king was forced to deprive him of all his offices and
honours, and to declare him an enemy to the country.

James having been bred in the principles of the Protestant
faith, exerted himself on every occasion to secure the re-
formed church from the danger of being overthrown by the
Catholic party, which was synonomous with the queen's
party, and continued to be very formidable so long as he
lived. When his mother was put to death by queen Eliza-
abeth, however, he renounced warmly against her conduct,
and even declared war; but that wily prince so soon found
means to soothe his anger, and regain his friendship. During
the whole of his reign, James was constantly in danger of his
life from the plots of the Popish lords, towards whom he
shewed more lenity than was probably politic or prudent.
On one occasion his person was seized by Bothwell, but he
happily contrived to escape from his power, before any of
the ulterior objects of that bold measure could be effected.
Several attempts to murder him were likewise made, by
various persons; but the most dangerous, though un suc-
cessful, conspiracy formed against his life, was that usually
denominated the Gowrie conspiracy, from the title of the
principal actor, John Ruthven, earl of Gowrie. From the
myth in which all its circumstances are involved, it has
greatly excited the attention of historians; some even ques-
tioning the existence of any plot, and maintaining that the
king murdered the Ruthvens without any reasonable caufe.
This opinion, however, is justly confedered by Dr. Ro-
bertson as extremely improbable; though it must be con-
ceded that the conduct of James, and the impression on the
public mind against him at the time, call an air of great suf-
picion over the whole transactio

From this period no event of material interest in the his-
tory of Scotland occurred till the year 1603, when the
death of queen Elizabeth opened the way for the accedence
of James to the throne of England, and laid the basis of
that more intimate union, which has since consolidated the
power and resources, and raised to an unparalleled height
the happiness, prosperity, and glory of our island. The
annals of the two kingdoms are henceforth so much identi-
fied, that it is scarcely possible to treat them separately.
The reader is, therefore, referred for the continuation of
the history of Scotland to the article England. He will
also find some details of portions of the subject under the
words Union, Stuart, Prince Charles, and others, desig-
nating leading events or characters.

General Affe of the Country, the Soil, and Climate.—The
most prominent features in the general aspect of Scotland
are its barren hills and mountains, and the numerous and
extensive lakes which fill the intervening vallies. In some
districts the hills are covered with herbage, but in general
they exhibit only heath vegetating above peat, rock, or
gravel: hence, whether the eye ascends the mountains, or
glances over the vales, the scenery which is presented to the
view, though often grand and picturesque, is seldom na-
turally rich. On the former, the signs of fertility are al-
tways apparent; and as the soil of the latter is usually mixed
with the substantia composing the hills, no high degree of
fertility can be expected. These remarks apply to almost
every part of the Highlands, which comprehend about
three-fifths of the whole extent of Scotland. South of the
Forth, however, and even in a few of the eastern counties
farther to the northward, the character of the scenery
is more improved, and the soil, though extremely various,
is frequently as fertile as in any district of England. As
to the climate of this kingdom, it is such as a knowledge
of its latitude, and of its peculiar situation with regard to the
Northern and Atlantic oceans, would point it out to be.
Both on the eastern and western coasts, but particularly on
the latter, rains are extremely prevalent throughout the
whole year. Snow in general lies only for a short time,
even in the central districts; for though it often falls in con-
siderable quantities, it is seldom attended, as in some more
southern counties, by intense and long continued frosts.
The lowest average heat is 41°.11 of Fahrenheit, and the
highest 50°.326; so that the annual average temperature
of the whole kingdom may be computed to be from 45° to
47° of the same scale. It is remarkable that, in some of the
vallies of Moray, the influence of the sun's rays is so
afflicted by circumstances, that corn ripens there as soon as
in Yorkshire or Northumberland.

Rivers.—Scotland abounds with streams of various mag-
nitude, most of which fall into the Northern or German
ocean. The principal of these are the Tweed, Forth, and
Tay, on the east coast; and the Clyde on the west coast.
Tweed is a beautiful and pastoral river, which discharges
its waters into the sea at Berwick. It is noted for its
salmon fisheries, and for the circumstance of its forming the
boundary for several miles between England and Scotland.
The Forth and Tay both form large estuaries, called the Firths
of Forth and Tay, which serve important purposes in com-
merce. On the former are situated the town and port of
Leith, and on the latter the towns of Dundee and Perth.
The salmon fisheries of the Tay are the most valuable in
Great Britain, and afford a constant supply to the markets
of London and Edinburgh. But Clyde claims a pre-
emience over all these rivers in commercial utility, and per-
haps also in picturesque beauty. Taking its rise from a hill
in Tweeddale, it flows first in a northerly, and afterwards in
a westerly direction, exhibiting in its progress much in-
terest ing scenery. On its banks are situated the towns of
Lanark, Hamilton, Glasgow, Rutherglen, Dumarton,
Patrick, Crawford, and Greenock.

The other rivers of Scotland, which deserve notice, are
the Annan and Nith in Dumfriesshire, the Eden in Fife-
shire, the Dee and Don in Aberdeen, the Spey in
Banffshire,
SCOTLAND.

Banffshire, the Nef and Beasly, which form the Moray Frith, and the Grassy and Coas, which form the Frith of Cromarty.

Lakes and Lamps.—The numerous and beautiful lakes interspersed throughout Scotland, and especially throughout its mountainous tract, constitute a very striking and interesting feature in its scenery. The chief in extent and beauty is that of Loch Lomond. These lakes are of various sizes, lying within the mountains, and adorned with shores of the greatest beauty. Farther from this lake are those of Kettering, Chron, Achray, and Lochcarron; all of them distinguished bysingular and picturesque scenes. The lake of Menteith is also in the vicinity. In Galloway are many fine lakes, on the banks of which the village of New Galloway, Lochleven, in Fifeshire, derives fame at once from its beauty, and from its historical interest, as the residence of queen Mary, when a prisoner in the hands of the confederate nobles. The lakes formed by the Tay are both numerous and extensive: the principal of them are Kannoak, Lyddock, Erricht, and Loch Tay. The last, in particular, is a grand and beautiful expanse of water, of such length as rather to resemble a navigable river. Loch Nevis, in Inverness-shire, is equally noted for its extent and the charms of its scenery. Its usual depth is from 60 to 135 fathoms; and hence is to be explained the phenomenon of its never freezing, even in the coldest winters. This lake forms part of the chain of lakes which intersect the kingdom, from the Moray Frith to the Atlantic ocean, which, we trull, are defined shortiy by becoming of high importance in forwarding the commercial prosperity of the kingdom. The other chief lakes of Scotland are Loch Lom, Loch Naver, and Loch Shin, in Sutherland and Caithness; Loch Fannich, in Ross-shire; the Lochy and Laggan, in Inverness-shire; and Loch Awe, in Argyllshire.

Friths and Inlets of the Sea.—Scotland is much indented with arms of the sea, which enter deep into the land. This indentation is highly beneficial: it facilitates commerce, as each of these branches so far serves the purposes of a canal; it promotes the fisheries, as it brings them more within reach; and it renders the climate more temperate, from the influence of sea-breezes. As the shortlet defilement of these friths and inlets separately would extend this article much beyond its preferrred limits, we shall content ourselves with the bare mention of them. Thoife on the western coast, beginning from the south, are the Frith of Forth, the Frith of Tay, the Moray Frith, the Frith of Beauly, Cromarty Frith, the Frith of Dornoch, Thurso, and Durness bays, Kyle of Tongue, Loch Erbol, and the bay of Durness. Thoife on the west coast, beginning from the north, are Loch Inchard, Loch Laxford, Loch Afflin, Loch Emard, Loch Broom, Loch Ew, Garloch, Loch Torridon, Loch Carron, Lochlalsh, Loch Duich, Loch Hourn, Loch Nevis, Loch Aylort, Loch Moidart, Loch Sunart, Linehe Loch, Lochalsh, Loch Leven, Loch Ceraun, Loch Etive, Loch Melfort, Craigairn, Loch Swan, Loch Killiplait, Loch Tarbat, the Frith of Clyde, Loch Fyne, Loch Long, Loch Gair, Loch Streven, Loch Ryan, the bay of Glenluce, Wigtown bay, Kirkcudbright bay, bay of Nith, and the Solway Frith. Most of the above rivers, lakes, friths, and inlets of the sea, are noticed under their respective names, or under those of the counties to which they more immediately belong.

Mountains.—The mountains of Scotland, as already mentioned, occupy a large proportion of its surface, and constitute a prominent and distinctive feature in its geographical character. The principal chains are the Grampian hills, the Pentland hills, and the Lammar Muir. The first extends almost entirely to the kingdom, in a variety of altitudes to the level of the sea. In the western range, this forms a barrier to the sea of the Hebrides; and are celebrated for beauty by the traditions of the early inhabitants, by the Caledonian Gallery, and the Roman general Agricola. The second chain lies near Edinburgh, and running southward through Lothian, joins Tweeddale hills; and the third, beginning near the eastern coast of Berwickshire, stretches to the southward through the Merrie. In the province of Galloway is a fourth extensive assemblage of hills, which do not, however, form an uniform chain. With respect to the other mountains of Scotland, they do not admit of arrangement into distinct groups; and, therefore, it will be sufficient to notice some of the more remarkable among them in the order of elevation. Ben Nevis is the highest mountain in Britain, its summit being 4350 feet above the level of the sea. On its north-eall side it presents a most prodigious precipice, nearly perpendicular, which is said to be 1500 feet in height. The prospect from this hill is truly sublime, and extends on all sides a distance of 20 miles. The next mountain in point of elevation is Cairngorm, or the Blue mountain, which is constantly covered with snow, and is remarkable for quartz of different colours, well known to lapidaries under the name of Cairngorms. The other chief mountains in this district are those of Braemar, Aberdeen, and Ben Awen. To the Grampian ridge belong Ben Lomond; 3262 feet high; Ben Ledi, 3098; Ben More, 3193; Ben Lawers, 4015; Shihallion, 3564; and Ben Verlich, 3300; besides some scarcely less important elevations on the east. Mount Battock, in Kincardineshire, is 3255 feet high; and Ben Cruachan, a solitary hill in Argyllshire, 3300. In the more northern division of the Highlands, the mountains are yet more numerous, but not so memorable. The chief of them are Ben Nevis, Ben Chat, Ben Chaffey, Ben Gulich, Ben Folkag, Ben Nore, and the hills of Cumnock, all in Ross-shire; and Ben Ormond, Ben Cliberm, Ben Grant, the Paps of Caithness, Ben Hop, and Ben Lugal, in Caithness and Sutherland. Along the whole of the western coast, the scenery is bold and precipitous in its character. One part of it, extending from Loch Kinghorn to the south, presents a most singular appearance, as if mountains had been broken in pieces, and small lakes interspersed among the fragments.

Mineral Produce.—The mineral products of Scotland are numerous, and are, in many instances, supplied in such abundance, as to form important objects of traffic. Gold was formerly procured in the sands of Elvan, a rivulet which joins the Clyde; and a place still exists, called Gold-stour, where the Germans used to wash the sands: but scarcely any has been found recently. The silver discovered in Scotland has hitherto been of little account; the chief mine was that at Alva, which has latterly only afforded coal. Nor can Scotland boast of copper, though a small quantity was found in the Ochils, near Alva; and it is said that the islands of Zetland offer some indications of that metal. It has also been found at Colvend, in Galloway; at Curry, in Lothian; at Oldwich, in Caithness; and Kippern, in Ross-shire. The lead-mines in the south of Lanarkshire have been long known. Thoife of Wanlockhead are in the immediate neighbourhood, but in the county of Dumfries, and belong to another proprietor. These mines yield yearly above 2000 tons. The Saltash vein, Lead-hills, has been worked for sixty years, and produced vast wealth. Some light veins of lead have also been found in the western Highlands, particularly in Arran. Iron is found in various parts of Scotland; the Carron ore is the
molt known, which Mr. Kirwan describes as being an argillaceous iron-flone of a blueish-grey, internally of a dark ochre-yellow. It is found in flat y masses, and in nodules, in an adjacent coal-mine, of which it sometimes forms the roof. At the Carron-works this ore is often smelted with the red greasy iron ore from Ulverton, in Lancashire, which imparts easteren fusion, and superior value. Calamine and zinc are also found at Wanlock-head; and it is said that plum-bago and antimony may be traced in the Highlands. Coal has been worked for a succession of ages. Pope Pius II., in his defcription of Europe, written about 1450, maintains that he beheld, with wonder, black stones given as alms to the poor of Scotland. But the use of this mineral may be traced to the twelfth century. The earliest account given of the Scotch coal is contained in a book published by one George Sinclair, who calls himself professor of philosophy at Glasgow, but his name cannot be traced in the university list. He explains with some exactness the manner of working coal, and mentions the subterraneous walls of whin which intersect the strata, particularly a remarkable one, visible from the river Tyne, where it forms a cataract, and passing by Preton-Pans to the shore of Fife. Mr. Williams has recently given his observations on this subject with much practical skill. The Lothians, and Fifeshire particularly, abound with this useful mineral, which also extends into Ayrshire; and near Irvine is found a curious variety, called ribbon coal. A singular coal, in veins of mineral, has been found at Caithle-Leod, in the eastern division of Rosfhirie. Among the least important minerals of Scotland, is the new earth found at Strontian, in the district of Sunart, and parish of Ardnamuran, in Argyllshire, which is now introduced into numerous yfements of mineralogy and chemistry. Ben Nevis affords beautiful granite. Fine flavy marble is found in A'llayt, and at Blair Gowrie, in Perthshire. A black marble, fretted with white, like lace-work, occurs near fort William; dark brown with white at Cambulang, Clydefield. Jasper is found in various parts; Arthur's seat offers a curious variety; and on the western shore of Icolmkill, are many curious pebbles of various descriptions. Foller's-earth is found near Campbeltown, in Caintire; and it is supposed that there must be a vast mass of talc, equal to that of Moffat, in the mountains which give rise to the river Fendant, as large pebbles of it are sometimes found in that stream.

Natural Curiosities.—Scotland, like other mountainous countries, abounds with singular scenes and natural curiosities. The caves on the shore near Colved, in Galloway, are well worthy of notice; and the beautiful falls of the Clyde, near Lanark, have deferently excited much attention. On the east of this part of Scotland, are the pastoral vales of the Tweed and Tievot, celebrated in song; the deep pafs of the Peaths; and the romantic rock of Bals, the haunt of the sian goafe. The basaltic columns of Arthur's seat, near Edinburgh, deserve inspection. On the northern shore of the Forth, near Dyfart, a coal-minne has, for ages, been on fire, probably from decomposed pyrites, and has supplied Buchanan with a curious description. The beauties of Loch Lomond have often been described, but the trefaces, or singular hills around lake Ketterin, form a new acquisition to the traveller. The hills of Kinnoull, near Perth, conlute a great curiosity, presents a mass of uncommon minerals. The numerous lakes and mountains need not be again mentioned. Many of the rocks off the coast of Aberdeenshire assume singular forms of arches, pillars, &c.; and the space from Trouphed to Portfoy abounds in uncommon rocks, and singular marine productions. The caves of Nigg, in Rosfhirie, are worth visiting, and the more northern shores present innumerable wild scenes of savage nature. Near Lathron, in Caithness, is a large cave, into which the inhabitants fall to kill seals. Nof Head presents a singular quarry of slate, marked with various metallic figures. The isles Stroma, near the northern shore, preferve dead bodies for a long time without corruption. Near Tang is the cave Fragill, about fifty feet high and twenty wide, variegated with a thousand colours, which are loit in each other with a delicacy and softness that no art can imitate. On the caft of Durness is the cave of Smo, within which is the resemblance of a gate, succeeded by a small lake of fresh water, containing trout; the extent of this subterraneous lake has never been explored. The singularity of the coast of Eadrachill, south of Loch Inchar, may likewise be mentioned as a natural curiosity, as may also the grand cataract of Kinros river, and the cave of Ganted, near A'lyt Point. The cades of Gamma, in the heights of Glen Eleagh, is truly sublime, amidst the conflant darknes of hills and woods. Ben Nevis will, of course, attract notice from its singular form and elevation. According to Mr. Williams, it consists of one solid mass of red granite, which he traced at the base for four miles along the side of a rivulet on the east; the height of this mass he computes at 3500 feet, and above it are stratified rocks, the nature of which he does not explain, but he says that those on the summit are so hard and tough, that wrought iron is inferior to them in those qualities. The stupendous precipice on the north-eat side exhibits almost an entire fection of the mountain. In Argyleshire the marine cataract of Loch Etif, the beautiful lake of Awe, and the environs of Inverary, present the chief objects of curiosity.

Sketch of the Agriculture.—Scotland, with respect to agriculture, exhibits great variations, from causes partly of a moral, but chiefly of a phical nature. To give his readers juft ideas on this subject, sir John Sinclair, in his “General Report,” has divided the country into nine districts, each distinguished by some peculiarities of surface, or relative circumstances, from the rest. The first district includes the counties of Roxburgh, Berwick, and the three Lothians, and may be justly termed, by way of eminence, the agricultural district, as the art of husbandry is carried on there in as great perfection as in any country in Europe. The proportion of land in cultivation is very considerable, and its farmers are, in general, remarkable for their intelligence, industry, and capital. In this district is situated the metropolis of Scotland, which unites to signal advantages of sitution, a degree of art and elegance in its buildings, unknown in any other town in Great Britain. As it is the seat of the courts of law, the public offices, and a celebrated university, the population within its bounds is much greater than its agriculture or commerce would otherwise require. The several counties which compose this district may be thus discriminated. Roxburghshire, the most souterly, has a great extent of hills of considerabe elevation, and only adapted for the paituring of sheep; but it also includes the rich vale of Tievot, which is one of the most improved tracts in the kingdom. Berwickshire, though a large share of its surface is likewise beet suited for pasture, contains in the Merfe, foil at once fertile and well cultivated. Eait Lothian, throughout the greater part of its extent, is a rich and highly improved plain, diversified by a few gentle eemences; and yields to no county in Great Britain the palm of superiorit in agriculture. Mid-Lothian, though inferior in soil to Eait Lothian, nevertheless raises excellent corn and green crops, and likewise derives wealth from horticulture in the vicinity of Edinburgh. West Lothian, besides being noted for the carefulness of its agriculture, in the more cultivated parts, is ornamented with many extensive plantations, while
its peculiar situation on the further bank of the Forth adds much to the beauty of the scenery, and to the advantages which the country possesses with respect to agriculture.

The third district includes the counties of Peebles, Selkirk, Tweeddale, Roxburgh, Kirkcudbright, and Wigtown. Here are the highest mountains south of the Forth; and though the great proportion of hills, and the small extent of arable land, more of the surface is appropriated to the feeding of live stock than to the growth of corn. Yet the vales, particularly in Dumfriesshire, are of considerable extent and fertility, and exhibit much diversity of appearance. The green hills of Tweeddale, and the interesting vales, are prolific of corn. Only a small proportion of the territory, however, is arable, and late harvests occasionally blight the prospects of the farmer. In the county of Selkirk, formerly called the Forrestd, a still higher proportion of the land is cultivated; but new plantations begin to fill, and will in time supplant the place of those natural woods, with which, several centuries ago, this county abounded. The hills, both in this county and in that of Peebles, are covered by numerous flacks of sheep, partly of the Tweeddale, but chiefly by the Cheviot race. Great numbers of cattle also are found in these districts. In Galway, its excellent breed of cattle, and hardy race of sheep, are supported much better than formerly; and not only oats and barley, but wheat of good quality are raised in every part of the arable tracts. The valley of the southern Dee, in Kirkcudbright, has likewise been much improved; and though on the banks of that river there are neither coal-pits nor lime-quotaries, yet imported coal forms the chief article of fuel, and imported lime the principal manure.

The third district is washed by the Atlantic ocean, and by means of a navigable canal communicates with the German sea. It includes the counties of Ayr, Renfrew, Lanark, and Dunbarton. Notwithstanding the humidity of the climate, from its exposure to the sea, and the extent and elevation of its hills, agriculture is much attended to, and in many parts is carried on with great success, as the exertions of the farmers are stimulated by commerce and manufactures. Still, however, this district is more adapted to the rearing or fattening of live-stock, than to the raising of corn; and the belt breeds of horses and of dairy cows are to be found in it. From the concurring causes of commerce, manufactures, and minerals, agriculture has flourished in an unequal climate; and nearly one-half, or, more accurately, seven-tenths of the whole surface are under cultivation. With only one-thirteenth of the extent, nearly one-fourth of the population of Scotland is included in this division.

In the fourth district are included the counties of Fife, Kinross, Clackmannan, Stirling, Perth, and Forfar or Angus. This district exhibits every variety of soil and surface, from the level and rich carse of Stirling, Falkirk, and Gowrie, and the great valleys of Strathmore Atholl and Kintail, to the lofty Grampians, which shelter a considerable proportion of the division from the northern blasts. In the rich carses, and along the firths and sea-coast, it produces the bell wheat, beans, barley, and broad clover. And in some of the island districts are raised excellent crops of turnips, beets, and oats. Its live-stock in general is of an excellent description. The towns of Dunoon, Perth, Alloa, Dumfermline, Stirling, St. Andrews, Clackmannan, Kinross, Forfar, Montrose, Brechin, and a number of inferior villages, contain two-fifths of its whole population. In this extensive district, Fifeshire is distinguished by its great variety of productions, and by its fisheries, its flax and linen manufactures, its coal-mines, lime-works, and iron-foundries, by its improved agriculture, and its breeds of cattle and sheep.
Wheat and beans also are raised successfully in the heavy loams of Formater, and on the still heavier clays of Buchan. Banffshire owed much to a distinguished character, the earl of Findlater and Seafield, who introduced an improved system of cultivation in that county, and encouraged his farmers to imitate his example. Not only near the Forth coast of the Bogue and the Enrie, where that improved system began, but in the more inland parts, a spirit of improvement has now become general, and has greatly altered the face of the country. Though nature has done much for Moray, yet the culture of turnips and of town grusses was not, till within the last thirty years, so general, as in less favoured counties; but of late, both these and corn crops, with the rearing of live stock, have been attended to with ardour and perseverance.

In the fourth district are included the two extensive counties of Argyle and Inverness, comprising nearly one-fifth of the whole surface of Scotland. About two-nineteenth parts of this district are cultivated, and productive. Near Inverness, at Campbeltown, in Argyleshire, and in some other spots, wheat and turnips are successfully cultivated, but in general the country is unfit for tillage, except on a small scale; its grazings, however, are extensive, and well adapted for the rearing of live stock. It likewise contains a great extent of plantations, and the remnant of the Coccimore, or great forest of Scotland. The black cattle of this district are in high estimation as excellent feeders. The hardy breed of Tweedale sheep, and in some instances those of Cheviot, occupy the hills. This division extends across the island; and the Caledonian canal is now carrying on directly through it, from the German sea to the Atlantic ocean, which it is to be hoped will carry industry and wealth into this remote district, and furnish the means of facilitating and enlarging the commerce of the other parts of the kingdom.

The seventh district includes the counties of Cromarty, Rothes, Sutherland, and Caithness. It is in some respects superior to the former, though more northerly. Earl Rothes, with a part of Cromarty, contains a considerable proportion of excellent soil; and both the wheat and turnip husbandry are carried on successfully. The eastern coast of Sutherland, and the plains of Caithness, are also good corn counties. Earl Rothes, and by far the greatest part of Sutherland, of Cromarty, and of that portion of Caithness which bounds with Sutherland, are rugged and unproductive. Not a tenth part of this district is capable of being cultivated, and only a twelfth part of the people resides in towns or villages; yet, by the introduction of sheep-farming, by encouraging manufactures, and, above all, by the extensive fisheries of herrings and cod, now successfully established along the coast of Caithness; this district must soon greatly increase in value, and the inhabitants become richer and happier. The breeds of cattle have been much improved of late years; the Tweeddale breed of sheep is now spreading over the western parts of this district; and there are already about 4000 of the Cheviot breed in various parts of it, more especially in Sutherland and Caithness. The Merino breed, and crosses of them, have been successfully introduced into Rotheshire, and other parts of this district. Earl Rothes and Cromarty are ornamented with the seats of the proprietors, and extensive plantations. Wood also thrives in Sutherland, and in the more hilly parts of Caithness; but in the plains of Caithness, and near the sea-coast, it cannot be raised to advantage, from the nature of the subsoil, in general a gritty cherty gravel of little depth, incumbent on a horizontal flaggy rock, which keeps the water near the surface.

The islands which are included in the eighth district, were formerly denominated Eubide, but are now better known by the name of the Hebrides, or the Western Islands. They contain about one-tenth part of the total extent of Scotland, with about one-eighth part of its population. Of the whole surface, nearly one-seventh part is under culture. Wheat has been raised in some of the islands, more especially Bute, Islay, and Coll; and turnips have also been cultivated successfully in Skye, and some of the smaller islands. In all these islands the breed of black cattle is excellent, though in general small. The fisheries and kelp manufacture are very valuable; and by proper attention to them, these islands may furnish a great addition both to the wealth and strength of the empire.

In the ninth or last district are the northern islands of Orkney, and Zetland or Shetland. The former contain about 440, and the latter nearly 880 square miles, and form one county. Only about one-twentieth part of the whole surface of these islands is in cultivation. Wheat and turnips have both been tried, and not without success. The pure Merino breed of sheep has been introduced into Orkney recently; and a zeal for improvement has lately appeared in these islands, which may be attended with the best effects; for they enjoy a very temperate climate, though in a high northern latitude. The islands being situated low, snow seldom lies many days, and ice is never more than two or three inches thick.

Forays and Woods.—That Scotland was anciently clothed with extensive and luxuriant forests, is abundantly proved by the concurring evidence of tradition, of hiltory, and of the actual remains of their spoils. Innumerable places, where scarcely a tree is now to be seen, derive their names from the circumstance of their having been covered with wood, or from the particular kinds of timber with which they abounded; as Woodhead, Woodside, Aikenhead, Athview. The great forest of Selkirk, of which scarcely a trace remains, existed, as appears from ancient documents, as late as the 12th or 13th century; extending over the upper parts of Ayrshire, Lanarkshire, and Peeblesshire. The forest of Payle seems to have communicated with that of Selkirk, extending, without much interruption, through the higher parts of Renfrewshire, the marches of Ayr and Lanarkshire by Loudon-hill, to near the shores of Galloway. The Caledonian forest, of which the Roman historians speak, appears to have extended in a southern direction to the English borders; and in a western, from the boundary of Stirlingshire, by Falkirk and Stirling, (including the higher grounds of St. Ninian, once the royal forest of Dunsaff,) as far as Gartmore in Perthshire, covering the great moils, called Moils Flanders, through a tract of about twenty miles. Of this no trace remains, except Callendar Wood, and Tor Wood, unless we trace it, as we may, in the deep moils, from six to nine feet under the surface, incumbent on the clay, its original soil. Many other inferences of ancient forests, long since lost, might be given from authentic records. In all our moils, from 20 feet above the level of the sea, to 500, and even 1000 feet above that elevation, the remains of trees of a much larger size than any which now exist in a growing state, are found in abundance. In the northern moils these are principally of the pine tribe. To the south of the Forth it does not appear that the fir ever grew spontaneously. The oak is, in that district, to be found every where3 imbedded in the moils. In Dalferash parish, in Lanarkshire, an oak was lately dug up 65 feet long, which is so straight, and so equal in girth, that it is difficult to determine which is its root end. In Moils Flanders, innumerable trees of the
the same kind occur. Even the Hebrides, exposed as they are to the sea, present venerable remains of ancient forests. A sycamore, which grew on a sea cliff in the Flannery Island of Berwick, when cut into logs, loaded a large boat. The island has not been filled with woods. Though Lewin, adds Dr. Walker, is now entirely delirious of timber, there are large trunks of elder, birch, and especially of Scots fir, found in its extensive moors. Of the destruction of these magnificent forests, we are furnished with a satisfactory account both by history and observation. Haro-
dean and Dion Cassius inform us, that the enemy, about A.D. 207, employed the Roman legions, with the auxiliary troops, and fuch of the natives as were under his control, in cutting down the forests of Scotland, an undertaking, in which (the historian tells us) he lost no less than 200,000 men. The forest that once covered Mos Flanders, to the west of Stirling, appears evidently to have been thus cut down; the prolifer trees lie under the moes in every direction, which demonstrates that they have not been overthrown by storms, which would have laid them down uniformly. At a later period, John, duke of Lancaster, set 24,000 acres to work at one time to cut down the woods of Scotland. In the northern parts of Scotland, the Danes cut down and burnt many woods, as did Robert Bruce in his expedition against Cumyn. Mr. Graham of Gartmore has in his possessions an original document, relating to the woods of Aberfoyle, now the property of the Duke of Montrose, formerly the earl of Montrose and Arith. It is an order from general Monk to cut down the woods of Milton and Gleskane, on account of the shelter they afforded to the rebels.

Government.—The political constitution of Scotland, since the Union, has been blended with that of England. Previous to that event, the parliament of Scotland was, like England, composed of peers and representatives of counties and burgs, with this distinction, that they sat in one house. That wise prince, James I. of Scotland, as has been mentioned, attempted to establish a house of commons, in imitation of that of England, but his subjects maintained the most firm reluctance to that enlightened measure. The most distinguished feature of the ancient government is the general assembly. The high courts of justice, and particularly the court of seftions, may be illus in the next place. The lords of council and eellion are fourteen in number, besides a presidant; and on their appointment assume a title, generally derived from the name of an elder, by which they are addressed, as if peers by creation. The only appeal from this court is to the house of lords. It has long been a subject of regret, that the causes were not determined by jury, in England. But this ground of complaint has been very recently removed, and three judges have been appointed to preside in a court where civil suits are to be determined by a majority of jurors. These judges have been named lords commissioners. The court of judicature consists of five judges, all lords of seftions, with a presidant, styled the lord justice clerk, as representing the lords justice general. This is the supreme court of all criminal causes of importance, which are determined by the majority of a jury, and not by their unanimity, as in England. The court of exchequer consists of a lord chief baron, and four barons; in the court of admiralty there is only one judge.

The law of Scotland differs essentially from that of England, being founded, in a great degree, upon the civil law. It partly consists of statute law, but many of the ancient enactments never having been enforced, reference is made to the decisions of the court of seftion, which are carefully pre-

served and published, and which afford precedent; generally reckoned unexceptionable. There is scarcely a statute of common law, so that the civil and canon laws may be denominated the basis of Scotch jurisprudence. The laws are those of the feudal system, the magnates of baronies, the commoners, and the judges of the peace. While the feudal system prevailed, the hereditary jurisdictions were nearly the same, and every chief maintained an unbroken control over the lives and property of his vassals and tenants. But this system is now happily abol-
ished.

Parliamentary Representation.—Scotland is represented in the British parliament by fifteen peers and forty-five commoners, in conformity to the treaty of union between the two kingdoms. The sixteen peers are elected for every new parliament by the whole body of the peerage duly qualified to vote at the period when the election takes place, and are not, when once elected, continued for life, as in the case in regard to Irish peers, by the recent union with Ireland.

The following table will give an idea of the diminution that has taken place in the number of the Scottish peerage since the Union, and the amount at present.

<table>
<thead>
<tr>
<th>No. of Scotch peers at the Union</th>
<th>159</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke of Holdays, when entitled to vote</td>
<td>1</td>
</tr>
<tr>
<td>Added by inheritance or as the house of lords</td>
<td>4</td>
</tr>
<tr>
<td>Extent, or dormant, including the title of Solway</td>
<td>41</td>
</tr>
<tr>
<td>Merged in, or united to other titles</td>
<td>10</td>
</tr>
<tr>
<td>Persevered</td>
<td>25</td>
</tr>
<tr>
<td>Remain</td>
<td>81</td>
</tr>
</tbody>
</table>

Of these, 23 (including the duke of Holdays) are British peers, but who will retain the privilege of voting at elections, and even continue eligible; though it can hardly be supposed that these hereditary peers would persuade their brethren not enjoying the same privilege to elect them. At the last election, on the 15th of November 1812, there were three minor, three peeresses, and two Roman Catholics, consequently eight disqualified from voting. The peers who actually voted were fifty-two, and twenty-two were out of the kingdom, or did not vote.

Of the forty-five commoners, thirty represent counties, and fifteen boroughs.

The county members are elected by freeholders possessed of 40l. Scotch of valued rent, in land held of the crown. The only exception to this rule is found in the county of Sutherland; where, as the greater part of the land is held of the earl of Sutherland, it became necessary to give the vaillans of that earldom a right to vote as well as the vaillans of the crown; and in conformance of the inconsiderable number of small proprietors in the county, the qualification of the freeholder was reduced to 20l. Scotch of valued rent.

The following table shews the amount of the valued rent in each county, as it stood in 1674; also the number of qualified freeholders returned in the bill drawn up for the year 1811, since which there has been very little variation.
### Table of Landed Representation.

<table>
<thead>
<tr>
<th>Counties represented</th>
<th>Valued Rent in Scotch Money</th>
<th>No. of Freeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aberdeen</td>
<td>£235,665</td>
<td>147</td>
</tr>
<tr>
<td>2. Argyle</td>
<td>£140,059</td>
<td>50</td>
</tr>
<tr>
<td>3. Ayr</td>
<td>£103,000</td>
<td>7</td>
</tr>
<tr>
<td>4. Banff</td>
<td>£79,200</td>
<td>55</td>
</tr>
<tr>
<td>5. Berwick</td>
<td>£104,000</td>
<td>6</td>
</tr>
<tr>
<td>6. Bute &amp;</td>
<td>£15,000</td>
<td>120</td>
</tr>
<tr>
<td>7. Caithness &amp;</td>
<td>£12,000</td>
<td>22</td>
</tr>
<tr>
<td>8. Clackmannan &amp;</td>
<td>£12,000</td>
<td>22</td>
</tr>
<tr>
<td>9. Kinross &amp;</td>
<td>£12,000</td>
<td>22</td>
</tr>
<tr>
<td>10. Cromarty &amp;</td>
<td>£12,000</td>
<td>22</td>
</tr>
<tr>
<td>11. Nairn &amp;</td>
<td>£15,000</td>
<td>22</td>
</tr>
<tr>
<td>12. Dumfries</td>
<td>£15,000</td>
<td>22</td>
</tr>
<tr>
<td>13. Dumbarton</td>
<td>£33,000</td>
<td>22</td>
</tr>
<tr>
<td>14. Edinburgh</td>
<td>£193,000</td>
<td>22</td>
</tr>
<tr>
<td>15. Elgin</td>
<td>£65,000</td>
<td>22</td>
</tr>
<tr>
<td>16. Fife</td>
<td>£36,000</td>
<td>22</td>
</tr>
<tr>
<td>17. Forfar</td>
<td>£17,000</td>
<td>22</td>
</tr>
<tr>
<td>18. Haddington</td>
<td>£168,000</td>
<td>22</td>
</tr>
<tr>
<td>19. Inverness</td>
<td>£73,000</td>
<td>22</td>
</tr>
<tr>
<td>20. Kincardine</td>
<td>£74,000</td>
<td>22</td>
</tr>
<tr>
<td>21. Kirkcudbright</td>
<td>£114,000</td>
<td>22</td>
</tr>
<tr>
<td>22. Lanark</td>
<td>£162,000</td>
<td>22</td>
</tr>
<tr>
<td>23. Linlithgow</td>
<td>£75,000</td>
<td>22</td>
</tr>
<tr>
<td>24. Orkney and Zetland</td>
<td>£57,000</td>
<td>22</td>
</tr>
<tr>
<td>25. Peebles</td>
<td>£51,000</td>
<td>22</td>
</tr>
<tr>
<td>26. Perth</td>
<td>£339,000</td>
<td>22</td>
</tr>
<tr>
<td>27. Renfrew</td>
<td>£69,000</td>
<td>22</td>
</tr>
<tr>
<td>28. Rofs</td>
<td>£75,000</td>
<td>22</td>
</tr>
<tr>
<td>29. Roxburgh</td>
<td>£314,000</td>
<td>22</td>
</tr>
<tr>
<td>30. Selkirk</td>
<td>£80,000</td>
<td>22</td>
</tr>
<tr>
<td>31. Stirling</td>
<td>£108,000</td>
<td>22</td>
</tr>
<tr>
<td>32. Sutherland</td>
<td>£26,000</td>
<td>22</td>
</tr>
<tr>
<td>33. Wigtone</td>
<td>£67,000</td>
<td>22</td>
</tr>
</tbody>
</table>

Glasgow, Rutherglen, Renfrew, and Dumbarton, Stirling, Cullfrosh, Dumfartine, Inverkeithing, and Queen'sberry,

Dumbarton, Kington, Kirkaldy, and Dysart,

Auldfirth, Ealp and Whithan, Kilcrenny, Kirkwall,

Aberdeen, Brechin, Montrose, Berri, and Aberdeen,

Kintore, Inverary, Banff, Cullen, and Elgin,

Forres, Nairn, Inverness, and Fortrose,

Dingwall, Tain, Dornock, Urick, and Kirkwall,

State of Religion.—According to the present establishment of the church, Scotland is divided into 15 synods, comprehending 78 presbyteries, and 893 parishes, which are represented in the general assembly of the church, which meets annually at Edinburgh. In its deliberative and judicial capacity this ecclesiastical court is justly accounted among the most enlightened and respectable in the Christian world.

In the division of the country into synods and presbyteries, convenience has been principally attended to, the limits of counties being no further observed than they are consistent with contiguity to the respective synodical and presbyterial seats; but in the arrangement of the whole into parishes, contiguity to the churches has not been so much observed. Hence, in many instances, remote parts are conjoined into one parish, to the great inconvenience of the parishioners, as well as of the officiating clergyman. With respect to extent and population also there is a great disparity; the first was settled in remote times; the second has been determined, in a great degree, by the effects of manufactures and commerce.

The names of the fifteen synods are as follow: 1. The synod of Lothian and Tweedside. 2. The synod of Moray and Teviotdale. 3. The synod of Dumfries. 4. The synod of Galloway. 5. The synod of Glasgow and Ayr. 6. The synod of Perth and Stirling. 7. The synod of Fife. 8. The synod of Angus and Mearns. 9. The synod of Aberdeen. 10. The synod of Moray. 11. The synod of Ross. 12. The synod of Sutherland. 13. The synod of Argyle. 14. Glenelgh, or synod of Lochaber and the Isles. 15. The synod of Orkney. These synods come in the place of the bishops, and have jurisdiction in ecclesiastical questions; in regard to which there is an appeal from the presbytery to the synod, and thence to the general assembly.

In former times, particularly before the revolution in 1688, Scotland, with respect to ecclesiastical government, was divided into two archbishoprics, St. Andrews and Glasgow, and twelve bishoprics, Edinburgh, Dunkeld, Aberdeen, Moray, Brechin, Dunblane, Ross, Caithness, Orkney, Galloway, Argyll, and the Isles. The country in general was parcelled out among the respective fees, in an arrangement having some regard to contiguity, but not always to; for several parishes were attached to bishoprics, and many to the archbishoprics, that were very remote from the provinces in which they were locally placed. This still remains the case with the jurisdictions of the different commissariats, which have been subjoined from these bishoprics, in what is called confiditurial courts. At present, the Scots Episcopals have only eight bishoprics, viz. 1. Edinburgh and Fife; 2. Glasgow; 3. Aberdeen; 4. Moray; 5. Ross; 6. Dunkeld; 7. Brechin, and 8. Dunblane; comprehending seventy-six curates, served by sixty clergymen. The number of
of three counties is reputed to be about 19,000, which, 1769, la
haps, with the children, may amount to 27,000. The Roman Cathedrals divide Scotland into two departments, the Lowland and the Highland, in order clearly to make a distinction between the two languages, the Scottish and the Gael. Over each of these a sees apolitical and a bishopric was set up. In the Lowlands they have about forty and in the Highlands eight bishoprics, about 27,000 in number. The Scotch are divided into three provinces:

The Southern, from the Scottish Presbyterians and a larger number of the country among them, they have 1,125 congregations in Scotland, with about 60,000 hearers.

The Northern Presbyterian Divideth into three provinces, containing eleven presbyteries. They have 1,125 congregations, with about 60,000 hearers. The Church of Relief divided the country into five presbyteries, containing 75 congregations, with about 50,000 hearers. The other Presbyterian Scots, as the Cameronian, &c., may amount to about 14,000. The separation of various persuasions, as Baptists, Brethren, Gladiators, may amount to nearly 5,000.

The Methodists, of whom there are supposed to be about 6,000 members, or, including children, about 9,000 souls, divide the country into circuits, eleven in all, headed by eighteen preachers.

The Friends, or Quakers, are few in number, that they have only five places of meeting, viz., Glasgow, Hawick, Edinburgh, Aberdeen, and Kirnack, near Old Meldrum; and their whole number does not exceed 2000.

Chief Cities and Towns.—The most important towns in Scotland, both as to extent and population, are Edinburgh and Glasgow; the former the metropolis of the kingdom, and the latter the emporium of its manufactures and commerce. They both contain nearly the same number of inhabitants, viz., about 100,000 persons, and are royal burghs, governed each by a lord provost and town council. The next town to these in importance is Perth, Aberdeen, Dundee, and Paisley, each containing about 30,000 souls. The other towns of note are Berwick, Dunbar, Haddington, Musselburgh, Aberbrothick, Montrose, Portferry, Elgin, Inverness, and Dingwall, situated on the eastern side of the kingdom; Ayr, Greenock, Paisley, Inverary, and Cambeltown, situated on its western side; and Dumfries, Lanark, Stirling, Dunfermline, Dunkefield, Falkirk, Linlithgow, Hamilton, Selkirk, and many others little inferior to these, which are situated in inland counties. Many of the above towns enjoy the advantage of separate jurisdiction, but others are under the authority of the county magistrates, and of the class is Paisley, the greatest manufacturing town in Scotland next to Glasgow.

Manufactures and Commerce.—Previous to the Union, Scotland could boast little as to the extent either of its manufacturing or commercial prosperity. It is true, indeed, that tradition, as well as history, point out Perth as a great trading mart some centuries ago, but the accounts are most probably exaggerated. At all events, it is certain that the commerce of the kingdom was at a very low ebb during the seventeenth century, and that it has only risen into importance within the last fifty years. Formerly the flax manufacture of the kingdom was great, but that has now given way, comparatively speaking, to the weaving of cotton goods. The chief seats of the former manufacture are Perth and its vicinity, and the county of Fife; and of the latter the counties of Lanark and Renfrew, including the towns of Glasgow and Paisley, and others of inferior note. Woollen cloths are only made for home consumption, and in trifling quantity, excepting carpets, the manufacture of which is considerable. Several other kinds of manufacture are carried on in Scotland, but that of silk is the only one which deserves to be noticed. The works of the Carron are probably the first celebrated in Europe for the furnishing of iron, and there are many.

With respect to the commerce of Scotland, it may be remarked, that, though in a smaller scale, it is much related to that of England. The chief exports are wool, grain, fish, tobacco, leather, coal, and iron, and some other articles, which are necessary for use. The imports are wine, brandy, and all kinds of colonial produce, including butter, bricks, &c., and new. The principal ports are those of Port Glasgow and Greenock, on the west coast, and Leith, Dundee, and Abdn., on the east coast.

To the above states of Scotch commerce, may be properly added the fisheries, which, placed under appropriate regulations, would produce a vast wealth, not merely to Scotland, but to the British empire at large. To effect this object several attempts have been made, but their beneficial operation has hitherto been much reflected. A bill, however, is now in progress, which it is hoped will produce a more favorable result.

Roads and Canals.—In the Lowlands of Scotland the great roads are not inferior in form or to those of England; but they are not yet in fact, in use, nor are they always planned to the most judicious manner. Rapid improvements, however, are making in this branch of political economy, to the advantage of commerce and of the improvement of national civilization. From the mountainous character of the Highlands, the construction of good roads is perhaps impossible; but even in that wild district, efforts are daily making to render communication more easy.

The principal canal in Scotland is that which connects the navigation of the Clyde and Forth. It was begun in 1769, and constructed according to a survey furnished by Mr. Smelt, of the above. The depth of this canal is seven feet, and its width at the surface fifty-six feet. In some places it is carried through mossy ground, and in others through solid rock, and appears evidently, through all its extent, to have been planned and executed with great ability. Another canal has been proposed between Edinburgh and Glasgow, and is believed to be in progress of execution. There is also a canal forming across the isle of Carse, to connect the Frith of Clyde with the Atlantic ocean, to the north of Jura. But the chief work of this description going on, is the great canal from the Moray Firth, through Loch Nefs and Loch Lomond to the outlet of the sea called Loch Linhe, on the western coast. Parliament has already voted a large sum towards this undertaking, which it is computed will require upwards of 400,000£, to complete it. See CANAL, INVERES.

Literature.—The literature of Scotland, though it cannot boast of great antiquity, has acquired a distinguished place in the annals of fame, by the rapidity of progress and brilliancy of its authors in later times. The Caldees, indeed, the venerable hermits of Jona, are represented by ancient historians as having been men of extensive learning and great erudition; but their claims to this eulogy are probably exaggerated. The earliest genuine work relative to Scotland is the Chronicle of Pitcairn, written by an Irish clergyman, supposed, with considerable probability, to have been a dignitary of the church of Abernethy, in the commencement of the eleventh century. In the twelfth century the chronicles published by Innes, and those of Melrose and Holyrood, deserve to be noticed. About the year 1290 flourished Thomas of Ercalde,
celdon, commonly called Thomas the Rhymer, who wrote a metrical romance, called Sir Tristram, lately republished by Mr. Scott. The next writer of confluence is John Barbour, archdeacon of Aberdeen, who wrote a poem in commemoration of the heroic actions of Robert Bruce, in the year 1375, not less celebrated for its historical fidelity than for its poetical merit. About this time flourished John Fordun, designated the father of Scottish history. In the fifteenth century, James I. of Scotland wrote some poems of great merit, and he was succeeded by Holland, and Henry the Rhymer. Next arose Dunbar, whose merit has entitled him to be placed at the head of the ancient Scottish poets. In the beginning of the sixteenth century flourished Gavin Douglas, and Sir David Lindsay. These were followed by many others of various merit, till the middle of the seventeenth century, when the unhappy events of that turbulent period checked the career of the arts and sciences. Before this, however, the illustrious Drummond had contributed to the world his exquise poems. In modern times, the field of poetical merit has been more luxuriant. The names of Thomson, Ramsay, Blair, Arbuthnot, Beattie, Burns, Campbell, and Scott, with many others, are held in universal estimation.

In the other departments of science, though of later cultivation, the Scots have made rapid progress. In history, the names of Boethius and Buchanan are everywhere revered. The classic elegance and purity of the style of the latter, has entitled him to rank with the first authors of antiquity. In our own age, among other historians of great merit, have arisen Hume and Robertson, whose works will ever be read with enthusiastic delight by the admirers of taste and genius. In the mathematical department, lord Napier, the celebrated inventor of the logarithms; Maclaurin, no less celebrated for his astronomical works; and Dr. Simpson, noted for his knowledge of ancient geometry, have acquired a lasting reputation. In medicine, the names of Pitcairn, Monro, and Cullen, may be mentioned as holding the highest rank; and in the department of metaphysical and moral sciences the perhaps stands unrivalled. The labours of Hume, Hutchison, Reid, Campbell, Beattie, Monboddo, Kames, Smith, and Ferguson, will be regarded with admiration, so long as the philosophy of the mind continues to be a subject of interest, and the English language is understood. Scotland has also attained the praisie of superior excellence in other departments of science, particularly in political economy and in chemistry.

Universities.—The universities in Scotland are four in number: St. Andrews, Glagow, Aberdeen, and Edinburgh. The first was founded by bishop Wardlaw, in 1412; the second by bishop Turnbull, in 1453; the third by bishop Elphinstone, in 1502; and the last by James VI. in 1582. As the reader will find each of them described under their respective names, we shall only observe farther concerning them in this place, that the university of Edinburgh is the most celebrated medical school in Europe, and is annually attended by from 1200 to 1500 students.

Education.—The mode of education adopted in this country is highly laudable, and is probably the best practicable system established in any kingdom. The plan followed in the cities and large towns is nearly similar to that of England; that is, by private seminaries and great public schools, of which the High School of Edinburgh is the most eminent. But the chief advantage of the Scottish education arises from the circumstance of every country parish having a schoolmaster, regularly appointed by the heritors, in the same way as the clergyman, who receives a small salary, which enables him to educate the children of the parishioners at a rate easy and convenient even to the most indigent parents. In the Highlands, the children of the poor are occupied as herdsmen during summer, and in winter attend schools. To be unable to read and write is considered so disgraceful in Scotland, that such persons are scarcely ever to be met with.

Manners and Customs.—In every part of the kingdom, but more especially throughout the Lowlands, the higher orders in Scotland are characterized by much the same features as in England. Their drefs, their mode of living, and their amusements, both public and private, are nearly alike. The inferior orders in the Lowlands are likewise much assimilated to their southern neighbours in their style of drefs, but their food and diversions materially differ. The ordinary diet of the Scottish peasant is paroch, a composition of oatmeal and water, boiled together till it attains a thick consistence. It is eaten with milk twice and sometimes thrice a day, and is seldom varied, except by bread; which differs from paroch only in having the addition of butter, and not being boiled. Butcher's meat is rarely eaten, except on Sunday; but vegetable broths made with butter are not unfrequently used during the week. Pork and eels were formerly held in great abhorrence, and even yet are regarded as impure articles of food, on account of superfluous opinions respecting them. In the Highlands these sentiments are particularly strong; and hence the rearing of swine is very little attended to in that district. In the same division of the kingdom, the national drefs is still prevalent; but the tartan kilt has very generally given place to pantaloons of the same material. From the influence of education, and the well-directed exertions of the clergy, the peafantry have long been distinguished for sobriety, industry, and moral rectitude; and, in point of intelligence, are indubitably the first in the world. Even the artificers are entitled to share in this cULogy, though it must be confessed that exceptions to the rule are too numerous, especi-ally in the great trading towns. The existence of witches, fairies, and ghofts, is still part of the creed of the Scottish peasant; and the Highlander confidently believes in the power of second sight, or the capability of perceiving future events. Some relics of the idolatrous worship of his remote ancestors are yet discernible, both in his amusements and his more ferious occupations; but they are gradually becoming fainter, and will, no doubt, disappear in the progress of refinement and civilization. For information on the amusements, superfluous, and manners of the Scottish peasantry, the reader cannot consult any works with greater advantage than those two exquise poems, the "Halloween," and "Cottar's Saturday Night," of the celebrated Burns. Referring, therefore, to them, we shall only further remark under this head, that in their religious ceremonies, considerable variations exist from the forms in England. Thus, for instance, in baptisms, godfathers and godmothers are inadmissible, the parents alone being made answerable for the education of their children in the path of morality and religion.

Antiquities.—Monuments of antiquity of every age, from the Celtic colonization of the kingdom, are yet visible in various districts. Those of the first epoch are all of the tumular kind, and are only to be discovered by nice investigation in the more wild and uncultivated tracts. Of the Roman period, the remains are numerous, confingling of vetrices of roads, flatons, encampments, foundations of walls, and other minor antiquities. The celebrated wall of Antoninus may yet be traced, with perfect accuracy, nearly the whole of its extent from the Forth to the Clyde; and many interesting inscriptions are frequently dug up from its ruins. Near it was formerly a small edifice called Arthur's Oven, which the most intelligent antiquaries suppose to have been a temple.
SCOTLAND

A temple dedicated to the god Terminus. The most northerly Roman camp yet discovered is situated on the river Ythan, in Aberdeenshire; and there are some roads extending into the county of Angus; but the chief remains of them are buth of the walls. The monuments of the Pictish era consist of tutori circles of stones, cromlechs, &C.; usually, but erroneously, denominated Druidical temples; and of those artificial mounds, or hills, whence the Picts and Dalriads kings were wont to promulgate their laws. The most remarkable stone circles in the kingdom are those in the site of Lewes, and on the Mainland of Orkney. The structures commonly called \"Picts' houseth,\" and the heaps of stones called \"carris,\" or \"karns,\" have also been supposed to belong to this age; but Pinkerton refers the latter entirely to the Dalrads, or Scots, and thinks the former may be Danith, as it is certain similar edifices have been traced to Scandina-
via. They seem to have consisted of a vault hall, open to the sky in the centre, and having receptacles for beds, &c., in the wall. \"These buildings,\" says the author last mentioned, \"are remarkable, as displaying the full elements of the Gothic castle; and the castle of Cuningburgh, in Yorks-
thire, forms an easy transition.\" The remains of later ages are the sculptured obelisks at Forres, and other places; which are probably monuments of signal events, such as battles and treaties of peace; the noted vitrified forts, and churches, abbeys, and churches almost innumerable. Among the more remarkable buildings which owe their origin to religion, are the abbeys of Melrose, Jedburgh, and Aber-
brotch; the cathedrals of Dunkeld, Glasgow, and Brechin; and the chapel of Roslyn, near Edinburgh. The last is one of the most singular and interesting remains of ancient archi-
tecture in Great Britain; and Melrose Abbey may vie with many in England, both as to the extent and magnificence of its buildings.

The following is a list of the books occasionally confuted during the compilation of this article. Joannis de Forde Scottchorunic, cum supplemento et contin. Walteri Bowert; 2 vols. fol. Edin. 1759. Scotia illustrata, &c. Annot. Rob. Sibbald. fol. 1684. The History of the Church of Scotland, from A. D. 263, to Death of James VI.; by John Spottwood; fol. Lond. 1655; 2d edit. 1657. Georgii Buchanani Omnia Operarum serures Thoma Ruddiman, &c.; 2 vols. fol. Edin. 1714. Theatrum Historiae Scotiae; a treatise De Jure Regni apud Scotos; another, entitled Acta contra Mariam Scottorum Reginam; and a third, entitled Dictata Mariae Reginae Scottorum; in his letters, poems, and some pieces on language. Collection of Treatises, in folio, concerning Scotland, written by Sir Robert Sibbald, Edin. 1707. This work comprises, among other pieces, Historical Inquiries concerning Roman Anti-
tiquities; Conjectures concerning the Roman Ports, Colo-
nies, and Forts; and An Account of the Writers ancient and modern, which treat of the Description of Scotland. Tractatus varius ad Scotia antiquae et modernae Historiam faci-
entes, &c.; Specimen Glossarii; Commentarius in Jutin An-
Guile Expeditiones, &c., in illustratissimae textus Taciti. Mif-
ellanea quodam eruditique Antiquitates qua ad borealem Britanniae Majoris Partem pertinent. Vindiciae Scotiae il-
ustrata, &c.; An Account of the Scottish Atlas; or, the De-
scription of Scotland, ancient and modern; fol. Edin.
1683. The Liberis et Independentes of the Kingdom and Church of Scotland affeeted from ancient Records; by Robert Sibbald; 4to. Edin. 1703. Selecta Diplomatium et Nummataria Scotiae Thefaurus, &c.; ab Jacobo Ander-
traits of illustrious Persons; by John Pinkerton; 4to. Lond. 1757. History of Scotland, from the earliest Ac-
counts to A.D. 1437; by William Maitland; continued by another hand; 2 vols. fol. Lond. 1757. The History of the Reformation of Religion within the Realm of Scot-
land, by John Knox; edited from his MS. in the University of Glasgow; fol. Edin. 1756. The true History of the Church of Scotland, from the Beginning of the Reformation to the Death of James VI.; by David Calderwood; fol. 1658. Historical Account of the Scottish Parliament, by George Redpath; 8vo. 1763. Scotica Indiculum; by Philo-

Articles of the Union with Scotland; 4to. 1707. In-
quiry into the Evidence against Mary Queen of Scots; 8vo. Edin. 1772. Inquiry into the Reign of Queen Eliza-
quities; 4to. Roy's Military Antiquities; fol. Gu-

SCOTLAND, New. See NOVA SCOTIA.

SCOTLAND River, a river, or rather rivulet, in the island of Barbadoes, which rises in St. Andrew's Parish, and falls into Long bay, on the E. side of the island, 3 miles S.E. of Cuckold's point, or 24 miles N.W. of St. Joseph's river, the only other small brook of the island.

SCOTODINOS, a term used by medical writers to express a vertigo, or dizziness of the head, attended with a dmeness of fight.

SCOTOMA, or SCOTOMA, a giddiness, or temporary confusion of fight; nearly synonymous with vertigo; which let.

SCOTS, in Geography, the name of one of the two great tribes,
tribes, into which the inhabitants of the northern region of Caledonia was divided, as early as the reign of Cunfantine; Picts being the denomination of the other. The name and almost the memory of the Picts have been extinguished by their unsuccessful rivals; and the Scots, after maintaining for ages the dignity of an independent kingdom, have multiplied, by an equal and voluntary union, as Gibbon expresses it, the honours of the English name. The hand of nature hath contributed to mark the ancient distinction of the Scots and Picts: the former were the men of the hills, and the latter those of the plain. The eastern coast of Caledonia was a level and fertile country, and produced, in a rude state of tillage, a considerable quantity of corn; so that the epithet of crunabh, or wheat-eaters, expressed the contempt or envy of the carnivorous highlanders. Nevertheless, the love of arms and rapine was still the universal passion of the Picts; and their warriors, whipped for a day of battle, were distempered, in the eyes of the Romans, by the strange fashion of painting their naked bodies with gaudy colours and fantastic figures. (See Picts.) The western part of Caledonia irregularly rises into wild and barren hills, which fearfully repay the toil of the husbandmen, and are most profitably used for the pasture of cattle. Accordingly the highlanders were condemned to the occupations of shepherds and hunters; and as they were seldom fixed to any permanent habitation, they acquired the expressive name of Scots, which, in the Celtic tongue, is said to be equivalent to that of swanderer or vagrant. That the Irish defeat of the Scots, though lately revived by Mr. Whitaker, is a fable, has been satisfactorily evinced by Mr. Gibbon; and he has traced the foundation upon which this fabulous superstition has been gradually reared by the bards and the monks, two orders of men, who equally abused the privilege of fiction. It is probable, says this sagacious and elegant historian, that in some remote period of antiquity, the fertile plains of Ulter received a colony of hungry Scots; and that the strangers of the North, who had dared to encounter the arms of the legions, spread their conquests over the favage and unwarlike natives of a solitary island. It is certain, that in the declining age of the Roman empire, Caledonia, Ireland, and the Isle of Man, were inhabited by the Scots; and that the kindred tribes, who were often associated in military enterprises, were deeply affected by the various accidents of their mutual fortunes. They long cherished the lively tradition of their common name and origin, and the missionaries of the Isle of Saints, who diffused the light of Christianity over North Britain, established the vain opinion, that their Irish countrymen were the natural, as well as spiritual, fathers of the Scottish race. The Scottish nation, with mitred pride, adopted their Irish genealogy; and the annals of a long line of imaginary kings have been adorned by the fancy of Boethius, and the chaste elegance of Buchanan. Gibbon's Hist. vol. iv. See SCOTLAND.

SCOTS TUNES. In February 1722, the newspapers of the times inform us, that there was a concert for the benefit of Mr. Thomson, the first collector and publisher of Scots tunes in England. To this collection, for which there was a very large subscription, may be ascribed the subsequent favour of these national melodies south of the Tweed.

After this "confort, at the desire of several persons of quality, was performed a Scottish song." In 1744, in the opera of "Rofelmida," set by Veracini, at that time the leader of the opera band, the first air that presents itself, in the printed copy of the favourite songs, is "The Lads of Patie's Mill," which Monticelli conducted to sing, and to which Veracini added parts and ritornell, in order, as they imagined, to flatter the British nation. But as few of the North Britons, or admirers of this national and natural music, frequent the opera, or mean to give half a guinea to hear a Scots tune, which perhaps their cook-maid, Peggy, can sing better than any foreigner, this expedient failed of its intended effect. See PIMA.

SCOTS, or SCOTT, in Geography, a county of Kentucky, containing 12,419 inhabitants. Its chief town is Georgetown, containing 529 inhabitants.

Scott's Bay, a bay on the S.W. coast of the island of Dominica, towards the S. extremity of the island; 4 miles S. of Charlotte-town.—Allo, a bay of the North Pacific ocean, on the W. coast of America; 10 miles S. of Queen Charlotte's found.

Scott's Cove, a bay on the S.W. coast of Jamaica.

Scott's Head, a cape at the southern extremity of Dominica. N. lat. 15° 20'. W. long. 61° 34'.

Scott's Islands, a cluster of islands in the North Pacific ocean, near the N.W. coast of the island of Quadra and Vancouver. N. lat. 50° 57'. E. long. 23° 41'.

SCOTT, John, in Biography, a clergyman of the church of England, was born in 1638, at Cluppenham, in Wiltshire. He was first apprenticed to a trade in London, and a prebend in St. Paul's cathedral. In 1685 he took his degree of D.D.; and in 1691 he was appointed to the rectory of St. Giles-in-the-Fields, and was made canon of Windor. "The Christian Life," which was published at different times, and finished in 1686, acquired for him so high a reputation, that, after the revolution, he was offered the bishopric of Chester; which, however, he refused, because he could not conscientiously take the oaths required. He was afterwards offered the bishopric of Worcester, and a prebend of Windor, which he likewise declined, because they were the places of persons who had been deprived for an adherence to those principles, which he himself secretly cherished. Nevertheless he had strenuously opposed the prelates of Popery in the reigns of Charles II. and James II., and published some works in controversy with the Papists, while the latter prince was still on the throne. Dr. Scott died in 1694, leaving the character of an excellent man and worthy parish-priest. Besides the work already mentioned, he wrote "A Caes of Conference resolved, concerning the Laws and Liberties of the Church of England," and "Twelve Short Sermons," preached on different occasions. His "Christian Life" is a book very generally read in the religious world.

SCOTT, Michael, a celebrated Scotman of the 13th century, was born at Balwearie, in Fife, about the beginning of the reign of Alexander II. At a very early period he made great progress in language, as well as in mathematics; and having finished his studies at home, he went over into France, where he remained some years; but hearing that the emperor Frederic II. was a great patron of learning and learned men, he repaired to the court of that prince, and applied himself closely to all the branches of philosophy then studied. After residing some time in Germany, he proceeded to England, and was high in the favour of Edward II.; but it is not at all known how long he continued here. Upon his return to Scotland he received the honour of knighthood from Alexander III., and was afterwards sent, with Michael de Wenneys, to bring to Scotland the Maid of Norway, who, being taken ill at sea, was landed on one of the Orkney islands, where she died in the year 1290. At this time Sir Michael was probably far advanced in life: he died in 1291. He was esteemed a man of
of great learning, though so much addicted to the occult sciences, that he passed among his contemporaries as a dull and unmeaning man. Beccaria andVoltaire both exhibit him as one who, if he ever wrote, was not read, and the latter is his namesake, and perhaps introduced the term dedicated by D. This is not known where he was buried, but it is surmised that his books of magic were interred with him in his grave, or preferred in the ceremony which accompanied his death. A Latin translation of Aristotle's works is ascribed to Michael Scott, but probably upon insufficient evidence. There is a translation of that philosopher's works, partly from the Greek and partly from the Arabic, by various hands, undertaken at the command of the emperor Frederic II., at whose court in Michael refided some time, and as he is reported to have translated Aristotle's Natural History of Animals from the Arabic version of Avicenna, it has been assumed that this is the only part of the work which should be ascribed to him. The title of the work is "Aristotelis Opera, Latine versae, partim e Graece partim Arabicæ, per versus lecitos et in uniuerso Linguæ proletante permittus, judis imperatoris Frederici II. Venetiæ, 1496." The works of Michael Scott are numerous, among which the following may be mentioned: "Pharmonigmata et De Homine Procreatione," "De Secretis Naturæ," "Quelico curioso de Natura Solis et Lunae." The subject of this last work is the pretended transmutation of metals, gold and silver being reckoned among alchemists the sun and moon. According to the opinion of Riccobò, Scott was a diligent observer of the stars, and, at the request of the emperor Frederic II., he wrote a treatise on the sphere of Sacrobosco. "Gen. Biog." 

Scott, George Lewis. This learned and accomplished man was not only an able mathematician, but an excellent musician. He was an intimate friend of Dr. Pepys, and assisted him in drawing up his paper for the Royal Society, on the genera and figures of the ancient Greek music; and whatever articles he furnished to the Supplement of Chambers's Dictionary, concerning harmonics or the ratio of sounds, may be depended on. Mr. Scott was a performer on the harpsichord, and very fond of music; but always calculating, during his own performance and that of others, as to the legality of modulation. And we well remember his being much disturbed at the unrelenting succession of chords in the opening of Peri's "Stabat Mater," at the second bar, where that mollifying author suprises the ear, as well as the eye and intellect, in modulating from F minor to E♭ major. Dr. Mower, who had no taste or feeling for music, used to calculate ratios for the ingenious and worthy organist of the Charter-house, and laugh at him for his Greek and mathematical pretensions; but Scott, the flub-preceptor of his present majesty, was in earnest, and wished to make discoveries in Greek music, as much as Pepys. For though attached to old matters of eminence, as well as the Carthusian maestro di cappella, he enjoyed the productions of the moderns extremely, when he could discover in them either genius or science. As we had the honour to be personally acquainted with him, we are sure that the elaborate article Temperament, in music, in the additional volume to Chambers's Dictionary, was drawn up by the late learned and scientific Mr. Scott, who was one of the very few theorists that ever paid the least regard to practice, or who seemed to recollect that the ear had anything to do with harmonics. 

Scott, or Scottus. See Scot. 

Scotti, Tereasa, in Biography, the first woman in the operas of 1764 and 1765, in which Manfosh fung. 

The Scotti, with an elegant figure, a beautiful face, and a melodious voice, five is a very good thing; and the want of power, I flattered great flattery for.

SCOTTIA, in History, bears a memorial to Robert Scott, M.D., late professor of Botany at Dublin, commemorated by Mr. Dumont, in the preface, as well as the dedication, of his "Medicinae Historiae Synopsis." Brown in Art Hist. Kew v. 4, 1768—Classi et ordine, Dodoensiae Decades. Not Ord.


II. Ch. Calva with five rather unequal teeth; its base clothed with indurated appendages. Standard fiddle, shorter than the wings, which are the length of the keel. Stamina all connected. Lemma flat, compressed, thickened at each margin. Seeds few, cleft. 

1. S. dentate. Toothed Scotta.—Found by Mr. Brown on the south-west coast of New Holland. A flowerless plant, in Kew garden, in 1823, by Mr. Peter Good. It is kept in the greenhouse, and flowers from June to September.

SCOTTSBURG, in Geography, a post-town of Virginia; 256 miles W. of Washington.

SCOTUS, in Ancient Geography, a town of Macedonia, on the banks of the river Strymon, in the Thessalian, near Berga.—Alfo, a town of Greece, in the Thessaly Ptolemy.

SCOUR a Line, To, in the Military Language, is to flank it so as to free directly along it; that a musket-ball, entering at one end, may fly to the other, leaving no place of security.

SCOUR, among Cattle, a disease of the flux kind, which frequently affects cows, calves, sheep, and other animals. See Scouring in Cattle, and in Calves.

This is a disease in sheep, which is common in the winter season, being believed to originate from the severity of the frosts, especially when they set in suddenly, or alternate frequently with thaws. The chief dependence for a cure, in these cases, is upon an expeditious change to dry keep; as, in the practice of some good sheep-farmers, the use of hay, on the mornings when hoar-frosts are prevalent, has been found a good preventative. It is sometimes called the galls by sheep-farmers. Early, soft, taty, luxuriant pastures, are also liable to produce this complaint, especially in previously worn-down sheep. It arises frequently, too, from sudden changes from dry, warm, poor pastures, to such as are rich, cold, and damp; or the contrary. It is sometimes likewise the consequence of other affections, as well as of the local weaknesses and relaxation of the bowels. In all these instances, the above changes of food will be highly useful and necessary. The disease may be flapped, except where it is critical, after clearing the intestines of any irritating matters, by mild purgatives, by the following means, particularly where there is great weakness of the affected parts. Both four ounces of the flavings of logwood in two parts of water, until it be reduced to one pint; then add one ounce of cinnamon water, and give one half at a time. Where this is not strong enough to check the disordered, half a dram of the extract of catechu may be dissolved in it, with fifty or more drops of the tincture of opium. These will mildly lessen the over-action of the bowels, and speedily remove the complaint. In mild cases of this nature, it will seldom be necessary to have recourse to the above remedy, as they will easily be removed by the use of water, in which a little calcined chalk and earth's flavings have been boiled. In high states of the disease, the strength of the medicine must be increased.

The
The black scour is, however, seldom capable of being restrained by any means that have yet been had recourse to; it therefore, for the most part, terminates fatally.

Scour, White, a disease in sheep of the more violent flux kind, supposed to originate in consequence of their feeding upon putrefactive vegetable food, especially that of the shells of such turnips as have been left upon the feeding grounds. In these cases, it has been advised to give two or three large spoonfuls of the following mixture, every two or three days; the diseased sheep being separated from the rest of the flock. Take of finely powdered and sifted bay-felt, half a pound, and dissolve it in good old verjuice, one pint; to which add of good common gin half a pint; mixing the whole of them well together.

And in order to facilitate the removal of the disease, the sheep should be put upon good dry food, in an upland pasture. See Sheep.

Scouring in Cows, a disease in these animals of the flux kind, in which there are frequent liquid dejections from the intestines, proceeding from irritation, the excrements, according to Downing, being filthy, bilious, or black; sometimes they are limpid and fluid, like water cast out; at other times they are frothy, greasy, and mixed with a fat clarified coloured substance. This disorder is generally attended with a bad appetite, a weak depressed pulse, hard dry skin, dull countenance, and something of a slow fever. This disease is so obvious, that it needs no further description; for the copious evacuation of the excrements, and many other signs, make it evident to the knowledge of every person. And he supposes, that the first stage of it is a companion of the joint yellows, and may be traced out to the satisfaction of any one who will take the trouble to open any animal that dies of this disorder.

According to others it affects oxen as well as cows, and arises from want of sufficient food, both in quality and proportion; from being overheated or overworked; by feeding on wet unwholesome forage or after-grafs; by not being lodged in dry situations; sometimes from giving them too large a quantity of cut hay or straw, hotter than their natural temperature; though it is sometimes a constitutional taint, and in cows is caused by their taking cold while calving. But whatever be the cause, as soon as it begins to appear it will be necessary to hoist the head, and put it to dry food, which, in early stages of the disease, often effects a cure. But in this case Mr. Downing advises the following:

Take of mutton fuel, one pound; oil of turpentine, four ounces; boil these together in three quarts of milk till the fuel is dissolved, and give it at night milk-warm; and the next morning give the following medicine:

Take pomegranate powder, eight ounces; logwood in powder, two ounces; new pipes pounded, two ounces; Persian bark in powder, two ounces; roch alun in powder, six ounces; mix these together, to be given in two quarts of old ale or urine, and repeated every other day. The beast should fast two hours before and two after taking the medicine. He afterwards has recourse to crab verjuice, in the quantity of a pint, for several mornings. And also the following. Take calcined oyster-shells in powder, four ounces; ditto pipe-clay, one ounce; oak-bark powder, two ounces; grains of paradise, one ounce; righth alun, one ounce. Mix thep together for one dose, to be given in a quart of old beer and a pint of red wine, or in three pints of oak-dip from the tan-pits.

But others advise half a pound of grofely pulverized tormentil root, to be boiled in two quarts of water till reduced to one quart, then straining it off, and adding a quart of red wine, a quarter of a pound of finely powdered chalk or whiting, and two ounces of diafoirdium, without honey. The mixture should be preferred in a bottle, and occasionally well shaken together, making it lukewarm before it is given. The dose is half a pint, given three times in the day, at equilibrant periods. Or half a pound of pulverized common chalk may be boiled in two quarts of water, till diminished to three pints, then adding four ounces of hartborth shavings, and one ounce of cellas, strewing the whole carefully. When cold, two dracons of tincture of opium, and one pint of lime-water, may be added; the whole being kept closely stopped in a bottle, and well shaken before it is used: the dose is one or two hornful in the day.

Scouring in Calves, a disease to which they are very subject at an early period, being often cauased by improper management in putting them too soon to the teat, or letting them remain too long at it. It is also sometimes cauased by too frequently changing the milk.

But in order to effect a cure, it has been advised to revict the calf in the quantity of its food, giving a hard boiled egg, made fine by chopping, in a drench, the first thing in the morning. Chalk powdered and mixed up with flour into balls with gin has also been recommended as useful and safe in these cases, by a writer in the Annals of Agriculture.

In Elkex, some farmers have found the following remedy almost infallible. Two tea-spoonfuls of rhubarb in fine powder, and a table-spoonful of peppermint water, kneaded well together. If once giving of this does not stop the complaint, a second dose is given, with a little red port wine added to it, which molily completes the cure. In one case an apparently dying calf was restored by the use of this medicine.

Powdered chalk given in their troughs, with the barley meal for fattening them, is found to have a good effect in this intention, as well as in other ways.

And a decoction of calcined chalk, hartborth shavings, and a little coarsely pounded cellas, with a very small quantity of the tincture of opium, will mostly be found of great benefit in calves of this nature, when given to the extent of from two or three to five or fix table-spoonfuls once or twice in the course of the day.

Scouring in Lambs, &c. a disease which is common to them in many places, but especially to those which have been sent to winter on the hills from the Romney-marsh lands in the southern part of the kingdom. These also which continue in the Marip during the same season, are liable to be attacked with the complaint on the approach of spring. Sheep which are weakened in their constitutions, and have experienced a quick transition from poor, low, to rich, full keep, are the most subject to be affected. Likewise when they are first brought upon the marsh-lands in the early spring, particularly when moist warm weather succeeds to keen frosts, though it often shews itself at other times of the year, as already noticed. The writer of the Romney-marsh sheep-grazing syllable remarks, that the farmers there consider it salutary, and believe that the sheep fatten more quickly after it: but he suspects, that when it is long continued, the powers of their syllums must be greatly injured and reduced. In such cases, the disorder ought mostly to be restrained and removed by having recourse to dry food, and the use of suitable remedies. The above writer has had twenty lambs attacked with it in a feaon, and not being able to learn them to eat hay, succeeded insaving most of them, by means of giving them an astringent cordial drink, with a small portion of opium, and turning
turning them upon dry, land. This is called pasture-land. But three of the number, to which he is fed in milk had been given, all died. The rest of the sheep, with their powdered lime of an old well, all of them half crushed, is said, in some instances, to prove a chemical remedy for this complaint.

On the whole it is thought, that at the disorder evidently arises either from cold, moisture, and poor food, or from weakly sheep having put upon them such keep, the most proper and rational method of curing the affection is, in the first instance, to turn the sheep immediately into a new warm pasture, and supply them with fresh good hay, &c., and in the latter case, put them upon found straw, &c.,. In pursuit of the practice, a sheep farmer in the same neighbourhood it is said, constantly kept his wether lambs on a cord to the above Marth, and that he never had any of his flock affected with the disease; which he imputes to the allowing of them old grass upon the land. The grounds are warm, and well sheltered by trees and fences.

SCOURING, Preventive Remedies, for Horses, such as are given to work and other horses, as well as occasionally to other sorts of live-flock, for the purpose of preventing the occurrence of diseases in them. The caustic and indiffer-erent use of remedies of this nature among horses and other cattle has been the cause of much loss and mischief. Animals by no means stand to frequently in need of medicines of this sort as it has been supposed, though they may sometimes have occasion for them. The state and circum-nces of the animals, with a full knowledge of the manner in which they have been kept, and the labour or exercise which they have had, will, with due discrimination and judgment in the person who has the care of them, most probably be understood when they may be necessary and useful; and when, on the contrary, improper and hurtful.

Calomel and aloes are probably the most proper substances to be generally employed in this way, though others of the purging kinds may sometimes be joined with them to promote their operation with much advantage and effect. However, from the natural motion of the bowels of horses being slower, and the length of the intestinal canals greater, it will be found that the stimulant purgative power of the substances continues for some time after it has passed from the stomach, no effect will be produced upon them. This accounts for the failure of such remedies in many cases. Yet on the same grounds, it may naturally be supposed, that a powerful dose of such medicines may increase this action in such a manner, and propel the contents of the bowels in so forcible a degree, as to produce great pain, inflammation, or other mischief, which may either kill the animal or greatly injure it, as is frequently exemplified.

Consequently, in every case where the strength and the state of the animal are not well known, the bell method may be to begin with giving not too large doses of remedies of this nature, but increasing them afterwards where found necessary. In this way there will be every advantage secured, without the danger of injury being done. Such horses as are newly taken up into warm stables from cold exposed situations, will often stand in need of one or two gentle doses of this kind. But horses employed in team labour, or hard work of other sorts, will very seldom require such affinities. It may, however, be occasionally useful. Swellings of the legs, inflammations of the eye, coughs, and colics, arising from the sudden change of temperature, may in many cases be prevented, by rendering the stables more open and airy on the horses being first taken up into them, especially if they be cold and warm.

So young horses mostly rep. a full course of the fluids, but by the rays they are usually given. Horses ten, after a full course of fluids, and frequently are the better for it. Also such as have been feebly struck by feeding, and too much milk. There may be cases in which, in horses, we are in some doubt, but they are only less, as it is not at all necessary to have recourse to them in that general way which it is usually required.

The usual, and probably the best mode of giving such medicines, is that of giving the animal the caused ball in the evening, and the other the next day in the morning, to warm them up to a proper measure.

From one draught to two draughts, in proportion to the strength of the animal, of the fluid or ball, with half an ounce of some aromatic powder, made up with rose-water or honey, will form a proper ball for the evening dose. And from half an ounce to one ounce, according to the state of the animal, of finely powder Barbados aloes, with two draughts of powdered purg, made up in the same way, will form a suitable morning ball in this intention.

Proper mashes and feeds, with suitable work or exercise, and grooming, are to be had recourse to at the same time. The space of eight or ten days should always elapse before the doses are repeated.

SCOURINGS, among Farriers, such gentle purges as preserver horses from noxious humours.

SCOUTS, in Military Language, are generally horfemen sent out before, and on the wings of an army, at the distance of a mile or two, to discover the enemy, and give the general an account of what they observe.

SCOUZIE HEAD, in Geography, a cape of Scotland, on the E. coast of the county of Caithness; 3 miles S. of Duncaiby Head. N. lat. 58° 31'. W. long. 2° 25'.

SCOW, in Agriculture, a term used by farmers to signify the sheath of a horse.

SCOWBEGAN FALLS, in Geography, falls which boats cannot pass, in the Kennebec river, in the state of Maine, North America, near the town of Canaan.

SCRABY, or SCRAB, a small port and fair-town of the county of Cavan, Ireland, near Lough Gownah; 60 miles N.W. from Dublin, and 7 N.W. by W. from Granard.

SCRAPER, an instrument used in mezozint to engraving, formed much in the manner of a knife, except that the edge is straight till near the point, and there pinces off at a sharp angle from both sides; the lines of which form another angle of the point: but the edge on one side is much longer than that of the other.

SCRAPING in Mezozinto. See Mezozinto.

Scraping, in Naval Language, is the act of shaving off the dirty surface of the plank, in a ship's side or decks, particularly after a voyage, or when the seams have been covered with a new composition of melted pitch or resin. The instrument with which this is performed is called a feraper.

SCRATCH, in the language of the sail-workers of our country, the name of a calcareous, earthy, or flinty substance, which separates from sea-water in boiling it for salt.

This forms a thick crust in a few days on the sides and bottoms of the pans, which they are forced to be at the pans of taking oil once in a week or ten days, otherwise the pans burn away and are destroyed. (See Salt.)

This is no other than the same substance which clings over the insides of our tea-kettles, and is truly a spar, sustained more or less in all water, and separable from it by boiling.
boiling. The shells of sea-fish have great affinity in their substance and nature with this, both being powerful alkalies, and both easily calcining into lime.

The magnesia alba, so celebrated in Germany for its mild purgative and alkaline virtues, seems very nearly allied to this earth; and it is probable, according to Hoffmann, that the purging virtues of many springs are owing to the quantities they contain of this substance.

SCRATCHES, among Farriers, a dilemma incident to horses, confuting of dry scabs, chops, or rifts, that breed between the heel and the pattern joint.

There are various kinds of scratches, distinguished by various names, as crepances, rat-tails, mules, kibes, pains, &c., which are all so many species of the same malady, engendered from some hot humours falling on the legs, or from the fumes of the beast's own dung lying under his heels, or near them, or for want of rubbing his heels, especially after a journey, from over-hard riding, &c.

The disorder begins first with dry scabs in the pattern joint, in several forms. It is known by the flaring, dividing, and curling of the hair on the part. For the cure of this disorder, see Grease.

In order to prevent it, the heels should be kept fapple with carrippers' dubbing, which is made of oil and tallow: by using this precaution before exercise, and walking the heels with warm water when the horse comes in, the scratches will be prevented.

SCRATCH-PANS, in the English Salt-Works, a name given to certain leaden-pans, which are usually made about a foot and a half long, a foot broad, and three inches deep, and have a bow, or circular angle of iron, by which they may be drawn out with a hook, when the liquor in the pan is boiling. See Salt.

The use of these pans is to receive the scratch; and these pans being placed at the corners of the fall-pan, where the heat is least violent, catch it as it fuilds there.

SCRATCH-WORK, Sgraffita, a way of painting in fre'co, by preparing a black ground, on which is laid a white plaster; which white being taken off with an iron bodkin, the black appears through the holes, and serves for shadows.

This kind of work is lafting; but being very rough, it is unpleasing to the eye. It is chiefly used to embellish the fronts of palaces, and other magnificent buildings.

SCRAWLY, in Agriculture, a term provincially signifying thin and ravelled as grain.

SCREAMER, in Ornithology. See Palamaea.

SCREEN, an instrument for keeping off the wind, or the heat of the fire.

Screen is also used for a frame of laths to sift earth, sand, gravel, &c.

SCREEN, or Screen-Machine, in Agriculture, a simple contrivance, invented for the purpose of clearing grain of different kinds, of various injurious sorts of seeds, by passing it through it. It consists of a wooden frame, which has ledges on the sides, with a fort of hopper in the upper part of it, to which is attached a kind of valve, that moves to suitable distances by means of a screw, for letting proper quantities of grain pass down upon a square wire sieve, which is fixed below in the frame, and communicates with the hopper in some measure. The screen stands up in a sloping position by means of a leg, that draws out behind it, and which is commonly regulated by a cord, while the operation of screening or clearing the grain is going on. It is a very useful and convenient machine on small arable farms, but on large ones the work is now usually done by a somewhat similar contrivance in the threshing machine, while that is going on with it. See Threshing Machine.

SCREEN-FENCES, such fences as are raised for the purpose of affording shelter from winds, storms, &c. The writer of the tract on improving landed estates fuggetts, that for the purpose of shelter to pasturing flock, a tall impervious fence is nearly equal to a depth of coppice-wood, and infinitely preferable to an open grove of timber-trees; besides its additional use as a fence, or means of inclosure. And that there appears to him to be only one kind of fence which is properly adapted to this purpose, which is that of the coppice mouth hedge of Devonshire and South Wales; which consists in a high wide bank or mound of earth, planted with coppice-woods. This becomes, immediately on its erection, a shelter, and a guard to pasturage round which it is formed.

And in respect to the method of forming fences with this intention, it is that of carrying up long piles of earth, between two sod-facings, battering, or leaning somewhat inward, to the required height; and planting on the top the roots and lower items of coppice-plants, gathered in woods or on waile grounds, or with nurtry plants adapted to the given situation. If the mound be carried to a full height, as five or six feet, and about that width at the top, and this be planted with strong plants, with items cut off about two feet above the roots (in the usual practice of Devonshire), a sufficient fence is thus immediately formed against ordinary flock; but if the bank be lower, or if nurtry plants be put in, a flight guard run along the outer brink, on either side, and leaning outward over the face of the mound, is, he observes, required (especially against sheep), until the plants get up. But where a hedge of this kind is raised as a plantation-fence, (especially on the lower side of a slope,) the outer side only requires to be faced with sods; the hedge-plants being set in a rough shelving bank, on the inner side of the fence.

Further, with respect to the species of hedge-woods proper for mound fences, they depend entirely, he thinks, on the soil and situation. On mounds of bad soil, in a bleak situation, he has seen the furze alone affording much shelter, and a good fence. The fides being kept pruned, so as to throw a close firm face rising above the top of the bank, it was a secure barrier, even against the wilder breeds of Welsh sheep. The beech is commonly planted in high exposed situations; and in places more genial to the growth of wood, the hazel, the ash, and the oak are the ordinary plants of hedge mounds. The willow tribe have a quality which recommends them in situations where they will flourish; they grow freely from cuttings, or transcheous set in the ground; whereas to secure the growth of ordinary coppice-woods, rooted plants are required. The fallow (falix caprea) will grow in high and dry situations, in a manner so as to be useful in this sort of fences. And it may be further noticed in regard to this description of fences, that on thin foiled sandy surfaces, tall mounds are difficult to raise; and, there, stone walls are not only built at a small expense, but are convenient receptacles for the stores with which the wall is encumbered. But a stone wall, unless it be carried up to an inordinate height, at a great expense, is, he conceives, useless as a screen-fence, and is liable to be dangerous as such in a bleak, exposed situation; for so soon as the drifting snow has reached the top of the wall, on the windward side, it pours over it, and inevitably buries the sheep which may be seeking for shelter, on the leeward side. It is therefore conceived, that it is necessary that a stone fence should be backed with a screen-plantation, in order to render it more safe and effectual for the purpose.
It may be remarked, that these forms of fence, fences should be more attended to by the proprietors of land to all exposed situations, as they have much effect in promoting the improvement of different sorts of live stock in such exposures.

Screen-Plantations, and Planting, a term sometimes applied to bush belts, clumps, or hedges, as are planted with a view of affording shelter in exposed situations. And Mr. Marshall, in his work on "Land-Property," considers the effect of such plantations, not merely that of giving shelter to the animals lodging immediately beneath them; but likewise in breaking the uniform current of the wind; flattering the cutting blasts, and throwing them into eddies; thus tempering the air to some distance from them. And, moreover, he is of opinion, that living trees communicate a degree of actual warmth to the air which envelopes them. It is at least, he thinks, a probable truth, that where there is life there is warmth, not only in animal but in vegetable nature. The severed frosts rarely affects the sap of trees; it consequently appears to him, that trees and shrubs, properly disposed in a bleak situation, tend to improve the lands so situated in a threefold way for the purposes of agriculture: namely, by giving shelter to the flock, by breaking the currents of winds, and by communicating a degree of warmth to the air in calmer weather, or when the feeding are more mild.

Besides, it is suggested that the proper disposition of screens in this intention, is in lines across the most offensive winds, and in situations best calculated to break their force. Placed across valleys, dills, or more open plains in bleak exposures, they may, he supposes, be of singular use; and also on the hills, as well as on the points and banks of hills, and other elevated places.

And in regard to the width of such screens, they ought generally, he thinks, to be regulated by the value of the land for agricultural uses, and the advantages of the situation for the sale and delivery of timber. In ordinary cases, it is conceived that from two to four statute poles may most probably be considered as an eligible width for such purposes. With respect to the nature or species of plants which are most suitable, they must, he thinks, be adapted to the given soil and situation. Mr. Marshall thinks, that an bleak and barren situation the larch will generally be found the most profitable as timber. But being deciduous, it does not in winter afford so much shelter as the common fir. A fence, or shelter live-flock should be close at the bottom; it is otherwise injurious rather than beneficial. Not only the blast acquires additional current, but snow is liable to be blown through, and to be lodged in drifts on the leeward side, to the annoyance and danger of flocks that have repaired to it for shelter. A larch plantation margined with firs, and thefe headed at twelve or fifteen feet high, would, I suppose, afford the required shelter for a length of years. The first, thus treated, would be induced to throw out lateral boughs and feather to the ground; while the larches, in their more advanced state of growth, would, by permitting the winter's winds to pass through the upper part of the screen, break the current and mellow the blast, and in this way a complete shelter be provided; but in other more general situations, the beech, by retaining its leaves in winter, especially while it is young, forms a valuable screen. And that, if the outer margins were kept in a flate of coppice-wood, and cut alternately, and the middle ranks suffered to rise as timber-trees, the triple purpose of screen-plantations might, he imagines, be had in an eminent degree, and almost in perpetuity, with but little trouble. And in deep-foiled, vale districts, which not unfrequently want shelter, fences of oak might, he conceives, be managed in a similar way: and

lies, or other hardy evergreens, planted as bower trees, in groves of either of the above descriptions, while the side atmospheres, as were alluded to before, would, in this intention, especially where pears and other fruit trees are planted, and protecting them.

This sort of plantation, when first formed, should always be well fixed to the root of the clipping, but the point of the ends to the kind of trees and plants which are made use of for the purpose, and the space or extent of the plantation which will be necessary for effecting its object. In common, narrow strips never want the intention in any perfect manner, as the trees neither sink well, nor afford the shelter which is wanted in such cases. See Shelter.

Screen Bulkhead, in Ship-Building, the after bulkhead under the round-boat, when the ship has a walk, or balcony.

SCREW, or Screw, Cylinder, in Mechanism, one of the six mechanical powers; chiefly used in turning or in raising bodies close, through sometimes also in raising weights. See Mechanical Powers.

The screw is a right cylinder, as A B (Plate XXXVIII. Mechanism, fig. 1.) furrowed spirally wise, is generated by the equal motion of a right line F G (fig. 2.) around the surface of a cylinder, while, at the same time, the point 1 describes equably from F towards G. Of it, may be conceived to be made by cutting a piece of paper into the form of an inclined plane, or half-wedge, and then coiling it round a cylinder, so that its action depends on the same principles as that of an inclined plane. The force tending to turn the screw round its axis may be considered as applied horizontally to the base of the wedge, and the weight which is to be raised acting vertically on its inclined surface; the circumference of the cylinder will represent the horizontal length of the wedge; and the distance between the threads, measured in the direction of the axis, will be its height, provided that the threads be single; consequentially, the forces required for the equilibrium are to each other, as the height of one spire is to the circumference of the screw. But besides these forces, it is necessary that some obstacle be present, which may prevent the body, on which the screw acts, from following it in its motion round its axis; otherwise there can be no equilibrium. If the furrowed surface be convex, the screw is said to be male; it concave, it is female.

When the motion is to this axis is directed, the male and female screw are always passed; that is, whenever the screw is to be used as a simple engine, or mechanical power; and when thus fitted together, they are sometimes called a screw and a nut. The nut acts on the screw with the same mechanical power as a single point would do, since it only divides the pressure among the different parts of the spire. When joined with an axis in peritrochio, there is no occasion for a female; but in that case it becomes part of a compound engine.

The screw cannot properly be called a simple machine, because it is never used without the application of a lever, or which, to affect in turning it. Sometimes the spires of a screw are made to act on the teeth of a wheel, when a very slow motion of the wheel, or a very rapid motion of the screw, is required for the purposes of the machine.

Screw, Doctrine of. 1. If, as the compass, described by the power in one turn of the screw, is to the actual or distance between any two immediate threads, or spiral windings, as B 1 (measured according to the length of the screw), fo is the weight or resistance to the power; then the power and the resistance will be equivalent one to the other; and, consequently, the power being increased, fo as to counteract the friction of the screw, which is very considerable, will overcome the resistance. For it is evident, that in one turn of
of the screw, the weight is so much lifted up, or the resistance so much moved, or the thing to be pressed is squeezed so much closer together, as is the distance between two immediate spirals; and in the same time, the power is so much moved, as is the compass described by the said power in one turn of the screw. Wherefore the velocity of the weight (or whatever answers thereto) will be to the velocity of the power, as is the said distance between the spirals to the compass described by the power, in one revolution or turning round of the screw; so that the gaining in power is here recomputed by the los in time.

2. As the distance between two threads, B I, is less; the power required to overcome the said resistance is less; therefore the finer the thread, the easier the motion.

3. If the male screw be turned in the female, at rest, a less power will be required to overcome the resistance, as the lever or fctyala C D (fig. 3.) is the longer.

4. The distance of the power from the centre of the screw, C D, the distance of the two threads I K, and the power to be applied in D, being given, to determine the resistance it will overcome; or, the resistance being given, to find the power necessary to overcome it.

Find the periphery of a circle described by the radius C D; then to the distance between the two threads, the periphery just found, and the given power; or, to the periphery found, the distance of the two threads I K, and the given resistance; find a fourth proportional. This, in the former case, will be the resistance that will be overcome by the given power; and, in the latter, the power necessary to overcome the resistance.

E. gr. Suppose the distance between the two threads, 3, the distance of the power from the centre of the screw C D, 25, and the power 30 pounds; the periphery of the circle to be described by the power, will be found 157. Therefore, as 3 : 157 :: 30 : 1570, the weight to which the resistance is equal.

5. The resistance to be overcome by a given power being given; to determine the diameter of the screw, the distance of the two threads I K, and the length of the fctyala, or handle; the distance of the threads, and the diameter of the screw, may be asumed at pleasure, if the male be to be turned in the female by a handle. Then, as the given power is to the resistance it is to overcome, so is the distance of the threads to a fourth number, which will be the periphery to be described by the handle C D, in a turn of the screw. The femidiameter of this periphery, therefore, being sought, we have the length of the handle C D. But if the female screw be to be turned about the male, without any handle, then the periphery and femidiameter found will be very nearly thofe of the screw required.

E. gr. Suppose the weight 6000, the power 100, and the distance of the threads 2 lines; for the periphery to be passed over by the power, say 100 : 6000 :: 2 : 120; the femidiameter of which periphery being 3d of 120 = 40 lines, will be the length of the handle, if any be used; otherwise the side of the female screw must be 40 lines. Mr. Hunter has described a new method of applying the screw with advantage in particular cases. Phil. Trans. vol. lxxi. part i. p. 58, &c.

A cylindrical screw is bored, and made at the same time a tubular screw, with a little difference in the distances of the threads, so that when it is turned within a fixed nut, it rises or sinks a little more or less than the internal screw, which perforates it, would rise or sink by the action of its own threads; and a weight attached to this internal screw ascends, in each revolution, only through a space equal to the difference of the height of the two coils. Here the machine is analogous to a very thin wedge, of which the thickness is only equal to the difference of the distances of the threads, and which of course acts with a great mechanical advantage. It might, in some cafes, be more convenient to make two cylindrical screws of different kinds, at different parts of the same axis, rather than to perforate it. The friction of such machines is, however, a great impediment to their operation.

Screw, Endless. If a screw be so fitted as to turn a dented wheel D F (fig. 4.) it is called an endless, or perpetual screw, because it may be turned for ever, without coming at an end. From the scheme, it is evident enough, that while the screw turns once round, the wheel only advances the distance of one tooth.

Screw, Doctrine of the Endless. 1. If the power applied to the lever, or handle of an endless screw A B, be to the weight, in a ratio compounded of the periphery of the axis of the wheel E H, to the periphery described by the power in turning the handle, and of the revolutions of the wheel D F, to the revolutions of the screw C B, the power will be equivalent to the weight.

Hence, 1. As the motion of the wheel is exceedingly slow, a small power may raise a vast weight, by means of an endless screw; for this reason, the great use of the endless screw is, either where a great weight is to be raised through a little space; or, where a very slow gentle motion is required. On which account it is very useful in clocks and watches.

2. The number of teeth, the distance of the power from the centre of the screw A B, the radius of the axis H E, and the power, being given; to find the weight it will raise.

Multiply the distance of the power from the centre of the screw A B, into the number of teeth; the product is the space of the power passed through, in the time the weight passes through a space equal to the periphery of the axis. Find a fourth proportional to the radius of the axis, the space of the power now found, and the power. This will be the weight which the power is able to fullain. Thus, if A B = 3, the radius of the axis H E = 1; the power 100 pounds, number of teeth of the wheel D F 48; the weight will be found 14,400; whence it appears, that the endless screw exceeds all others in increasing the force of a power.

A machine for shewing the power of the screw, may be contrivd in the following manner. Let the wheel C (fig. 5.) have a screw a b on its axis, working in the teeth of the wheel D, which we may suppose to be forty-eight in number. It is plain, that for every revolution of the wheel C, and screw a b, by the winch A, the wheel D will be moved one tooth by the screw; and, therefore, in forty-eight revolutions of the winch, the wheel D will be once turned round. Then, if the circumference of a circle, described by the handle of the winch, be equal to the circumference of a groove e round the wheel D, the velocity of the handle will be forty-eight times as great as the velocity of any given point in the groove. Consequently, if a line G goes round the groove e, and has a weight of forty-eight pounds hanging to it below the pedestals E F, a power equal to one pound at the handle will balance and support the weight. To prove this by experiment, let the circumferences of the grooves of the wheels C and D be equal to one another; and then, if a weight H of one pound be suspended by a line going round the groove of the wheel C, it will balance a weight of forty-eight pounds hanging by the line G; and a small addition to the weight H will cause it to descend, and so raise up the other weight. If the line G, instead of going round the groove
groove of the wheel D, goes round its axle, 1, the power of the machine will be as much increased, as the circumference of the groove exceeds the circumference of the axle; and if we suppose it to be 3½ times, then one pound at H will balance, its times 3½, or 225 pounds, being to the line on the axle, and have the power of elevating this machine at as 225 to 1, a screw, which, by its natural weight, would be able to raise 225 hundred, or 14 tons weight, by this engine. Ferguson's Math., Art. 49, p. 49.

Screw, Archimedean, or the spiral pump, or as it is called in Germany, the water furrow, is a machine for the raising of water, first invented by Archimedes.

Its structure and use will be understood by the following description of it. A B C D (Plate XIV. Hydrostatics, fig. 11.) is a wheel, which is turned round, according to the order of the letters, by the fall of water E, which need not be more than three feet. The axle G of the wheel is elevated, so as to make an angle of about 44° between 45° and 60°, with the horizon; and on the top of that axle is a wheel H, which turns such another wheel I of the same number of teeth; the axle K of this last wheel being parallel to the axle G of the two former wheels. The axle G is cut into a double-threaded screw (as in fig. 12.), exactly resembling the screw on the axis of the fly of a common jack, which must be what is called a right-handed screw, like the wood screws, if the first wheel turns in the direction A B C D; but it must be a left-handed screw, if the dream turns the wheel the contrary way; and the screw on the axle G must be cut in a contrary way to that on the axle K, because these axes turn in contrary directions. These screws must be covered close over with boards, like those of a cylindrical canister, and then they will be spiral tubes. On, they may be made of tubes of sliff leathers, and wrought round the axes in shallow-grooves cut therein, as in fig. 13. The lower end of the axe G turns constantly in the dream that turns the wheel, and the lower ends of the spiral tubes are open into the water. So that, as the wheel and axle are turned round, the water rises in the spiral tubes, and runs out at L through the holes M, N, as they come about below the axle. These holes, of which there may be any number, as four or six, are in a broad close ring on the top of the axle, into which ring the water is delivered from the upper open ends of the screw tubes, and falls into the open box N. The lower end of the axle K turns on a gudgeon, in the water in N; and the spiral tubes in that axe take up the water from N, and deliver it into another such box under the top of K; on which there may be such another wheel, 1, to turn a third axe by such a wheel upon it. And in this manner water may be raised to any given height, while there is a stream sufficient for that purpose to act on the broad float-heads of the first wheel. Ferguson's Mechanics, Supplement, p. 22.

An instrument of a similar nature is called by the Germans a water screw; it consists of a cylinder with its spiral projections detached from the external cylinder or coating, within which it revolves. This machine might not improperly be considered as a pump, but its operation is precisely similar to that of the screw of Archimedes. It is evident that some loss of power may be occasioned by the want of perfect smoothness between the screw and its cover; in general, at least one-third of the water runs back, and the machine cannot be raised to a greater elevation than 50; it is also very easily clogged by accidental impurities of the water; yet it has been found to raise more water than the screw of Archimedes, when the lower ends of both are imdered to a considerable depth; so that if the height of the surface of the water to be raised were limited to 50 feet, the water screw might be preferable to the screw of Archimedes. Plate XIV. Hydrostatics, § 44.

When a spiral pipe is made of many revolutions, arranged on a large wheel, or a single central thread of considerable diameter revolved on a wooden or tinned iron pipe, and inserted in water, it will be capable of raising water to the height of a great number of feet, above the surface of the water, the height of which is proportionate to the diameter of the pipe, and to the number of revolutions in it. It was invented about 1546, by Andrew Winter, a waterman at Zurich, and it is said to have been used with great success at Venice and in Flandes; it has also been employed in this country by Lord Stirling, and I have seen a model of it today. Dr. Young has raised water to a height of forty feet. The end of the pipe is furnished with a pipe, turning, as much water as will half fill a well, which enters the pipe a little before the piston has arrived at its highest situation, the other half remaining full of air, which communicates the pressure of the column of water to the preceding parts, and in this manner the effect of nearly all the water in the wheel is united, and becomes equivalent to that of the column of water, or water mixed with air, in the ascending pipe.

The air before the joint is compelled into a space much smaller than that which it occupied at its entrance, so that where the height is considerable, it becomes advisable to admit a larger portion of air than would naturally fill half the cold, and this lessens the quantity of water raised, but it lessens also the force required to turn the machine. The joint ought to be conical, in order that it may be tightened when it becomes looser, and the pressure ought to be removed from it as much as possible. The loss of power, supposing the machine well constructed, arises only from the friction of the water on the pipe, and the friction of the wheel on its axis; and where a large quantity of water is to be raised to a moderate height, both of these resistances may be rendered inconsiderable. But when the height is very great, the length of the spiral must be much increased, so that the weight of the pipe becomes extremely cumbersome, and causes a great friction on the axis, as well as a friction on the machinery; thus, for a height of 40 feet, Dr. Young found that the wheel required above 100 feet of a pipe which was three quarters of an inch in diameter; and more than one half of the pipe being always full of water, we have to overcome the friction of about 80 feet of such a pipe, which will require 24 times as much excess of pressure to produce a given velocity, as if there were no friction. The centripetal force of the water in the wheel would also materially increase its action, if the velocity were considerable, since it would be always possible to turn it so rapidly as to throw the whole water back into the pump. The machine which Dr. Young had erected being out of repair, he thought it more eligible to substitute for it a common forcing pump, then to attempt to make any further improvement in it, under circumstances so unfavourable. But if the wheel with its pipes were entirely made of wood, it might in many cases be better: or the pipes might be made of brass, or even of earthenware, which might be cheaper and lighter than lead. See fig. 15. The centrifugal force, which is an impediment to the operation of Winter's machine, has sometimes been employed together with the pressure of the atmosphere, as an immediate agent in raising water, by means of the rotary pump. This machine consists of a vertical pipe, caused to revolve round its axis, and connected above with a horizontal pipe, which is open at one or at both ends, the whole being furnished with proper valves to prevent the escape of the water when the machine is at rest. As soon as the revolution
tion becomes sufficiently rapid, the centrifugal force of the water in the horizontal pipe causes it to be discharged at the end, its place being supplied by means of the preasure of the atmosphere on the reservoir below, which forces the water to ascend through the vertical pipe. It has also been proposed to turn a machine of this kind by the counter-pre-

fure of another portion of water, in the manner of Parent's mill, where there is fall enough to carry it off. This machine may be so arranged, that, according to theory, little of the force applied may be lost; but it has failed of producing in practice a very advantageous effect. Young's Phil. vol. i.

See CENTRIFUGAL Machines, and Wheel.

Screw, Bed or Barrel, a powerful machine for lifting heavy bodies; and, when placed against the grip of a ship to be launched, for starting her. It consists of two large poppets, or male screws, having holes in their heads to admit levers to turn therewith, a bed formed of a large oblong piece of elm, with female screws near each end to admit the poppets, and a fole of elm plank for the heels of the pop-
pets to work on. When used for launching of ships, the surface of the fole is inclined so as to stand square to the item or grip.

Hand-screws, or jacks, double or single, are used by

to lift weighty bodies. It consists of an elm box, con-
taining coggled iron wheels, of increasing powers. The outer one, which moves the others, is put in motion by a winch or handle on the outside. They are called single or double, according to their increasing force.

Screw, in the Manege. See SPLENT.

Screw-Pine, in Botany. See PANDANUS.

Screw-Shell, the English name of the Turbo; which fee.

See also CUNCHOLOGY.

Screw-Tree, in Botany. See HELICERES.

SCRIBE, Scriba, σφήβρα, sopher, derived from σφέν, saphar, numerasavit, whence σφήβρα, sopher, sopher, a principal officer in the Jewish law, whose business was to write and inter-

pret scripture.

The Scribes, according to the etymological meaning of the term, were perfons employed about books, writings, numbers, or accounts; in transcribing, reading, explaining, &c.

We find no mention of Scribes, in the Old Testament, before Ezra, chap. vii. 6, whence some learned men have concluded, that the office was brought from Chaldea and Ar\nyria, and first established by the Jews after their return from the Babylonish captivity. However, Ezra's being called a Scribe, which was a general title given to men of literature, will not prove the office of ecclesiastical Scribes, as it occurs in our Saviour's time, to have been so ancient. It probably grew up by degrees, after the spirit of prophecy ceased among the Jews; for when they had no prophet to resolve their doubts about doctrine or worship, they fell into disputes, and split into sects and parties; which made an order of men necessary, whole proper business it should be to study the law, that they might explain and teach it to the people.

The Scribes were in great credit and esteem among the Jews, and had even the precedence of the priests and sacrificers.

The Scribes are referred by most authors to two general classes: vis. civil, and ecclesiastical Scribes: the former were employed about any kind of civil writings or records, and the latter were such as addicted themselves to studying, trans-

scribing, and explaining the holy scriptures. Of the civil Scribes there were various ranks and degrees, from the com-

mon scribe, or public notary or schoolmaster, to the prin-
cipal secretary of state. As for the ecclesiastical Scribes, they were the learned of the nation, who expounded the law, and taught it to the people; and they are, therefore, sometimes called χοθανατοι, doctores of the law, or μουσικοι, lawyers. Compare Matt. xxii. 35, with Mark, xii. 28.

These Scribes, who were generally Pharisees, were the preaching clergy among the Jews; and whilst the priests at tended the laicrites, they instructed the people. But though the greatest part of the Scribes took part with the Pharisees, and adhered to their opinions and tenets, as we learn from the gospels-history, yet it is probable, from several passages of the New Testament, that some of them were of the sect of the Sadducees. Some of the Scribes made it their business to explain the traditions, which they called the oral law, that is, the law delivered by word of mouth, which, as they pretended, had been conveyed from Moses down to them, from generation to generation, by the tradi-
tion of the elders. They much respected these traditions, considering them as the key of the law, and giving them the preference to the law itself. Hence this blasphemous maxim: "the words of the Scribes are more lovely than the words of the law of God." But it is evident, from the frequent reproaches pronounced by our Saviour on the Scribes and Pharisees in reference to this point, that under pretence of explaining the law by their traditions, they had actually made it of no effect. Matt. xx. 2, 3. 6. Mark, vii. 7, 8, 9. The Talmod will amply justify these reproaches.

Jof. Scaliger endeavored to establish a distinction between the Scribes of the people, referred to by Herod, Matt. ii. 4, and the Scribes of the law. The former he considers as a sort of public notaries, who were employed in secular business; the latter as preachers and expounders of the law. But the phrase, Scribes of the law, no where occurs in scripture; and the Scribes of the people, whom Herod consulted, were applied to, on account of their skill in explaining scripture prophecies. (Matt. xviii. 10.) And they were probably called Scribes of the people, because they were the flated and ordinary teachers of the people. (Mark, i. 22.) Camero observes, that a key was delivered to each Scribe, as a badge of his office, when he first entered upon it, to which our Saviour may be supposed to allude, Luke, xii. 52.

Scribe, Scriba, was also the title of an officer among the Romans, who wrote decrees or acts, and made out authentic copies of them.

Every magistrate had his scriba, or secretary; so that there were scriba adilita, pretori, quaestorii, &c.

The scriba were not admitted to the management of the principal offices of the republic, unless they relinquished their profession.

In the time of the emperors, they were also called notarii; because they made use of abbreviations, and short notes, in writing.

SCRIBING, in Joinery, &c. a term used, when one side of a piece of stuff being to be fitted to the side of another piece, which last is not regular, to make the two join close together all the way, they scriba it.

That is, they lay the piece of stuff to be scribaed close to the other piece they intend to scribae to, and open their compas to the greatest distance the two pieces any where stand from each other; then, bearing one of the legs against the side to be scribaed to, with the other point they draw a line on the stuff to be scribaed. Thus have they a line on the irregular piece parallel to the edge of the regular one; and if the stuff be wrought away exactly to the line, when the two pieces are put together they will seem a joint.

SCRIBONIUS LARGUS, in Biography, a Roman physician, who lived in the reign of Claudius, and is said to have accompanied this emperor in his campaign in Britain. He wrote
wrote a treatise "De Compositione Medicamentorum," which is very often quoted by Galen, and was "most un-
justly pillaged and transcribed" by Marcellus the
Cottonian, according to Dr. Freund. This work Scribonius
devoted to Julius Callinus, the most favour'd of all the
freemen of the emperor; and the speeches of Mellinus and
Callinus are used as examples, that these were living at
that time. After giving the formula of a dentifrice, he adds;
"Mellinus Dei noilius Callinus hoc utitur." Great faith
was, in that age, impat'd in particular formulæ, or combi-
nations of drugs, which were supposed to poss'd peculiar
powers of healing; and it was the practice of many phy-
sicians to keep their compositions secret. Scribonius,
however, published his collection, and expressed great con-
fidence in their efficacy; but many of them are trivial
and frivolous, and have been (as has been said) put to
mocking by the learned. Yet these medical works,
written in Latin, to the emperor; "Scripta mea Latam medica-
Villa," are remarkable, indeed, that two men, living about
the same time, should write their native language so different by
Celsus and Scribonius; but the latter was probably a man of inferior
education. The farcasm of Freind is, however, not far from
the truth. "Scribonius Largus, who cannot," he says,
"well be reckoned any more than a mere empiric, though
he wrote in the time of the first Claudius, when the Roman
language was in some tolerable degree of purity, ought,
as I may say, to be translated into Latin, in order to be
understood by those who are conversant only with the claffics
of that age." The treatise of Scribonius has been several
times reprinted, and ëludes among the "Medicæ Artis Princi-
piis" of Henry Stephens, 1567. See Freind's History
of Medicine, vol. i. Sprangel, Geschichte der Arznei-
kunde, ii. Theil. Le Clerc, Hist. de la Medicine, p. 3.
SCRINIA, in Geography, a river of France, which runs
to the Po, five miles N. of Tortona.


SCRITORIUM, a particular apartment in monas-
teries, where writers were employed in transcribing copies
of works intended for preservation; and to their
charge of literature has been much indebted.

SCRITTORE, in Anatomy, the name of the revenue
which the Roman people raised upon the paflure-land, of
which the property was in the commonwealth, and which
was farmed to particular persons. It was so called, because
the number of cattle, which individuals were put to into
these pastures, was registered; and it was by that number
the yearly sums which they engaged to pay were regulated.

SCRITTORE, or SCRIPTORIUS. See Bib.

The collection of plants, says the learned and justly
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many ancient authors, which he illustrated by comments of his own: among these works were those of Vegetius, Frontinus, Hyginus, Apuleius, Martial, and Seneca the tragedian. Serrierius wrote a work in the Dutch language on the "History of Printing," in which he maintained the claim of Laurence Cotter to the invention of that invaluable art. He published a collection of Batavian antiquities, and other pieces relative to the early history of the united provinces. Serrierius, at the age of 74, lost the use of his eyes, but he continued to fabricate himself with literature till his death in 1660. His funeral was attended by the university of Leyden in a body, and an eulogy was pronounced over him by Frederic Gronovius. A collection of philological and poetical pieces from his MSS. was published at Utrecht in 1737. Moreri.

SCROBICULUS Cordis, in Anatomy, the small depression in the middle of the upper part of the abdomen, just above the esophagus. In common language it is called the pit of the stomach.

SCROBILUM, in Ancient Geography, a promontory of the Arabian gulf, which separated the Heroopolitic and Olantitic gulfs.

SCROFA, in Zoology. See Sus.

SCROFA, in Ichthyology. See Scorpéna.

SCROFA, in Entomology. See Scarabaeus.

SCROFANELLO, in Ichthyology, a name by which some have called a small fish of the Mediterranean, more usually known by the name of the Scorpéna.

SCROFULA, or Scrophula, from σκροφύς, swine, called also burma, or the king's evil, in Surgery. The name of scrofula was derived from an opinion that swine were particularly subject to this disease. The scrofulous constitution is observed to be, in many instances, denoted by particular symptoms. The complexion is often fair, and the colour of the hair either reddish, or of some other light tint; people with dark complexions and black hair being much less subject to scrofulous complaints. The skin is remarkably soft and white, and the face often has a shining polished smoothness. The cheeks are in general florid; and the tunica albuginea is frequently of a dead white colour, and more pale than usual. The edges of the eye-lids are sometimes affected with a degree of tenderness which easily degenerates into a troublesome inflammation, that diffuses the patient by its continuance, and produces a disagreeable degree of deformity. There is likewise frequently a swelling of the upper lip, with some thickening of the nostrils and point of the nose. Ruffell on Scrofula, p. 8.

One of the most frequent symptoms of scrofula is a swelling in the superficial lymphatic glands, especially in those of the neck. Such glands swell without any previous complaint, and often attain a large size before the swelling attracts notice. The swellings are frequently unaccompanied with pain or discoloration; a circumstance which favours the conclusion that the inflammation attendant on scrofulous diseace is flow, and the complaint of an indolent nature.

The frequency and great number of such tumours of the lymphatic glands have led many surgeons to suppose scrofula to be altogether a disease of the lymphatic system. Mr. Ruffell, however, entertains doubts respecting the accuracy of the doctrine; for he observes that many other parts of the body, which are not very glandular, are often the primitive seat of scrofula. It very frequently attacks the joints of the extremities, the bones, and the mucous membranes, without any previous or concomitant affection of the lymphatic system. Besides, it is to be recollected that the abscess formed by the lymphatic trouble is not only liable to idiopathic attacks of scrofula, in common with the rest of the body, but is likewise exposed to suffer, symptomatically, in consequence of the disposition of the glands to swell and inflame from any cause of irritation propagated along the course of the ab- sorbents; and from this source of error the commencement of scrofula in the lymphatic system may be supposed more frequent than what the natural proportion of idiopathic cases warrant.

Scrofulous swellings of the glands are often stationary, or at least very slow in their progress of increase or diminution. The same indolence and absence of inflammatory symptoms, which characterize scrofulous swellings of the lymphatic glands, likewise distinguish similar affections in other parts of the body. The commencement of the attack is, in general, unperceived, and the progress slow; though the tumescence which follows is frequently very considerable.

The greater number of scrofulous affections are accompanied with a preternatural dwelling of the parts attacked. The tumour is of two kinds, one remarkable for its softness, the other of a more firm consistence. Soft scrofulous tumours are always formed by the effusion of a fluid, and it may be remarked that they are somewhat variable in their size, being one day more prominent and tense, the next more flaccid and flabby. When they are opened in the early state, they are found to contain nothing but a fereous fluid, which lies in the cells of the cellular membrane. As the fluid is not contained in one common cavity, the tumour has a soft flabby feel, and imparts to the fingers of a surgical examine no distinct sensation, either of elasticity or fluctuation. But when the fluid has been for some time effused, a striking difference occurs, a fluid lodged in a particular cavity now being evidently perceptible. This change seems to proceed from the destruction of the partitions which are between the cells of the cellular substance. As these collections, however, are not accompanied with any sensible degree of inflammation, they are not surrounded with a firm, solid, circumcised bafe; and they do not betray any great tendency to ulcerate the skin, and burst of their own accord. Hence they sometimes become very prominent, and the skin is gradually distended to a surprising degree.

The matter contained in such tumours also undergoes a change. After a time, the more solid parts are deposited in the form of little maffes, resembling congealed milk. The remaining portion of the fluid is rendered thinner, and resembles whey. A quantity of scrofulous matter is also formed on the internal surface of the cavity, which seems to be attacked with a flow kind of inflammation. The admixture of this purulent matter greatly changes the appearance of the contents of the tumour, and they now bear more resemblance to those of a common abscess. They never acquire, however, exactly the properties of healthy purulent matter, being always thinner, more transparent, and more of a greenish colour.

Although the tendency to ulceration is not considerable, the skin at length gives way, and allows the matter to escape through a narrow opening. After the contents are evacuated, the tumour subsides; but there being in general little dispostion in the parts to heal, a scrofulous fere is usuallly formed, which discharges unhealthy matter, and continues open for an indefinite length of time.

The other more firm kind of scrofulous swelling always increafes slowly, and most commonly attacks the neighbour- hood of joints. The affected part enlarges, without acquiring any circumcised determinate form. By degrees, the tumour becomes softer, and at last particular portions near the surface become more prominent, inflame, suppurate, burst, and discharge matter. But as the suppuration is only partial, and the discharge incomconsiderable, they have little effect.
SCROFULA.

The constitution is always a period of life, during which the skin is subject to be affected with the disease, and the other organs the site of its extension. The only exception is the addition of little ulcers, which tend to form, and must matter.

A common ulcer in persons of all ages is the leprosy, often exhibits appearance, which betrays the diseased state of the system. The matter is secreted in a form of extraordinary quantity; the ulcers are in the form of little papillae, the surface being tinged, and the colour of the tumour more blue, than is observable in a case of healthy abscesses. Scrofulous abscesses are also more common, but not so numerous, a larger quantity of pus is produced, in relation to their size, than is the case with abscesses. When abscesses in scrofulous patients burst, an empty cavity is left; but there is a mass of cellular ulceration apparently dispersed of late. It refills wet cotton, and often separates in the form of a thick mafs. The separation is effected without pain. This state of the cellular membrane bears some remote analogy to the destruction of the central parts in a carbuncle; but it differs from the latter disease by there being no malignity, pain, nor danger.

The bowels of scrofulous people partake of the general disease in the constitution; they seem to contain a smaller proportion of the phlegm of lime, and a larger one of gelatinous matter, than what exists in the composition of a healthy bowels. They are also exceedingly susceptible of morbid action. The particular changes, however, induced in the bowels by scrofula, will be noticed in the articles Spina, Cervixe of, and White Swelling.

With regard to scrofulous ulcers, their margin is commonly of a pale red or purplish call, with a thinning surface; the edges in general thin; and the surface of the forelunk some what below the level of the surrounding parts. These edges are mostly attended with a smaller degree of inflammation, and little pain; they are not very sensible, and have no great disposition to spread. The matter discharged from them is white, having very little colour, and often an offensive smell. In consequence of its viscosity, it adheres to the surface of the fore, and covers the granulations. It is to be observed, however, that scrofulous ulcers sometimes assume a more malignant aspect, having elevated indurated edges, and fungous central granulations, accompanied with pain and an ichorous discharge. In these cases, they may counterfeit the appearance of cancerous ulcers; but though the resemblance may be very imposing, we are in general able to ascertain the real nature of the case, by tracing its history from the commencement, and by inspecting the rest of the patient's body with accuracy; when the vesicles of former scrofulous ulcers, or other proofs of a scrofulous constitution, often manifested themselves.

Scrofulous ulcers often continue to discharge for a long while, with very little change of appearance. In time, however, they begin to heal, and, for the most part, dry up altogether at last, leaving a very ugly red irregular cicatrix, upon which the skin fieldens recovers its natural look.

In general, scrofulous complaints are most troublesome in the spring, and get better towards the end of the summer.

Rusell on Serofula.

Serofula has always been considered as an hereditary disease. Many well informed men have thought the application of the term, hereditary, to scrofula, and indeed to diseases in general, exceedingly wrong, because the affections in question do not regularly descend from parents to children, and sometimes attack persons, none of whose relations are known to have had such diseases. That there is truth in these arguments must not be disputed. But it is at the same time certain, that the children of scrofulous parents are much more likely to be affected with scrofula, than those of persons who have never had any by reason of this disease. The children of scrofulous persons, however, remain diseased for a long time, from every mark of the disease. This fact must at all occasions be attended with the term hereditary; for the whole of the constitutional scrofulous parents more frequently have infected children, than is the ease with perfectly healthy persons. The scrofulous of the former, however, are not cases of the disease in the manner; nor are the children of the latter case of not being so.

Serofula is undoubtedly a contagious disease, nor can it be communicated by contact, or any conversation. Russell tried to transfer scrofula from one parent to another by inoculation; but although he took great pains to infect the matter completely, and repeated the experiment frequently, yet all the attempts failed, as no disease was communicated to the person inoculated, nor ever any evident irritation excited at the place where the matter was infected. De Vitis Scrofulatis, p. 218.

The proximate cause of scrofula is a defect, concerning which many conjectures have been started; but none that appear to carry with them much probability. It is indeed a question, that is at present not at all understood.

Of all occasional causes, says Mr. Russell, climate is the most powerful. The extremes of heat and cold are equally free from scrofula. It prevails most in those climates, where the atmosphere is perpetually loaded with cold vapours; where the feaons are variable, and no weather steady. From latitude 45° or 50°, to latitude 60°, is the principal climate of scrofula. The climate of Scotland, which is within this range, is remarkable for the frequent occurrence of scrofulous complaints. When the temperature of the air is just above the freezing point, the cold is the most difficult to bear, on account of the great quantity of watery vapours which float in the atmosphere. A greater degree of cold condenses the aqueous vapours, and renders the air clear; a greater degree of heat disperses them. Accordingly, it is an universal observation, both in the torrid and the frigid zone, that perfectly dry air, whether produced by great heat, or great cold, always brings the most healthy weather. Mr. Dobson, in his account of the harmattan wind, which blows on the coast of Africa, and is so warm and dry as to accomplish the crystallization of pure alkali, observes, that all endemic diseases get well during the blowing of this wind. Mr. Graham, likewise, who was long governor of the Hudson's Bay factory, situated on the east coast of America, about the 60th degree of north latitude, makes nearly a similar observation with respect to intense cold; as he invariably found, that the raw, cold, damp weather, when the mercury in Fahrenheit's thermometer stands between 30 and 40 degrees, was the most intolerable to bear, and the most unfriendly to health. Now this continues Mr. Russell is very nearly the winter weather of Scotland. Upon the whole, therefore, we may lay it down as a general maxim, that the greater degree of cold, which can be conjoined with moisture, is the state of weather which tends most to favour the appearance of scrofula.

The long continuance of inclement weather increases the predisposition to scrofula; and in persons already sufficiently predisposed to the disease, any uncommon, though temporary exposure to cold and wet, is often an exciting cause of an immediate attack.

Every thing which weakens the constitution, predisposes to scrofula. Thus, breathing impure air, and living upon a scanty allowance of wholesome and edible food, promote the secess of scrofula. The same may be said of
un cleanliness; neglect of salutary exercise; confinement in cold damp situations; and the want of sufficiently warm clothing.

But one of the most frequent occasional causes of scrofula is external violence. Many accidents, which would not be followed by any serious consequence to a person in health, produce severe scrofulous affections in persons predisposed to such diseases.

It is almost unnecessary to mention, that all those circumstances which have been specified as occasional causes, must be avoided.

There is no medicine which, internally administered, has the power of completely correcting the peculiarity of constitution implied by the expression scrofulous habit. But there are many medicines which seem to improve this state of the system, and to promote the spontaneous amendments, which scrofulous affections frequently undergo. Scrofulous patients, for the most part, have constitutions in which the natural actions do not proceed with vigour, and perhaps it is on this account, that every thing tonic is more or less useful in cases of scrofulous disease. This observation is not meant, however, to forbid the judicious employment of evacuations, which, when the habit is disposed to phlegm and colliquions, are indispensible necessary.

The medicines which are given for the cure, or prevention of scrofula, are either such as are supposed to act upon some general principle, or such as are supposed to poisons a specific virtue in the cure of this disfiguring disease.

A draught of salt-water is recommended almost indifferently to every patient who is advised to use sea-bathing. It acts as a purgative, and proves a serviceable medicine, so far as purging is indicated. The water of the sea, however, is not nearly so palatable, as the solutions of many of the neutral salts, and its medicinal virtues do not appear to be superior. Hence Mr. Ruffell believes, that it is preferred rather from accidental convenience, than from its being in reality a better medicine than several others.

In some cases of hereditary predisposition, scrofula seems engraven on a constitution, otherwise healthy and vigorous, where the patient feels no weakness, has no disorder of the stomach, and at the same time has tendency to fulness and corpulency. In cases of this kind, a continued course of purgative medicines often proves highly beneficial by procuring a frequent and copious evacuation of the bowels, and thereby reducing that disposition to fulness, which very much promotes the formation of glandular swellings. But, in general, scrofula is not combined with the foregoing signs of constitution, and purgatives are then only useful for the purpose of obtaining colliquions.

Several mineral springs, besides saline ingredients, contain sulphureous impregnations, which are supposed to increase the medicinal virtues of the waters. The reputation of the waters of Harrowgate and Moffat is universally known. Mr. Ruffell acknowledges that their efficacy may have been over-rated; but he still thinks favourably of their effects in cases of scrofula.

Calomel, or, as it is now called, the hydrargyri submurius, is the most celebrated of all the purgative medicines, which have ever been employed in the treatment of scrofula. In order to derive the greatest benefit from it, however, it should not be given in so large a quantity as to produce the specific effect of mercury in their full extent; for, as Mr. Ruffell observes, a deep and lasting impression on the system aggravates every symptom of scrofula. Calomel, taken in moderation, contributes more than any other medicine to diffuse tumours, and resolve scrofulous indentations. An alternative course with this medicine, however, must be main-
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eay in changing the condition and forwarding the cure of certain malignant xerulous ulcers, which counteract the appearance of cancer. He has likewise found it of service in promoting the cure of certain xerulous affections of the tongue, which bear a near resemblance to some rare venereal ulcers. In a few cases, Mr. Ruffell has had reason to attribute to certain forms of its efficacy in promoting the resolution of xerulous swellings of the breast. The medicine will be given in as large doses as the constitution can bear. The head being affected with a degree of glandular, and the ulcer with a little nausea, is the criterion of the dose being sufficiently powerful.

The muriated barites has been recommended by Dr. Crawford; but though it has been frequently exhibited, its reputation is far from being increased; a true proof that its virtues were originally exaggerated.

The muriated lime is another remedy that has been of late much talked of, for its good effects as a specific in cases of xerulous. In order to derive the utmost benefit from it, Mr. Ruffell is of opinion that it is necessary to prescribe it in much larger doses than those which have usually been directed. One of the most successful instances of its efficacy was the case of an ounce of the tincture of muriate having been taken, for many weeks, three times a day. It even deferves attention, however, that professor Thomson employed muriated lime in various cases of xerulous, without a single instance of its having any efficacy. He admits that some patients got well, while under a course of muriated lime; but then he had no reason to ascribe the cure to the effect of the medicine. In other cases, on the contrary, he found that the muriated lime produced feverish feelings and oppression of the stomach, and that the patients got daily worse till the medicine was left off, and other remedies employed. The relief, experienced from the disappearance of the muriated lime, left no doubt with regard to the injurious effects which the use of it had produced, and from extensive experience and accurate observation, professor Thomson is satisfied that, in many cases of xerulous, the muriated lime is attended with prejudicial effects.

With respect to the local treatment, stimulant applications are found not to be in general advantageous for xerulous complaints. For ulcers, the most simple and mild dressings are the best. When the patients are using a course of feebathing, it is usual to wash the foetra with sea-water frequently every day. Cold spring water is likewise a favourite application; and experience seems to prove that the application of cold is well suited to counteract the state of inflammation which accompanies xerulous foetra. Preparations of lead are, upon the whole, very convenient and useful applications, provided the solutions be used in a state of sufficient dilution to prevent irritation. Liquid applications are made by means of wet linen, which is renewed whenever it dries, so that the surface of the fore is kept constantly moist.

Upon the same principle, simple ointment and Goulard's cress are, in ordinary cases, the best dressings. The employment of simple applications and of cold, however, is more properly adapted to the mild and pure forms of xerulous foetra; for when these are more malignant, or combined with any other disease, a different mode of dressing becomes necessary. Vesicular foetra, for instance, breaking out in a person of a xerulous constitution, partake of the nature of both disorders, and require correlative treatment. Even a pure xerulous fore, attended with more inactivity than usual, may demand particular sorts of dressings, different from such as are found to be most proper for common cases. When the ulcer is extremely indolent, gentle stimulants may be necessary; and when there are fungous granulations, they must be destroyed by heat.

Those xerulous foetra which contain a muriatic acid, when they are superficial, and not connected with any parts of importance, are in general better left unreated. They are very slow in their progress, but they usually burst at last by a superficial ulceration, which forms a small aperture. They do not often advance to resolution. The most likely applications for promoting this desirable object, are solutions of the acetate of lead, and of the muriate of ammonia.

The progress of the cure, after the tumour has discharged its contents, is very various; though, upon the whole, it is slow, and the cure often incomplete. The sides of the cavity seldom adhere uniformly, or granulate from their whole surface; so that little partial separation can happen, which form sinuses, and continue to discharge matter, accompanied with some degree of pain and inflammation. At last, however, often indeed after a considerable time, the discharging ceases altogether, and the sore completely heals. When the sinuses continue for a long time, without any tendency to get well, it is sometimes proper to open them to the bottom with proper incisions; but in the generality of xerulous foetra, such practice is, upon the whole, severe, disadvantageous, and even dangerous.

Xerulous abscesses, when not large, need not to be opened; but deep-seated collections of matter, which increase gradually in size, without showing any disposition to make their way to the surface of the body, ought to be opened: for if this be not done, the matter spreads, and the disease acquires by degrees a dangerous extension. The opening should not be larger than what is sufficient for the complete evacuation of the matter; because a large opening excites great irritation, and is often the cause of violent inflammation of the whole cyst of the abscess, attended with alarming, and often with fatal, consequences. The fever that occurs is accompanied with a rapid train of symptoms, which speedily end in death. In other instances, the fever is hectic, being more slow in its progress, though not less certainly fatal. According to Mr. Ruffell, sulphuric acid and saline draughts, in a state of effervescence, are the medicines which agree best with both forms of fever; and he observes, that neither of them seems to be much relieved by the use of cinchona. (P. 116.)

This author recommends opening the tumour with a trocar, letting out the whole of the contents, withdrawing the cannula, and bringing the sides of the puncture together with sticking plaster. For our own part, we prefer making the opening with a lancet, and then closing the wound with adhesive plaster, as advised by Mr. Abernethy in cases of psoas abscesses. See Psoas Abscess.

With respect to the treatment of swellings of glands, it is to be remarked, that it is always desirable to prevent suppuration. When the glands are superficial, their progress may be influenced by topical applications; but when they are deep, they are scarcely capable of being affected by such remedies. In ordinary cases, Mr. Ruffell recommends the use of fomentations two or three times a day. Sea-water, vinegar, and water, dilute solutions of the acetate, or muriate of ammonia, and a decoction of chamomile, are eligible for fomentations. Friction with camphorated and ammoniated oiled, and with marine plants, has also been well spoken of.

In such cases, Mr. Ruffell, however, does not place much confidence in external applications, as he considers that the cure chiefly depends upon the state of the constitution, upon regimen, and the effect of internal remedies.

When
When enlarged glands, which lie superficially, are attacked with inflammation, and in danger of suppurring, Mr. Raffell strongly recommends the frequent use of topical bleeding. This author is also an advocate for blisters, both at the commencement of the inflammation, and on its decline.

When the swelled glands suppurate, and healthy inflammation predominates, the case must be treated nearly in the same way as a common abscess. An artificial opening is hardly ever necessary, as the abscess in a short time bursts of itself. The only instance, in which the forgeon is called upon to open the swelling, is when the matter heaves a tendency to spread over a large space. When the suppuration is completely ferulous, a small opening is at length spontaneously formed, through which all the matter is discharged. The aperture, though always small at first, sometimes becomes larger, and frequently it remains for a long while nearly in the same state, shewing little disposition to heal, acquiring a glossy appearance, and becoming thick and callous at its edges. In the end, however, a cicatrix is mostly produced.

In cases of indolent, stationary, ferulous swellings of glands, where there is no hope of resolution, it has been proposed to remove or destroy the diseased glands by excision, or by the application of cautic. Such practice has been particularly suggested for glandular swellings of the neck. The superficial situation of the glands of this part of the body rendering them very apt to be affected by cold, the vicissitudes of the weather, and other external circumstances, they must be subject to temporary impressions. The frequency with which they swell, and the facility and suddenness with which they sometimes subside, afford strong arguments against an operation in recent cases. In other examples, where the affection has existed long, it often happens that other more deeply seated glands are also diseased, so that the removal of an enlarged superficial cervical gland would prove a very partial and uselefs operation, and would do nothing towards the total extirpation of the disease.

As for the mere removal of deformity, this is not an adequate reason for the operation, which would itself be followed by a fear, that must disfigure the part quite as much as the swelled gland could possibly do. We will say nothing of the danger and difficulty with which, in many cases, such an operation would be attended.

The attempt to destroy a ferulous gland in the neck with cautic was liable to objections, fully as strong as those which are applicable to the use of the knife. The action of cautic can never be regulated with much precision, and the cicatrix, produced in this manner, is always a considerable deformity.

Firm ferulous tumours in the more external parts of the body do not usually require local bleeding, unless attended with symptoms of inflammation. It is chiefly in the early stage of such cases that the practice is advantageous. In general, warm fomentation, stimulants, iufues, and blisters repeated, or kept open with the faine ointment, are the most eligible remedies. Here also the employment of friction as a diffusent deserts particular recommendation. Its safety, simplicity, and efficacy, are now well acknowledged. There is no substance interposed between the surface of the swelling, and the hand of the person who is employed in rubbing it, except a little flour to prevent the skin from being chafed. The friction is to be applied two or three hours a day, and the plan continued for some months.

Permanent comprefion—by means of tight bandages, or long strips of adhesive plaster, is another means of reducing the indolent ferulous induration and thickening of parts. But of this practice, and of dry rubbing, or friction, by the hand, we shall have occasion to speak in a future volume. See White Swelling.

When a ferulous disease is circumscripted and incurable, and attended with too much pain and irritation, as to injure the health in a serious and dangerous degree, the removal of the part by an operation becomes indispensible. The symptomatic enlargement of the lymphatic glands, which are nearer than the diseased to the heart, presents no fold objection to such practice; for this enlargement proceeds from irritation, and not from absorption; and the glands often subside, as soon as the original cause of their swelling is removed. Raffell, in Scurfalia, p. 157.

SCROGS, in Rural Economy, a term provincially applied to such flung thrubs as have been horned upon by cattle, as hazel, &c. They are mostly met with on commons and waste lands.

SCROLL, in Heraldry, is the ornament placed under the escutcheon, containing a motto or short sentence, alluding sometimes to the bearings, or the bearer's name; sometimes expressing somewhat divine or heroic; sometimes enigmatical, &c. It is often placed by the French and Scotch above the achievement; which, according to Sir J. Mackenzie, is right, when the motto relates to the crest; otherwise it should be annexed to the escutcheon. Those of the order of knighthood are generally placed round shields. See Escroll.

SCROLL, in Ship-Building, is a spiral moulding of the volute kind, used sometimes at the drifts, and the upper part of the hair-bracket. A ferrol-head signifies that there is no carved or ornamental figure at the head, but that the termination is formed and fulfilled off by a volute, or ferol turning outwards. If the feroll is turned off, or inwards, it is then called a fiddle-head.

SCROON, in Geography. See Scaron.

SCROPHULARIA, in Botany, an old name, supposed by some to have been given to the herbs of this genus, because fivene, ferofe, were fond of them. But the most probable derivation is from scrophula, the kng's evil, for which disease some of them have been recommended as a cure; especially S. nodofs, whose knobby roots, compared to scrophulous tumours, are thought to have given rise to that opinion. Yet there can be no doubt that one of this genus is the real pater of Dioscorides, as Fuchius, and some other old botanists, have maintained, which that original Greek writer on the materia medica celebrates for its virtues in the above-mentioned complaints, and even in cancerous ulcers. Yet his identical species, our S. peregina, has no knobby roots. It is probable therefore that the above explanation is of more modern date, and it may account for the etymology of Scrophularia, if not for the application of the herb to medical use. The Galeops of Fuchius is indeed S. nodofs; Anguillara being, as far as we can find, the first writer on drugs who fixed upon the precise plant of Dioscorides, S. peregina, and whose opinion is confirmed by the recent enquiries of Dr. Sibthorp.—Linn. Gen. 312. Schreb. 408. Willd. Sp. Pl. v. 3. 269. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 662. Prodr. Fl. Graec. Sibth. v. 1. 435. Ait. Hort. Kew. v. 4. 22. Pursh v. 2. 419. Jull. 119. Tourn. v. 1. Lamarec Dict. v. 7. 27. Illust. t. 53. Garron t. 53.—Clas and order, Didymaria Anguillar. Nat. Ord. Perforatae, or rather Luridae, Linn. MSS. Scrophulariae, Jull.

Gen. Ch. Cal. Perianth of one leaf, inferior, with five round segments shorter than the corolla. Gar. of one petal, unequal, reverted; tube globose, large, inflated: limb very small, five-cleft; its two lower segments (turned uppermost)
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1. S. maritima. 3. Maryland Fig-wort. Linn. Sp. Pl. 863. Willd. n. 1. Art. n. 1. Bot. t. 1544. (S. nodosa; common; Michaux Boreh.—L. 21.1.)—Leaves heart-shaped, doubly serrated, acute; smooth; decurrent at the base. Stem with blunt angles. Footstalks connected by a hairy line.—In low grounds, from Pennsylvana to Carolina, flowering from June to August, perennial. 


3. S. aquatica Water Fig-wort, or Water Betony. Linn. Sp. Pl. 864. Willd. n. 3. Fl. Brit. n. 2. Engl. Bot. t. 854. Curt. Lond. f. 5. 44. Fl. Dan. t. 507. (Betoiana aquatica; Ger. Em. 715.)—Leaves heart-shaped, flaked, decurrent, obtuse. Stem winged. Native of watery places, about the banks of lakes and rivers, from England to Greece; very rare in Scotland, and the northern parts of Europe; flowering in July. This is fibrous, and, as we believe, perennial, though Linnaeus favi biennial. Whole plant larger than the leaf, and distinguished by the membranous edges of its stem, as well as blunt leaves.

4. S. serotina. 


6. S. betonica. Betony-leaved Fig-wort. Linn. Mant. 87. Willd. n. 8. Art. n. 7. (S. betonica Linn. Tourn. Infr. 166. S. aquatica moutana mollior; Barbel. l. t. 274.)—Leaves heart-shaped, obtuse, somewhat dentate, or nearly so, serrate; decurrent at the base. 


This species is peculiarly adapted to the climate and situation of the mountains of Carolina. We have a specimen, found by the late Dr. Brandegee at Panger, flowering in June, which answers exactly to Scopoli's description, and seems not referable to any of the species in Linnaeus.
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Linnaeus or Willdenow. In this the leaves are about an inch long, on broad, flat, smooth footstalks, a quarter of that length, along which the two lateral ribs are continued, by the side of the midrib; the margin of the leaf is nearly, regularly, and acutely serrate. Clusters erect, long, quite naked, except the lanceolate bracteas; its side branches forked, rough, with glandular hairs. Segments of the calyx ovate, obtuse, smooth, bordered with a broad white membrane, within which the margin is of a brown or rusty hue, as Scopoli describes it. He says the corolla is yellow.

8. S. glabrata. Spear-leaved Fig-wort. Ait. n. 6. Willd. n. 7, excluding Vahl's synonym, Jacc. Hort. Schoenbr. v. 2. 44, t. 209.—Leaves oblong-heart-shaped, acute, doubly serrate, smooth. Clusters long, naked, compound. Bracteas lanceolate.—Found in the Canary islands, by Mr. Maiton, who sent it to Kew in 1779. This is a biennial greenhouse plant, flowering in April and May. The stem is rather woody, square, branched, smooth like every other part of the plant. Leaves often unequal at the base, about two inches long, on footstalks half that length. Clusters long and many-flowered, with spreading three-forked branches; no leaves, except at the very bottom, but many lanceolate acute bracteas. Flowers of a deep blood-red.

9. S. pergerrina. Nettle-leaved Fig-wort. Linn. Sp. Pl. 866. Willd. n. 26. Ait. n. 18. Camer. Hort. 157, t. 43. Sm. Fl. Græc. Sibth. t. 597, unpublished. (S. folio urticea; Bauh. Pin. 236. S. cretica altera; Cluf. Hift. v. 2. 210.)—Leaves heart-shaped, acute, finely serrate, smooth and shining. Stalks axillary, two or three-flowered. Bracteas lanceolate. Calyx acute.—Native of Italy and Crete. Very common about hedges, paths, and courts throughout Greece, as Dioscorides describes his xerophylis; to be. We cannot but accede to the opinion of Anguillara, Fuchsius, and Sibthorp, that this, and not our Calopogon, was his plant. The root is fibrous, annual, or biennial. Stem two or three feet high, not much branched, occasionally with five or six angles. Leaves of a dark shining green, an inch or more in length; we cannot agree with Willdenow that the upper ones are generally entire, though such an accident may occur; as the upper part of the stem, now and then, in gardens, becomes elongated, and the foliage in that part diminished in size; but this is rarely the case. The natural state of the plant is to have axillary flower-stalks from near the bottom of the stem to the top, each bearing two, three, rarely more flowers, whose tube, as well as the limb, is of a blood colour, and the segments of the calyx are ovato-lanceolate, with sharp points, and no membranous edges. The flowers stalks, like the leaves which they accompany, are more or less distinctly alternate, rarely opposite. We have taken the liberty to remove this species from the end of the genus, to place it near those to which, both on account of its simple leaves and general habit, it is most closely allied. In doing this we shall here notice three others, which conclude the genus in Willdenow. Two of these, at least, require to be totally expunged, and the third, if it has any right to remain, must stand next to pergerrina.

S. chinchina, Linn. Mant. 250, confines of an imperfect specimen of which seems to be an Ocymum, accompanied by a still more imperfect branch of what may be a Celosia, or Verbeuwm; but neither of them has any thing to do with Scrophularia, nor was Linnaeus, when he originally described these specimens, at all satisfied about them.

S. meridionala, Linn. Suppl. 280, sent by Mutis, is indubitably the same genus, and very nearly the same species, as Hemimeris argyrostegia Willd. Sp. Pl. v. 3. 282, Alpinia aconitifolia. Ait. Hort. Kew. v. 4. 27. The calyx only leaves a little more elongated, and the leaves less deeply cut, than in our garden plant; see Hemimeris. The shape of the capsule is indeed important in distinguishing the species of this genus. We are at a loss to distinguish for us hemimeris. 10. S. cocinea. Scarlet Fig-wort. Linn. Sp. Pl. 866. Willd. n. 25.—Leaves ovate, four in a whorl. Flowers white, fringed.—Native of Vera Cruz. Houhoum sent an account of this plant to Miller, by the name of S. flava cocinea, folia urticae quaternis caulim ambienibns. Hence probably this description reached Linnaeus, and it was all he ever knew of the plant, for he had no specimens. We should not be surprised if it proved another Hemimeris, which Houhoum might very justly enough take for a Scrophularia. We now return to what we term the species.

11. S. orientalis. Hemp-leaved Fig-wort. Linn. Sp. Pl. 864. Willd. n. 9. Ait. n. 8. "Schkuhr Handb. v. 2. 196. t. 173." (S. orientalis, folis cannabinis; Tourn. Cor. 9.)—Leaves lanceolate, sharply serrate, opposite or whorled; auricled at the base. Calyx leaflets, with whorled, cordiform, ovate, villosid branches. Flowers drooping. Calyx smooth, obtuse.—Native of the Levant; sometimes seen in botanic gardens. The root is perennial. Stem with four, or more, acute angles, leafy. Leaves often three or four in a whorl, widely spreading, flaked, four or five inches long and one broad, smooth, copiously deeply, and rather unequally, serrate; either sharply lobed, or furnished with a pair of lanceolate serrated small leaflets, at the base. Clouter terminal, long, erect, its branches either opposite, or more usually three or four in a whorl, forked, many-flowered, rough with glandular hairs, and furnished with linear bracteas, but no leaves. Flowers greenish.

12. S. lanceolata. Lanceolate American Fig-wort. Pursh n. 2.—Leaves lanceolate, pointed, unequally serrate; acute at the base. Footstalks without appendages. Branches of the panicle cordiform.—In wet meadows and woods of Pennsylvania, flowering in August and September. Perennial. Flowers greenish-yellow. Pursh. This seems nearly related to the last, to which the author has not adverted. We have seen no specimen.

13. S. altilis. White-flowered Fig-wort. Murr. in Comm. Gott. v. 4. 25. t. 2. Willd. n. 13. Ait. n. 10.—Leaves heart-shaped, nearly smooth, doubly toothed, some what lobed, the lower teeth turned towards the base. Clutter terminal, compound. Bracteas lanceolate. Calyx acute.—Native of the Altai mountains of Siberia. Introduced into our gardens by Mr. Hurnemann in 1786, where it proves a hardy perennial, flowering in May and June. The stem is furrowed, one or one and a half foot high, obliquely angular, scarcely branched. Leaves on long stalks, of a broad roundish-heart-shaped figure, with strong branching ribs, plant, nearly smooth, somewhat finated, sharply toothed. Flowers pale yellow, or whith, larger than the following, from which they are essentially distinguished by the lanceolate acute segments of their calyx.

14. S. veronicus. Figure of the Last Years of their calyx. Linn. Sp. Pl. 864. Willd. n. 14. Fl. Brit. n. 4. Engl. Bot. t. 567. Fl. Dan. t. 411. (S. flore luteo; Ger. Em. 717. Banh. Prodr. 112. Riv. Monsp. t. 107, f. 2. S. montana maxima latifolia, flore luteo; Barrel. t. 273.)—Leaves heart-shaped, doubly serrate, downy. Flower-stalks axillary, solitary, forked, leafy. Calyx oblong. Leaves of the corolla minute.—Native of bulky places in Italy, Switzerland, and Germany, as well as in some parts of England, but rarely. It is biennial, flowering in April and May. Stem two feet, or more, in height, with four or five angles, in which latter cafe the leaves grow three together. They are flaked, broad, acute, pale green, coarsely veined, most hairy
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hairy beneath. **Flower-flats** all axillary, about as long as the leaves, bearing some small opposite serrated leaves, and a few large opposite entire bracteas. **Flowers** numerous, pale yellow, with a large globose tube, contracted at the mouth, and a very minute limb, the length of whose segments is nearly equal to the diameter of the tube. Segments of the calyx deep, elliptical, obtuse, downy, without any membranous border. A flax-like resemblance between the habit and flowers of this plant, and the Peruvian genus *Calceolaria*, is pointed out in English Botany.

15. *S. argentea*. slender upright Fig-wort. *Atit. n. 12.* Wildl. v. 17. Leaves heart-shaped, doubly serrated, smooth. **Flower-flats** axillary, solitary, forked, leafless. Calyx oblong. Corolla obtuse. **Limb** of the corolla nearly equal to the tube.—Gathered by Mr. Masson in Madeira and Teneriffe. An annual greenhouse plant at Kew, flowering in May and June. **Rustulous.** Stem two feet high, erect, angular, smooth in the lower part. **Leaves** an inch or more and half long, sharp and deeply serrated. **Flower-flats**, and upper part of the stem, downy and rather villous. **Villosa** small, red, their limb bearing its usual proportion to the tube. **Carpel** ovate, pointed, as in the last, but scarcely half so large.

16. *S. trifoliata*. Three-leaved Axillary Fig-wort. *Linn. Sp. Pl. 805.* Wildl. n. 16. *Atit. n. 13.* (S. humilis folia, flore rubro luteo vario pulchro; Grifl. Vind. Luft. 75; Pink. Almag. 338. Phyt. t. 313. f. 6. S. subrotundo callo et nigricante folio, flore luteo palido, carpellis turpida; Bocc. Muf. 65. t. 60. S. indica, capitulis maximis; Chabr. loc. cit. 472.)—Leaves smooth, roundish, coarsely serrated; the lower ones ternate. Stalks axillary, about three-flowered. Segments of the calyx orbicular, with a wavy membranous margin.—Native of Barbary, Corfica, and Portugal. A hardy biennial, sometimes of in curacious gardens, flowering in summer. **Stem** about a foot high, scarcely branched, leafy, nearly smooth, thick, with four blunt angles. **Leaves** opposite, flat, fleshy and glaucous, about two inches long, and nearly as broad, bluish and veiny; many of the upper ones quite simple; the rest accompanied each by a pair of smaller leaves, more or less distinct or remote, at the top of the flower, which is about an inch long. **Flowers** all axillary, large, two or three on each stalk, which is shorter than the flower-stalk, round, with glandular hairs, and bears several linear-lanceolate bracteas. Calyx glaucous, smooth, with peculiarly round, deep, broad-bordered segments. **Corolla** half an inch long, pale yellow, with an orange or rose-coloured limb.

17. *S. appendiculata*. Three-leaved Cluttered Fig-wort. Jacot Hort. Schoubr. v. 3. 10. 1. 216. Wildl. n. 5. (S. ligavica; Vahl. Symb. v. 2. 67. S. trifoliata; Desfaut. Atlant. v. 2. 54.)—Leaves smooth, heart-shaped, doubly and bluntly serrated; the lower ones ternate. Clusters terminal, leafless, compound. Segments of the calyx orbicular, with a wavy membranous margin.—Native of the borders of fields, and the neighbourhood of the sea-thorne, in Barbary. We gathered it in August 1786, in the royal garden at Paris, where it was raised from seeds brought by professor Desfontaines, but have not seen the plant in England. The **stem** is said to be perennial. **Plant** entirely smooth, of a light glaucous green, larger than the last, to which it is most nearly akin, though essentially different; particularly in its racemose compound **inflorescence**, and heart-shaped, doubly toothed or serrated, **leaves**, with longer flower-stalks. The **flowers** are very similar.


19. *S. rupestris*. Rock Fig-wort. *Wildl. 8. 11.*—"Leaves oblong, flat, toothed, nearly smooth. Clutter terminal. Stalks three-flowered."—Gathered by the celebrated botanical traveller Marshall van Beerenheim, at the rocks of Faurida. Wildlown, to whom specimens were sent, says this plant is very nearly related to *S. frutecens*, of which it is perhaps only a variety; but it differs in having a flower only half a foot high, and very finely daisy; leaves all flat, more rigid, and of a smaller size; a terminal **cluster**, composed of three-leaved three-flowered **flats**, and small, obtuse, not acute, **brevatus**.

20. *S. ephedra*. Sea-green Dwarf Fig-wort. *Sin Prodr. Fl. Græc. Subh. n. 1462.* *Fl. Græc. t. 603., unpublished.* (S. orientalis minor, melilic folio; Tourn. Cor. 9; *Buxb. Cent. 5. 10. t. 17. f. 2.)*—Leaves smooth, rather glaucous, lyrate-pinnaed, cut. **Stems** numerous. Clutter short; branches two or three-flowered.—Gathered by Dr. Subthorp on rocks about Athens and Messenia; as well as in Laconia. The **root** is perennial, thick and woody. **Stems** very numerous, somewhat shrubby at the base, spreading in all directions, a ftian high, leafy, scarcely branched but at the bottom, bluntly quadrangular, smooth. **Leaves** opposite, flat, an inch and half long, sharply cut and toothed, at three principal lobes, one of them very large and pinuated, the others smaller, bejides one or two very small ones below, molly entire. **Cluster** or panicle two or three inches long, with entire oblong **bracteas**; its branches opposite, simply forked, their lateral branches single-flowered, and one of them often deficient. Segments of the calyx orbicular, smooth, with a white membranous edge. **Tale of the calyx inflated, greenish, brown on the upper side; two larger segments of the limb chocolate-coloured, the rest greenish-white. We can but guess at the synonym, for the leaves are so much like milk, *Melilica*. Buxbaum's rude figure is not transferable to our plant.


Lower leaves interruptedly pinmate; upper ternate;
leaflets heart-shaped, ferrated, smooth; unequal at the base.

Flower-tilks axillary, slightly branched.—Native of the south of Europe, Barbary, and the Levant, in sandy ground. The roots are tuberous, according to Alpinus, perennial, but subjecl to rot in a garden soil. Herb thick, smooth, succulent, of a light glaucous green. Leaves opposite, or somewhat alternate, irregularly, more or less sharply, ferrated, varying much in size and bluntness. Flowers very large, axillary, drooping; its leaves usually shorter than the flowers, simple, divided, or forked; sometimes elongated towards the upper part of the branch, and the leaves being occasionally contracted, or wanting, there, the influence becomes racemose. Calyx smooth, or slightly downy; segments orbicular, with a membranous edge. Corolla of a pale purplish tawny hue, with a greenish limb. Capsule as big as a small siliqua, with a conical point.

We can find no decisive character between the two plants of authors, which we have here combined. The leaflets of S. are commonly more rounded or obtuse, but a comparison of the figures of Miller and Desfontaines will show that there is no difference in their inflorescence. A specimen from Barbary, given by us of the botanist last mentioned, is fambucifolia, which not being mentioned in his work, he plainly did not distinguish from his melinthera. Those who have mentioned these two supposèd species, have not contrasted them with each other, nor have we had an opportunity of comparing them in a living state; but it is to be presumed the same honey-bearing glands are to be found in the bottom of the corolla of each, being in every other respect so much alike.

22. S. hipida. Hispid Fig-wort. Desfont. Atlant. v. 2. 55. Wild. n. 19. "Stem square, erect, hispid. Leaves villous, pinnate, doubly crenate; the terminal lobe heart-shaped, very large. Cluster compound, leaf-like.—Native of the cliffs of rocks on mount Atlas, near Tlemcen. Root perennial. Stem erect, firm, slightly branched, about two feet high, hispid with very abundant short hairs. Leaves opposite, on short stalks, two to three inches long, and above half as broad, villous, soft and hairy, of a few small ovate leaflets, often cut away at the upper edge, besides the lobe, sometimes lobed, terminal one. Calyx terminal, fix or eight inches long; its branches opposite or alternate, subdivided, hairy, Bracteal linear. Calyx smooth, with rounded membranous-edged segments. Corolla the size of S. nodosa. Desfontaines.

23. S. canina. Wing-leaved Fig-wort, or Dog's Rue. Linn. Sp. Pl. 865. Wild. n. 16. Sm. Fl. Græc. Sibth. t. 598, unpublished. (S. canina, Linn. Nauk. t. 142. Ruta canina; Cluf. Hitt. v. 2. 209. Ger. Em. 1256.)—Leaves pinnate; leaflets deciduous, cut. Stem round. Cluster leaflets; its branches simply forked, their divisions racemose. Flowers nearly felliile, without an internal lobe.—Native of Switzerland, France, Italy, and the Levant; frequent in Greece, Crete, and Cyprus. A hardy annual, long known in botanic gardens, but not generally cultivated, flowering molt part of the summer. Root rather woody. Stems two or three feet high, widely angular, purplish, smooth, leafy. Leaves dark green, smooth, opposite or alternate, forked; leaflets deeply cut, or pinnatifid, sometimes accompanied by small intermediate ones. Clusters one or more, terminal; sometimes leafy at the bottom, but for the most part furnished throughout with lanceolate bracteas only; their branches alternate, simply forked, with a flower in the fork, the two divisions finely racemose, or rather spiked, varying greatly (from three to ten) in the number of their flowers, which are alternate, almoft felliile, each subtended by a small bractea, and accompanied by a larger one, on the opposite side of the stalk. The white membranous border of the calyx is very conspicuous. Corolla about the size and shape of S. aquatica, but defiitute of an intermediate lobe; its tube yellowish-green; two larger segments of the limb blood-red; two lateral ones orange; odd one green.—Willdenow refers to this, as a variety, S. orientalis, chrysanthemi folio, flore minimo atropurpureo; Tourn. Cor. 9, which he supposes may be S. lucida of Pallas. We have no knowledge of Tournefort's plant, but, from its place in his work, it shouid seem to be very nearly related to our S. bicolor hereafter described, or perhaps a variety of that species.

24. S. variograma. Spotted-flowered Fig-wort. Marc. v. Bieber, in Sims and Kunz. Am. of Bot. v. 2. 445. Wild. n. 22.—"Stems furvybby at the base. Leaves bi-pinnatifid, downy. Clusters elongated; flower-flakas short, rough, with hooked hairs."—Native of the flory banks of rivers, and barren hills, between the rivers Terek and Kurl, in the neighbourhood of the Caphian sea, flowering in June and July. The root is perennial. Stem woody at the base, with numerous long slender branches, clothed, like all the rest of the herbage, with rough hairs. Flowers rather less than in S. canina. Corolla purplish; its two upper segments short, obtuse, incumbent, one of them marked with a white spot; three lower ones white, very small, obtuse. Akin to the latter, but, according to this description, sufficiently different.

25. S. lucida. Shining-leaved Fig-wort. Linn. Sp. Pl. 865. Wild. n. 21. "Hort. Berolin. t. 57." Ait. n. 17. Sm. Fl. Græc. Sibth. t. 599, unpublished. (S. falsoius lucida, laerpeti'M: affilemas foliis; Tourn. Infl. 167. Bocc. Mut. 166. t. 117. S. indica; Ger. Em. 716; S. glauco folio, in alas namias divio; Tourn. Cor. 9. Vov. t. 1. 84, with a plate.)—Leaves pinnate, fleshy, smooth; leaflets pinnatifid, deciduous, cut. Stem round. Cluster leaflets; its branches forked, cymose. Flowers stalked; without an intermediate lobe.—Native of Italy and the Levant; common in the islands of the Archipelago. The root is woody, and said to be perennial. It is not easy to distinguish this species, by description, from the canina, except that the leaves appear to be more glaucous, and the cluster of flowers altogether more cylindrical, with shorter compact branches, of a cymose habit, the flowers all stalked. The four uppermost segments of the corolla are all of one nearly uniform blood-red, (without any intermediate lobe,) the odd one green. Capsule nearly twice the size of canina. Linnaeus quotes the plant of Tournefort's Voyage as the same with that writer had previously mentioned, by another name, in his Inflitutiones. Dr. Sibthorp's exactly answers to the plate of Tournefort, and is drawn with leaves more glaucous than canina.

26. S. filicifolia. Fern-leaved Fig-wort. Mill. Dict. ed. 8. n. 10. Sm. Prodr. Fl. Græc. Sibth. n. 1456. Fl. Græc. t. 600, unpublished. (S. folius filicus modo lacinisi, vel ruta canina latifolia; Tourn. Infl. 167.)—Leaves pinnate; leaflets pinnatifid, deciduous, cut; in the lowest leaves obovate. Stem square. Cluster leaflets; its branches forked, divaricated, with from five to nine flowers. Corolla with an intermediate lobe.—Native of Crete. A large tall species, with dark-green leaves, of which the lowermost are a foot long, with broad, obovate, lobed, cut, deciduous leaflets. It is readily distinguished from S. canina, lutea, and their allies, by the squareness of its stem, to the very top of the cluster, and the presence of an intermediate lobe to the corolla; the two upper segments of whole limb are of a peculiarly dark red, or chocolate colour; the lateral segments, like the lobe just mentioned, of a pale red; the lower one green.
green, and very small. The flowers are all nearly sessile; one or the lowest branches of the cluster, a few on those above the middle; four or three on the uppermost. Calyx with a white margin, on edge, as small three.

27. S. vulgaris. Evod. I. 1. 1858. Fl. Groc. t. 602. unpublished. — Leaves pale; blade oval, rounded, angular and cut, all univolt. Stem aere. Cluster leaves, straight; its base is fixed, with from three to seven flowers. Corolla with an intermediate lobe. — Gathered by Dr. Sibthorp in Aria Minor, probably near Smyrna. This appears to be annual, and differs from the last in the more lighter, taller, and smaller size, of its flowers, whose flowers are all small, light-colored, angular and channeled. The corolla is similar, but more slender and constricted. Two upper segments, and an intermediate lobe, of the corolla pale purple, or blue-colored; lateral and lower ones, like the tube, of a light green.

28. S. pinnatus. Stripped-flowered Figwort. Sm. Prod. 5. Fl. Groc. t. 1458. Fl. Groc. t. 642. unpublished. (S. chrysanthemi; Marisch von Biberit, in Simms and K. A. Fl. Ass. of Bot. v. 2: 4467. S. orientalis, chryanthemi folio, flor estio variegato, Tourne. Cor. 9.) — Leaves bipinnate, narrow, sharply cut. Stem round. Cluster leaves, its branches finely forked, their divisions racemose. Flowers white, with an intermediate lobe. — Native of Sicily and the Levant. A tall, branching, pinnate species, with very narrow, smooth, white leaves, whose segments are sharply cut and pointed. The inflorescence forms a large compound panicle, with numerous baccate bracts. Calyx elegantly bordered with a purple line, within its white marginal membrane. The two upper, as well as the lowest, lobes of the corolla are of a blood-red, edged with white, the two lateral ones pure white; tube blood-red, pale at the base. We have little doubt of Tournefort's synonym, which is so very appropriate in character, respecting that of Von Bieberstein. We are more doubtful. The present elegant species is less naturally allied to the two last, than some of those immediately preceding them; but its leaves are more finely divided than in any other known Scrophularia.

The whole genus is more or less ftdl when bruised, and of a poisonous quality to most of the larger animals.

Scrophularia, in Gardening, comprises plants of the fibrous-rooted, herbaceous, and shrubby kinds, of which the species cultivated are, the shrubby fig-wort (S. frutecens); the three-leaved fig-wort (S. trifoliata); the elder-leaved fig-wort (S. fumbeicifolia); and the flowering-leaved fig-wort (S. lucida).

Method of Culture. — These plants may be increased by seeds, which should be sown in autumn in the borders or other places where the plants are to remain. The plants should be kept free from weeds; when the roots continue several years, until destroyed by severe frosts. It is therefore a good practice to have some in pots protected by a frame and glasshouse; and as the young plants flower the thronelgell, a proper succession should be sown annually. They may also be sometimes raised from the parted roots; and the shrub fig-wort, by cuttings or slips in the summer or spring months.

They afford ornament and variety in the clumps and borders, as well as other parts, of pleasure grounds: also when set out among collections, in pots.

Scrophulariaceae, in Botany, a natural order of plants, named from one of the most remarkable and best-known genera, see Scrophularia; making the fourth order in Linn. of tyders, or the twelfth of his eighteenth class; see Lamiaceae and Gentianae. See also Patrinule, a Linnaean order, to which that order contains the great part, or rather, of the Scrophularia. The character of the Scrophularia is thus given by Johnson.

Calyx divided, entire or cleft. Corolla free or united; divided in the tube. Sepals from five to seven, two or three of the others; rarely only two or all. Styles or style or style. From calyx, of two cells, first at the summit, it is completed between, and two valves, which are in some way divided into three parts of two parts; their inside is naked and empty, with a central staminate divided, borne covered by all several flowers; and bearing seeds at each side, filling the place of the partition, being placed in the cell, and often connected with each other in the whole circumference, with their margin. Seeds often numerous and minute. Some herbaceous, rarely shrubby. Leaves opposite or alternate. Flowers bracteate.

Section 1. Stamen four, two longer, and two shorter.

Budellia; S. spuria; Kurschh. in Jucqu.; Capsape; Ste- mula; Halleria; Galenia of Dambeck; Alchemia; Browne; Scrophularia; Matricaria of Aublet, subjected by Schreber to be a Vandaellia; Datura; Gerania; Cymbalaria: Linaria of Tournefort; Anthisium, comprehending Aenrata of Tournefort; Hemorrh.; and Digitalia.

Section 2. Stamen two.

Pedunculat; Calopteris; and Beai of Commenes.

Section 3. Genera akin to Scrophularia, with opposite leaves.

Cimicula; Rifleria; Cystandra of Forli; Graeta; Tereua; Vandaellia; Lindernia; Minae; Polygnum; and Montisa of Aublet.

Section 4. Genera akin to Scrophularia, with alternate leaves.

Sebaeae; Schizogenia; and Broussonetia.

SCROPHULOUS TUMOURS, in Hogi, swellings of the glands about the neck and other parts of the body, arising from colds and obstructions caused in other ways. They may also be removed by mild purgation or mercurial ointments, used two or three times in the day to the diseased parts. See HoJ and Sipne.

SCROTOCELE, in Surgery, a hernia, or rupture, which has descended into the scrotum.

SCROTUM, in Anatomy, the bag of skin which contains the testicles. See GENERATION.

SCROWLS, or SCROLLS, in Architecture. See Voluta.

SCRUB, in Geography, one of the smaller Virgin Islands, in the West Indies.

SCRUPI, in Natural History, the name of a class of mollusks, formed in detached masses, without any crusta; of no determinable figure, or regular structure; and composed of a crystalline or spongy matter, debased by an admixture of earth, in various proportions.

Under this class are comprehended, 1. The teguliga. 2. The petrolida. 3. The lithozugia. 4. The jaspides, or japers.

All these genera strike fire with ease, only some more readily than others.

SCRUPLE, SCRUPLES, Scrupulum, or Sripulum, the lead of the weights used by the ancients, which, amongst the Romans, was the twenty-fourth part of an ounce, or the third part of a drachm.

Scruple is still a weight among us, containing the third part of a drachm, or twenty grains.

Among goldsmiths the scruple is twenty-four grains.

Scruple, in Chronology. The Chaldean scruple is 1/12 part
part of an hour, called by the Hebrews belakin. Thefe
scruples are much used by the Jews, Arabs, and other
eastern people, in computations of time.
Scrupules, in Astronomy. Scrupules eclipsed, that part of
the moon's diameter which enters the shadow, expreffed in
the fame manefure in which the diameter of the moon is ex-
pressed. See Digit.
Scrupules of Half Duration, an arc of the moon's orbit,
which the moon's centre describes from the beginning of an
eclipse to its middle.
Scrupules of Immersion, or Incidence, an arc of the moon's
orbit, which her centre describes from the beginning of the
eclipse, to the time when its centre falls into the shadow.
See Immersion.
Scrupules of Emergence, an arc of the moon's orbit, which
her centre describes in the time from the firft emerion of
the moon's limb, to the end of the eclipse.
Scrutatory, among the Romans, certain officers, or
servants, whose bufinefs it was to search every body that
came to salute the emperor, in order to discover if they had
any kind of arms concealed about them. They were first
instituted under the emperor Claudius.
Scrutiny, Scrutinium, in Antiquity, an examination,
or probation, practifed in the laft week of Lent, on the cate-
chumens, who were to receive baptism on the Eafer-day.
The scrutiny was performed with a great many ceremo-
ries; exorcifms and prayers were made over the heads
of the catechumens. On Palm Sunday, the Lord's prayer
and Creed were given them, which they were afterwards
made to rehearfe.
The process was called scrutinium, scrutiny; because here-
by the hearts of the catechumens were scrutinized, or
searched, that the priests might understand who were fit
to be admitted to baptism.
This custom was more in use in the church of Rome than
any where else; though it appears, by fome misfals, to have
been likewife used, though much later, in the Gallican
church. It is supposed to have ceased about the year 860.
Some traces of this practice still remain at Vienne, in
Dauphine, and at Liege.
Scrutiny is also used, in the Canon Law, for a ticket,
or little paper billet, wherein, at elections, the electors write
their votes privately, fo as it may not be known for whom
they vote.
Scrutiny, among us, is chiefly used for a strict perufal
and examination of the several votes hastily taken at an
election; in order to find out any irregularities committed
therein, by unqualified voters, &c.
Scrutore, or Scrutoir (from the French scrétoire)
a kind of cabinet, with a door or lid opening downwards, for
convenience of writing on, &c.
SCY, in Palynry, denotes a large flock of fowl.
Scud, in Agriculture, a term used provincially to signify
to clear with an ipade or spittle.
Scud, in Sea Language, a name given by femeen to the
lower and lighteft clouds, which are most flutterly wafted
along the atmo{phere by the wind.
Scudding, the movement by which a fhip is carried
with great velocity before a tempeft.
As a fhip moves through the water with fo great a ve-
locity whenever this expedient is put in practice, it is never
attempted in a contrary wind, unlefs when her condition
renders her incapable of fustaining the mutual efforts of the
wind and waves any longer on her fide, without being ex-
posed to the moft imminent danger. See TRYING.
A fhip either scuds with a foil extended on her fore-maff,
and order. It is therefore not deserving of the plume, but J., and order occasionally. The cuadriflora is reckoned at 1524 mezzo quattrini; but when drawn from another place on Rome, it is reckoned at 1525 ducato; this ducato is divided into 20 ducati, 200 denari. Among the silver coins are scudi romani, and ducati. The ducato weighs 22 denari 10.53 grains. Roman silver is 10.29 English grains; and the silver is 10.1 ounces fine in the lb.; it therefore contains 403 grains of English standard silver, and is worth 42.4d. sterling. The scudo di lattano d’oro, or 1523 mezzo quattrini, is worth 62.4d. sterling; and the paolo, 3d. sterling nearly; or 1 ducato = 4 scudi 60 bajocchi, all valued in silver. All payments above 5 scudi are made in cedule, or schedules, a fort of bank notes, which cannot be refused in payment, and which are constantly at a discount. At Malta, accounts are kept in scudi of 21 ducati, each ducato being subdivided into 2 carlini, 20 grana, or 120 piccini. These monies of account are valued in silver and copper money, silver money being to copper money as 3 to 1. At Mantua, a scudo of account is 6 lire, or 120 soldi. At Milan, a scudo di carlini, or impiala, is reckoned at 5 lire 17 soldi, or 117 soldi imperiali; a scudo corrente at 5 lire 15 soldi, or 115 soldi correnti: 1219 scudi impiala are equivalent to 1755 scudi corrente. Among the silver coins are scudi of 18 denari 21 grana, at 6 lire, and halves in proportion. In copper the scudi are divided into 6 denari 18 grana (or 10.02 16.5 dwt.) fine; but the lire are only 6 denari 14 grama (or 6.02 11.4 dwt.) fine. The scudo impiala is worth 5f. 22d., and the scudo corrente 3f. 7d. If valued in gold, the scudo corrente is worth 31. 6d. sterling. According to the mint price of gold and silver in England, viz. 31. 17s. 10d. per ounce for gold, and 57. 2d. per ounce for silver, the scudo of 7 lire at Bergamo is 35. 6s. 7d. in silver, and 36. 5s. 10d. in gold:

- At Florence the scudo d’oro, or gold crown, is 63½. 9d. in gold;
- At Genoa, the scudo di carlini, or crown of exchange, is worth 56½. 7s. in silver, and 56. 02s. 6d. in gold; and the scudo d’oro marche 83. 42s. in silver, and 83. 7d. in gold;
- At Lucca, the scudo d’oro is 53. 50s. in silver, and 58. 27s. in gold; the scudo corrente 51. 80s. in silver, and 54. 39s. in gold;
- At Malta, the scudo, or crown, is 21. 32s. in silver, and 23. 34s. in gold; at Milan, the scudo impiala is 66. 90s. in silver, and 61. 6d. in gold; and the scudo corrente 42. 32s. in silver, and 42. 7d. in gold; at Novi, the scudo d’oro marche 83. 49s. in silver, and 83. 7d. in gold; at Rome, the scudo, or crown, is 52. 05s. in silver, and 51. 6d. in gold; and the scudo di lattano d’oro 79. 37s. in silver, and 78. 3. 7s. in gold; at Sicily, the scudo, or crown, is 49. 92s. in silver, and 49. 92s. in gold. For the 6s. 7d. value, 86s. of the scudo, see the table under Coins. For the impiala on the scudo, and other particulars, we refer to Killy’s Universal Cambist.

SUFFLE, or Scuffle, in Agriculture, an implement of somewhat the same kind as the furrower, but which is

nullly better, and less expensive. There is a prototype of 1½ dozen scudi. SCUFFLE, or Scuffler, in Agriculture, an implement of somewhat the same kind as the furrower, but which is
the last objection. It has been recommended by Mr. Bower. In this tool, by the teeth being only twelve inches from each other, and their interfiting, that distance is reduced to fix inches, where the breadth of the thares, from being full three inches, afford another reduction, which brings them to near together, that the land is almost wholly broken and reduced, and the intention of the ploughman as well as a harrower is accomplished at once, without cutting the roots of the couch-grafs in two, which is a great superiority that it pos sesses over the plough. And from the teeth binding forward, and having that kind of position, the roots are brought to the top more perfectly, which is another superiority over the plough. It has also much superiority in the dispatch of work, four horses and a man being able to finish five acres or more of land of a handy quality in the course of a day. And the following are the dimensions of this tool. The length of the first bull is four feet and a half; and the length of the second bull three feet nine inches. The teeth are two feet in length, and bent near the bottom, in order that they may lie flat on the earth. The length of the beam is six feet. And the length of the iron axle-tree, for the small wheels, is one foot and a half. The length of the iron that shifts through the beam, and fastens with a ferow, is two feet.

Many other light tools of the same description have been lately provided by different implement-makers in different parts of the country, which are well fitted for particular uses in the cultivation of land, and which, by their convenience and modes of working, have much labour and expense. They are some of them made with two rows of thares, five and four in each, about six inches in breadth; the front ones cutting the interstices of the thinner ones, by which means the work is done in an excellent manner. The depth of working is regulated by small wheels that let up and down. They prepare bean and other stubbles admirably for wheat or any other crops. They are a sort of tool which is fast getting into general use by the farmer.

SCUFFLING in Crops, the practice of putting them into the soil or ground by means of the tool called the scuffle. It is a practice which has lately been much had recourse to in some heavy, moil, land districts with great utility and advantage, and it may probably be employed in almost every fort with considerable benefit, as much time and labour, in the busy period of the spring, may thereby be saved; as the ploughing being performed in the leisure season of the autumn, the feed can readily be put into the ground by the operation of scuffling in the early spring months. In all cafes where the state of the weather, and the lands that have been ploughed for a barley fallow, or other purpose, will not let that grain be put into the grounds early in the spring, this may be a good method of proceeding, as further ploughing, in such circumstances, would be highly dangerous and improper. Such fallows, or other ploughings, having had the full effect of the frosts, and the influence of the atmosphere during the whole of the winter season, cannot but be well fitted for the operation of scuffling at this period, and by that means being made fit for putting in the feed. The same will frequently be the case with all other lands which have been ploughed before the commencement of the winter season; such as those of the tare, bean, and pea flubble kinds, as well as those turnip-lands which have been cleared and ploughed at an early period, and this method of preparing them for, and putting in, the feed, may be had recourse to with great safety and advantage. There is no danger in this way of destroying the fine surface pulverization and tilth which is so essen ti ally necessary for the reception of the feed, as is often done by the use of the plough under such wet and unfavourable circumstances of tillage lands. See SCARIFYING, and Tillage.

The working of the surface soil in this manner, and the relinquishing of the use of the plough in some measure, is a great modern improvement in the tillage system, which is most fully practiced in Suffolk; but if it is falling into use in other districts. In Essex some farmers find it a more effectual and cheaper method of clearing fallows than that of trulting wholly to the plough. It is also found useful in cleaning land for turnips, as well as in lightening the ground in fly-eaten crops of that sort.

SCULCOATS, in Geography. See Hull. SCULION, in Ichthyology, a name given by Aristotle, and many others of the ancient writers, to the fifth called by later authors catulus, and catulus major, and in England the bouncer. SCUL, among Hunters, denotes a company; as, a feuk of foxes. SCULL. See Skull. SCULL-CAP, in Gardening, the common name of a curious garden plant. See Scutellaria. SCULPONEAE, among the Romans, a kind of shoes worn by slaves of both sexes. These shoes were only blocks of wood made hollow, like the French sabot.s.

SCULPTURE, Engish, is from the Latin, sculpitura; and the verb sculpto, I carve or engrave, which is the same as the Greek Σκυπτων: therefore balso-relieve was called anaglyphic in that language; which word was also under flood for carved representations in general. The Greeks had other words by which they signified particular works of sculpture; as exou', images; and τυπος, types, or representations in relief.

Sculpture is the art of imitating visible form by means of solid substances, either modelled, as clay or wax, or carved, as marble. The principles of sculpture and of painting are both the same; till painting divides itself into a distinct branch by the imitation of colour; while sculpture is expressed by form alone.

Of Hebrew Sculpture.—As the bible is the most ancient history we possess, those instances of the arts of design which are mentioned in that sacred volume ought to be noticed, and particularly of sculpture.

The first mention of images is in Genesis; where Rachel stole her father's gods, which are called Teraphim, or images. Mention is made also in Genesis of Judah's signet.

In Exodus, Mofes receives commands and instructions concerning the tabernacle; that he should cause it to be made according to the pattern which was shewed him on the Mount. And in order to this, Beazalel and Aholiab are inspired with the spirit of God "to devise cunning works in gold, and in silver, and in brazen, and in cutting of stones, and in carving of timber to work all manner of workmanship."

The importaance of the arts of design is here particularly demonstrated by the manner in which Beazalel and Aholiab are called, even in the service of religion; and filled with the divine spirit for their employment in the Tabernacle and the Ark of the Covenant, as described in the following passage by Mofes.

"And Mofes said unto the children of Israel, see, the Lord hath called by name Beazalel, the son of Uri, the son of Hur, of the tribe of Judah. And he hath filled him with the spirit of God in wisdom, in understanding, and in knowledge, and in all manner of workmanship. And to devise curious works in gold, and in silver, and in brazen, And in the cutting of stones, to set them, and in carving of wood, to make any manner of cunning work. And he hath put it
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it on his heart, that he may teach, both he and Ahiah, the son of Ahitub, of the tribe of Dan. Then hath he filled with wisdom of heart, to work all manner of work of the engraver, and of the graving workman, and of the emboiderer in blue, and in purple, and in scarlet, and in fine lines; and of the weaver, even of them that do any work, and of these that devise cunning work.

Such inspired works being ordered, and Moses coming down from the Mount to call all to be performed according to the divine will; he finds that the people have made a golden calf, crying out, "The Lord, thou art gods, O Israel, whom brought thee out of the land of Egypt." The golden calf is evidently the Egyptian Osiris or Apos.

The manner of making the golden calf is thus described by Aaron: "I laid unto them, whatsoever hath any gold let them break it off; so they gave it me; then I cast it in the fire, and out came this calf." It is also said, "He received the earrings and gold at their hand, and fashioned it with a graving tool after he had made a molten calf!"

This dreadful attempt to annihilate inspired art at its birth, is visited by a grievous judgment, but no more grievous than is necessary to its security: for this deliverance from Egypt was the deliverance of man, both as to his bodily and mental faculties, from slavery.

When the tables of stone are renewed, that they may be deposited in the ark, Moses, Bezaleel, and Ahiah, and every wise-hearted man, in whom the Lord had put wisdom and understanding, set about their inspired work.

The tabernacle and its curtains and cherubim, the veil and its cherubim; the ark and mercy-seat and their cherubim; the table of show-bread and the golden candlestick; the altar of burnt-offerings and the altar of incense; the laver; the garments of Aaron, and his breast-plate and mitre and holy crown, and the garments of the sons of Aaron.

Whether the cherubim which were woven in the curtains and the veil are to be considered simply as mentioned in Exodus; or, according to the more expanded and poetical representations in Ezekiel, accompanied by their dreadful wheels, containing Orion and Pleiades, Mazzaroth and his lions, Arcturus and the chambers of the south, as mentioned in Job, Isaiah, and Aaron; like the representations on our celestial globe; the difference will be only in their more or less splendid design and embroidery. But the description is more positive concerning those sculptured cherubims which covered the ark of the testimony.

"And he made the mercy-seat of pure gold. Two cubits and a half was the length thereof, and one cubit and a half the breadth thereof. And he made two cherubims of gold; beaten out of one piece, made he them on the two ends of the mercy-seat. One cherubon the one end on this side; and another cherub on the other end on that side; out of the mercy-seat made he the cherubim on the two ends thereof. And the cherubim spread out their wings on high, and covered with their wings over the mercy-seat, with their faces one to another; even to the mercy-seat were the faces of the cherubim."

These figures, as also the candlestick and table, and all other works of sculpture contained in the tabernacle; together with Aaron's breast-plate, a span each way, foursquare; containing twelve precious stones, each engraved with the engraving of a squet, with the names of the children of Israel; must have been worthy of their divine author.

And the necesity of such inspired sculptures and other inspired works of art is explained sufficiently in the deliverance of Israel from the idolatry of Egypt; where no one dared to pray any other foster, but that of the fathers, who, like heart, were kept to worship the name of the angel." And the Hebrews being born slaves, continued to think upon the Egyptian works, but he inspired them with what he wrouth, he was employed to work in works, and in his ordering. Such then was the inspired art and its use from the time, and the earth from returning to its primordial chaos;

All idolatrous labors for art, wood and their deformed God, by the mouth of Micah, expressly conmand the children of Israel to destroy, in these and the like words. "And destroy all their pictures and destroy all the molten image."

After the establishment of Israel in Canaan, there are continued indications of free art. So early as the tongue of Debr rah, we hear of those who deliberate with the power of the writer. Gideon destroys the altar of Baal, but afterwards himself makes an idol. Micah's mother dedicates gold and silver to the Lord, to make a graven image and a molten image; but Micah makes them a house of gods, which he worships and caudes others to worship, not using them as works of art, but as idols.

We next hear of the image of Dagon, when the ark of God is taken by the Philistines; and of the golden encrusted and golden mice, which were put into a coffer by the side of the ark, for a treasufy offering.

The image which Micah placed in David's bed, to deceive Saul's messengers, some suppose to have been a statue of David; it is called a seraphim.

But the most magnificent production of Hebrew art was the temple of Solomon. It contained the same cherubim that Moses had seen in the Mount; and they adorned and covered the whole temple within and without. Two in particular were placed in the holy of holies, of colossal dimensions: they covered the place of the ark with their wings; the height of each was ten cubits, and the breadth each spread his wings was ten cubits. A figure five yards high is capable of the greatest efforts at perfection in art, and this no doubt they had, being done by divine command, for purposes whose importance reaches to the end of time.

The brazen sea of Solomon's temple, and its twelve oxen; the two pillars, Jachin and Boaz; the candlesticks of pure gold, twelve in number; the ten lavers, and their basins and wheels, and ornaments of lions and oxen, and cherubim, works inspired by God and wrought by his holy Spirit, with the other sublime ornaments of Solomon's temple, as also Solomon's throne and its twelve lions. The excellence of the work must be considered as equal to the purpose of containing the covenant between God and man, and other dispositions relating thereto.

Thus, the art of sculpture was not only allowed, but encouraged and employed in the service of religion, in the representation of divine attributes or the symbols of divine presence; and the abuse only of this art was forbidden when perverted to idolatrous and impious purposes.

But Solomon became an idolater; and it is said, "then did Solomon build a high place for Chemosh, the abomination of Moab, in the hill that is before Jerusalem; and for Moloch, the abomination of the children of Ammon." From this time fine art and inspiration were successeively removed.

It has been thought necessary to be particular in giving quotations from the Bible concerning the sculpture of the Hebrews, as it is the earliest of which we have any authentic account.

There are found in Syria, in the present time, ruins of monuments called the sepulchres of the prophets. These remain have nothing like the Egyptian or the Persian style of construction,
construed, but are of Roman or Grecian origin, and must have been erected in an age greatly posterior to the prophets. This seems to be allowed in the words of our Saviour to the Pharisees: "Your fathers killed the prophets and ye build their sepulchres." It should seem that the Pharisees added Roman ornaments to the simple forms of ancient Hebrew veneration, as is figured in these words. "Ye build the tombs of the prophets and garnish the sepulchres of the righteous."

There are engravings of these sepulchral monuments, published by Mr. Caius in Paris.

Of Babylonian and Persian Sculpture, also of Athenian Sculpture in general.—It may be proper to take some general notice of the most ancient sculpture of other nations of the East, of which our accounts are very imperfect, previous to the description of Egyptian sculpture, for two reasons: 1st, that the sculptures of these nations will have considerable light thrown upon them by the Egyptian remains; and, 2dly, because, as the history and examples of Egyptian sculpture are abundant and fusecutive, they lead us more naturally and accurately to the great object of our present enquiry, Grecian sculpture.

In the very ruined state of some, and the utter devastation of most of those countries in Asia which were once the seats of art and science, the traveller in vain seeks for memorials of Noah, or of Abraham, or of Moses, or even of Solomon: all historical record of these early times is without corroborative evidence from remaining monuments.

The first method of transmitting ideas to posterity is suppose to have been by hieroglyphics or ideal writings, whether painted or sculptured. Such also was used in Mexico when first discovered. All the most ancient writings approach to the figurative or ideal writing, every word being as much as possible a picture or image. Some of the learned have thought that the first chapters of Genesis were originally transmitted in this way.

How such figurative words could have occurred, previous to the art of ideal writing, cannot be easily conceived. The author of a figurative expression must have a figurative idea in his mind, and that is a hieroglyphic, which might as well be painted or sculptured as written, and with infinitely greater effect on the reader.

The descriptions of the creation and fall of man, of the flood of Noah, of the building of Babel, and of the departure of Abraham from Chaldea, are each of them a sublime series of ideal writing.

After the flood, when men began again to multiply upon the earth, Nimrod's followers are said to have "built a city and a tower, whose top should reach unto heaven." The facred writings do not mention any thing of sculpture in this building. But Berosus says, that representations of the terrific forms that inhabited chaos previous to the creation, were to be seen on the walls of the temple of Belus in Babylon; and that these conflated of human figures with wings, of human figures with two heads, of others with legs of goats and with horns; and that they were executed both in painting and sculpture.

There are no works of sculpture discovered in any country at all to be compared with Greek art. All the great empires, previous to the age of Pericles, are vanished; not any thing of Nebuchadnezzar, nor of Semiramis, nor of Belus; their names remain in history but not in sculpture, and it cannot be certified whether the golden image of Nebuchadnezzar was merely a colossus or a work of fine art.

Much less can we speak of Belus, from any thing that remains. Herodotus, in describing the temple of Jupiter Belus in Babylon, says it is a "square building, two flades in length on every side, having gates of brass, as may be seen in our time. In the midst of this temple stands a solid tower of one flade in height, and in length and breadth the same measure. On this tower another is built, and a third upon that, till they make up the number of eight. The ascent to these is by a way carried round the outside of the building to the highest part. In the midst of the ascent is a palace, where the priests who give up may rest themselves. Within the uppermost tower a spacious dome is built, in which a table of gold stands, at the side of a magnificent bed. No image is seen in this place, but in a chapel which stands below within the temple, a large image of gold, representing Jupiter fitting, is placed on a throne of gold, by a table of the same metal, all together weighing eight hundred talents, as the Chaldeans affirm. Without this chapel is an altar of gold, and another of a greater size, which is used when cattle of full age are sacrificed; for on the golden altar no other than sacrificing victims may be offered. On the great altar the Chaldeans confume yearly a thousand talents in incence, when they celebrate the festival of this god. Besides these things, a statue of solid gold, twelve cubits high, stood formerly in this temple, which, because I did not see, I shall only relate what I heard from the Chaldeans. Darius, the son of Hystaspes, had designed to take away this, but had not courage for this purpose; but Xerxes, the son of Darius, not only took away the statue, but killed the priest who had forbidden him to remove it. In this manner the temple of Jupiter Belus is built and adored, not to mention divers other donations consecrated there by private persons."

Diodorus Siculus has given a description of the works of queen Semiramis in Babylon. She built two palaces, at the end of the bridge upon the banks of the Euphrates. That on the west had a high and flatly wall built circular, upon which were portrayed in the bricks, before they were burnt, the forms of all sorts of living creatures, laid with great art in curious colours. This wall was in circuit forty furlongs, in height a hundred yards, upon which were turrets a hundred and forty yards high. The third and most inward wall immediately surrounded the palace, thirty furlongs in compass, and far surmounted the middle wall both in height and thickness; and on this wall and the towers were represented the shapes of all sorts of living creatures, artificially exprest in the most lively colours; especially was represented a general history of all sorts of wild beasts, each four cubits high and upwards. Among these was to be seen Semiramis on horseback, striking a leopard through with a dart; and next to her, her husband Ninus, in close fight with a lion, piercing him with a lance. This palace far excelled that on the other side of the river, both in greatness and adornments, for the outermost wall of that made of well burnt bricks, was but thirty furlongs in circumference. Instead of the curious portraiture of beasts, there were the brazen statues of Ninus and Semiramis, the great officers, and of Jupiter, whom the Babylonians call Belus. And likewise of armies drawn up in battle; and divers sorts of hunting were there represented, to the great diversion and pleasure of the beholders. In the middle of the city she built a temple to Jupiter, whom the Babylonians call Belus. Upon the top she placed three statues of beaten gold, of Jupiter, Jupiter and Rhea. That of Jupiter stood upright, in the posture as if he were walking. He was forty feet in height, and weighed a thousand Babylonish talents. The statue of Rhea was of the same weight, sitting on a golden throne, having two lions at her knees, standing one on either side, and near to them two exceeding great serpents of silver, weighing thirty talents a piece. Here likewise the
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the image of June flood upright, and weighed eight hundred talents, graving a fret upon the head in her right hand, and holding a sceptre, adorned with precious stones, in her left.

But Babylon is now a ruin, nor are the caverns of the earth found to yield any fragments of her ancient sculptures.

Among the ruins of the Persian monarchy, which display themselves in melancholy state amid the deserts, is Persepolis. The fragments of sculpture that here remain are very rude, and give an idea of the mere infancy of art, though of gigantic dimensions. Such are those sepulchral monuments carved high in the rock mentioned by Flavio in these words: "He that heweth himself out a sepulchre on high, that graveth an habitation for himself in a rock."

The ruins of Persepolis present examples of Persian sculpture on the wall, and in the portals of its ruined palace, and also on the tombs of its kings. Their antiquity may be about the time when Ahabsaurus removed the seat of government from Babylon to Susa. We hear that Alexander took possession of Babylon, Susa, and Persepolis, the chief cities of the Persian empire, and burnt down the palace of Persepolis, of which the ruins now remain. They are hardly more ancient than that removal of the Persian government by Ahabsaurus, who is Darius Hystaspes.

Thus palace of Persepolis has its walls still remaining on three of its sides. The extent of the front comprehends fix hundred paces, from north to south; it is three hundred and ninety from east to west. On the west front are two magnificent flain-cases, confiting each of two flights of steps. On the top of these flain-cases are seen two grand portals, one fronting the west, the other eastward; between them are two magnificent columns, each fourteen feet in circumference and fifty-four in height; within the portals are carved, in stone, the heads and breasts, and front feet projecting beyond the portals, of two animals somewhat like sphinxes, twenty-two feet from the fore to the hinder legs, and in height fourteen feet and a half; they have the body of a horse, with the legs thick and short, like those of a lion: there is some appearance of their having had human heads, one of them having a crowned bonnet like a turrett. The other of these grand portals eastward has two somewhat similar animals, but these have wings on their shoulders, their dimensions being nearly the same with the former. And at the distance of a hundred and seventy feet from this portal are two flain-cases like the former. The walls which belong to these flain-cases are fix feet seven inches high, of which the lower stones make it evident that they were adorned with figures in low relief. The upper part of the flight is embellished with foliage, and the representation of a lion rearing a bull, much larger than life, and likewise in low relief. The stairs are seventeen feet in length, three inches high, and fourteen inches and a half in breadth.

What remain of this palace are chiefly pillars and porticoes, the pillars being fluted, having bases and capitals of uncouth ornament, of sometimes an animal's head and neck, and sometimes ornaments like Gothic arches. All the upper part of the building is entirely destroyed, and what remain of that below are only separate members, which have little connection with each other. Some of the columns are 70 feet high, and have been as numerous as 76 in a range, though comparatively few remain, and those terribly mutilated.

The other ruined portals are ornamented with figures carved in the sides of the jambs, of rude grandeur: on one portal is a man fighting with a lion; on another, a man fighting with a griffin or horned lion; and on a third, a figure like a king, with two figures behind him, one with a staff, the other with a sea horse's tail, which being fast to a gold handle, is fixed in Persia at the present time to drive away flies. Over his head, in the air, is a little figure of eagle's wings, perhaps a god or a genius. Another portal has a great many figures in different compartments, one above the other: in the top compartment is a figure sitting on a throne; on another portal, which was once the side of a door-way, is a figure sitting on a throne, and behind him an attendant; beneath, in three compartments, are many little figures much defaced. Other portals have had other ornament, and unknown characters of letters shaped, like the heads of arrows, disputed in different directions and in different combinations. The windows of these ruins, some of which remain, were ornamented also with sculptures in the same manner as the doors. One that remains has a man holding an animal by the horn, which is single and very long, and bending backwards; before them walks a figure of a man with something in his hand, like a fanning instrument: other windows have also the same unknown characters of letters engraved on their sides.

The flain-cases are half buried in the earth, and toward the top very much broken; they have each two flights of steps with landing places between, the walls of which, and of the flain-cases, have been ornamented with sculpture, in two ranges, one above the other. The first five figures at the entrance are smaller than the rest, and have large vellums with plaited sleeves, and a round bonnet rising in plains, and larger in the upper than in the lower part; they have hair and long beards; each holds a lance, and a quiver of arrows is fastened at their back with a strap carried over the shoulder. The figure which is next in order, precedes a train of others; he holds the next by the left hand, and grasps a fork with the right. It seems to represent an ecclesiastic at the head of a procession of others; he is likewise arrayed in a large robe, with a girdle hanging down very low. The three figures by which these are succeeded have shorter robes and sleeves, with upper and under velts, and pointed bonnets formed into five plates: these are properly the tics, called also reflexa, slumped into a curve backwards, contrary to the tics Prygias, which are bent forwards. Two of these figures hold a basin in each hand; a figure following him has two loops or circles in his hands. This is followed by two horses drawing a chariot, and by two other figures that place their left hands, one on the back, the other on the neck of the horses. They are all represented with hair and beards; the two left bare-headed, the other has a bandage or diadem.

Between each compartment of six or seven figures, is a kind of arch, and the two first figures always hold each other by the hand. A horse, led by the bridle, follows the two first figures in the second compartment; three figures following this, one of which bears something that resenbles a vellum: in the third compartment are five figures with little basins or buckets, and two others with bells or globes. These in the fourth compartment are not habitated to well as the others, having only a very straight staff, with a cincture, and long drawers, which are straight and plaited: three of these figures have also basins or little buckets in their hands, and are followed by a camel, having two hunches on his back, with a little bell hung round his neck, after the manner of the eastern caravans, that the sound may be heard at a distance, especially when they pass through narrow defiles; to give notice also to the inhabitants of the caravan's arrival: it is a signal likewise to those who have hid and enables them to join their companions. The last compartment is distinguished by a figure bearing a pole, with a pot appendent at each extremity; and in each of these pots are seen
seen little water vessels in an upright position: the habit of this figure is but indifferent. A mule, or an ass, is represented next, with two men armed with pikes, followed by another figure bearing two mallets. Several other characters appear next, and half of all a great lion encountering a bull, or some other animal, from whose forehead a single horn is extended.

There are forty-eight figures of men and beasts in this range, and as many in that above it, which consists of the following figures. The first six of these are merely habited; each of them has some vestment in his hand. Those that follow carry the fame, but are better arrayed. Most of them are greatly impaired by time. These are followed by an ox led with a halter. The only difference between this and the third compartment is, that in the latter, two rams are led, and each has a large crooked defected horn. After these appears a figure armed with a buckler, and another leading a horse by the bridle, followed by a third with two hoofs: the other three are habited like the preceding figures. Next comes a led ox, followed by a man armed with a lance and shield, behind whom appears two other figures, each with three lances, and their sleeves longer than their veils. The last figures that follow have very short veils, with drawers that are long and straight, which come down to their feet; they are armed with long bucklers hanging at the girdles of their waists; two of them have hoops in their hands, and a third a fork; they are followed by a horse led by the bridle.

Such are the figures on this fair-cave. Toward the west side, and toward the east side, are as follow. Twenty-eight figures, each grasping a lance with both hands; their veils are long and wide, and they are represented with hair and beards, and seem to be bare-headed, unless we may suppose them to wear a plaited bandage, or kind of diadem. These are succeeded by a number of other figures, armed with long bucklers, which are pointed and bent at one end, with a short broad dagger hung at their girdles: their veils are of unequal lengths; they are like the last figures in the drapery of their heads; they have also some ornament in one hand, and the other is placed upon their beard. This range consisted of sixty figures, the last of which are defaced. All these figures seem to represent some triumph, or procession of people bearing presents to the king, which was customary under the ancient monarchs of Persia, and is practised at this day.

A traveller counted 1300 figures of men and animals remaining in this great ruin.

There is another immense ruin in the defarts of the ancient empire, called Palmyra or Tadmor, said, in the Book of Kings, to be built by Solomon. The present ruins of this great city are very different from those of Persepolis, and indicate a much more modern construction; and that if Solomon originally built this city, the Roman emperors, and particularly Adrian, so far re-edified it as to leave no traces of greater antiquity.

As the remains of Palmyra, though vast and stately, are more properly architectural than sculptural, we shall refer the reader, to satisfy further curiosity concerning them, to the admirable work of Wood and Dawkins; for whatever remarks might be requisite on the sculptures of Palmyra, would more properly belong to observations on that subject in the section of Roman sculpture. See Palmyra.

Balbec, near the site of the ancient Damascus, is another ruin of the same description. (See BALBEC.) As for those great many cities mentioned by the Hebrew prophets as flourishing in their time in magnificence and riches, the places of some of them cannot be found, such as Teman, the capital of Edom, and the cities of Moab and Ammon, of Aethur and Aram; some are dwindled into little villages, and most have left no traces in the desert where they might be found.

With regard to Hezbon and Rabbath, and Bozra and Hamath, all the mighty cities described by Isaiah and Ezekiel, as filled with multitudes in power, riches, and magnificence; the coromant and the bittens pollute them, the wolf howls there, and the wild beasts inhabit those forsaken places, where ancient kings and their counsellors, and warriors, thought they had built an everlasting habitation; even Nisrach and Damalac are now indeed no more; they are, as the prophets said, "gone down into the nether parts of the earth," nor does history deign to tell their tale.

And of the ancient Tyre, and its Hercules of ancient Tyrian art, there are no remains. Herodotus says, "I failed to Tyre, in Phoenicia, because I heard there was a temple dedicated to Hercules. That temple I saw, enriched with many magnificent donations, and, among others, with two pillars, one of fine gold, the other made of a smaragdus, which shines by night in a surprising manner."

The Tyrian Hercules, or god of Tyre, is thus described by the prophet Ezekiel. "Every precious stone was thy covering, the sardius, the topaz, and diamond, the beryl, onyx, and jasper, the fapphire, the emerald, the carbuncle, and gold. The workmanship of thy tablets and pipes was prepared in thee in the day that thou was created. Thou art the anointed cherub that coverest, and I have fet thee fo; thou wast upon the holy mountain of God, and thou haft walked up and down among the fones of fire."

It looks as if there was some omission in the account Herodotus gives of this temple of Hercules, in Tyre. Herodotus, indeed, saw this temple after the ruin of Tyre by Nebuchadnezzar, consequently not in its glory, as Ezekiel had seen it; he has described the pillars as stones of fire, but he has not said any thing of the god; perhaps, in his time, the statue of Hercules had been taken away by mercenary cupidity, as the statue of gold in Babylon had been removed by Xerxes. Such is the melancholy picture of ancient times, the fulfilment of the denunciations against those ancient empires; "they utter a faint murmur out of the dust."

As there is a general resemblance in the early attempts at fine art in different nations; so there may be a likeness traced between the productions of Hindoo sculpture and the early productions of art in Egypt, Greece, and Etruria; however, we must always remember that the accurate observations made by the Greeks on beautiful nature, assisted by the regular progres of science, soon gave their productions a decided superiority over those of every other people.

The caverns of Elephants and Ellora are vast halls excavated in the rocks, equal in dimensions to the large temples of other nations.

That of Ellora is architecturally divided, by rows of columns, into aisles; the friezes, and pannels in the walls, are filled with sculpture, detached, or in feries, of the mythological personages, and acts of the Brahmin religion.

The sculpture of Elephants is of the same kind, with the addition, at one end of the temple, of a colossal bull of the triple-faced Braham.

The columns of these temples offer a continual variety of ornaments in their capitals, shafts, and bases; redundant and extraordinary for the application of the lotus, cames, and other vegetable and animal productions of the country, in which the human figure is occasionally introduced.

On the banks of the Ganges are continually seen such ancient works of sculpture in the living rock, of inferior dimenions, but of the same sacred character, obelisks magnificently adorned, the figures of oxen, horses, tygers, elephants, &c.

The necessity of hastening to the great object of our present
present enquiry, Grecian sculpture, makes it impossible to do more than refer to examples few, in the earlier period, as they are to be elegantly displayed by Mr. Daniel among the colossal statues of the East, which, in his exact representations, have not hitherto been cut out of any country, but have gottered every other of at least some merit.

Of Egyptian sculpture, the land of乏ance, was visited by the most wonderful of the Greeks in arts and letters, to whom we find more especially the names of Orpheus, Plato, and others of distinguished wisdom; all went to Egypt, as to the wisest nation of antiquity, for instruction. The earliest ancient, Herodotus, went also, and has given an account of the extraordinary country. He says, that in the time of their king Amasis, Egypt contained 79,000 populations.

The remains, at this present time, as described by the latest travellers, are more stupendous than those of any other country, with vast palaces and temples, in the age of ten, with their attendant sculptures and paintings; though devastated by the temple of war deluge after deluge, still the colossal power of Egypt has a remnant left to tell us what it once was.

Herodotus says, on the authority of the Egyptian priests, in his own time, from Egyptian records, that Menes was the first king of Egypt, after whom reigned three hundred and thirty kings: among these was a woman, named Nitocris. Of the acts of these kings, he was told, no record remained, except that Nitocris and of Menes, the last of these kings. He says, I shall, therefore, pass them by, to relate the memorable actions of a succeeding king, whose name was Sesostris. That he conquered all nations, and caused his image to be carved on stones in the countries that he subdued, which he describes thus. His figure is five palms in height, holding a bow in one hand, and an arrow in the other, and armed after the Egyptian and Ethiopian manner. On a line, drawn from one shoulder to the other, these words are engraved in the sacred letters of Egypt: “I obtained this region by the strength of these arms.”

After Sesostris reigned six kings. Statues made in the time of the last of these were in ruins in the time of Herodotus, which was about the year of the world 3400, a hundred years before Herodotus; so that 3000 years will remain to be occupied in Egyptian history; from Sesostris to Amasis; and within this time, those Egyptian buildings and works of sculpture, which the priests represented to Herodotus as to very ancient, might easily have been produced.

Thus a division is made between the fabulous and the historic ages, both in Egypt and Greece; and a decided era produced, which will not infringe on the truth of sacred scripture, nor on the credibility of authentic Gentile history; and by a comparison of the remains of those monuments, it may give some date to the early works of Egypt and Greece.

The remains of Egypt have been no less zealous to examine the remaining ruin of Earth, than the ancients to contemplate its ancient glories.

Of these works, these ruins of ancient knowledge, the late publications of Egyptian antiquities give majestic and awful ideas. Some of the drawings made by the French Institute in Egypt have been published, and they display Egypt, which once was.

The ruins of Egypt are contained in a compass of about 350 miles along the banks of the Nile, among pyramids, and pillars, and porticoes, and subterranean palaces hewn out for the dead.

The first objects of Egyptian sculpture that seize on the imagination are the colossal statues; among these are the sphynx, and the statues called Memnon or Olymmandus. The sphynx is situated near the pyramids of Giza, as to be exhibited, it is the appearance of one of those mafles of solid bulk, accompanied by other mafles of ornamented sculpture; and being divested of their gigantic accompaniments of intellectual labour, the pyramids are left alone, inexpressible monuments of lost wisdom as well as departed power.

The sphynx is thus described by Ripaud: the length of the rock, to which the form of this chimerical animal has given, is about 95 feet; its height from the base to the top of the head is 38 feet. The ancient very generally believed, that there was a passage in the body of the sphynx, which led by subterranean channels to the interior of the pyramid. It is still conjectured, that, beneath these subterraneous passages, caverns have been dug, which have supported to have been employed in the mysteries of initiation. On the face of the sphynx there is a hole five feet in depth; and it may even extend further. There are also appearances of another opening of the same kind on the back of the figure.
SCULPTURE.

The head of the sphinx bears the lineaments of a Negro. It is deprived of the nose.

Of this monument Denon says: although the proportions of the sphinx are colossal, the contours are free and pure; the expression of the head is fleet, graceful, and tranquil. It is the character of an African; the mouth and lips thick, with a softness in its movements, and a finesse in its execution, truly admirable: it is the flesh and the life. At whatever time this was produced, art was without doubt in a high degree of perfection. If there is wanting in this head that which we call style, that is to say, those forms, just and exalted, which the Greeks have given to their divinities; it is but justice to acknowledge, that there is no great and sweet character of nature which we cannot admire in this figure: if we are surprized at the dimensions of this monument, no less are we astonished at its execution.

The temples of Karnac and Luxor, on the right bank of the Nile, together with those of Medinet Abou and the Memnonium on the left bank, are supposed to occupy the situation of the ancient city of Thebes. The ruins of these temples are of vast extent. The palace of Karnac was in front 240 feet, and its depth near three-quarters of a mile. It consisted of four great courts of nearly equal dimensions, comprehended within a long square: the first court was occupied by four rows of columns; the second court had 150 columns, the largest 11 feet in diameter, the smallest 7 feet; the third court was adorned with obelisks 300 feet high, and colossal statues, surrounded by various royal apartments. On each side of the entrance to the fourth court was a falcon of granite: the rest of the space was occupied by porticoes, colonnades, and numerous chambers for officers and attendants. This palace, with four dependent structures of similar magnificence, but inferior proportions, was approached by four paved roads, bordered on each side with figures of animals, each 15 feet long. In one avenue were 90 lions; in another avenue, sphinxes; in another, rams; and in the fourth, lions with hawks' heads. From the ruined state of these avenues, we have no computation of the number of animals by which they were bordered; though it is almost certain that they were not fewer than 300, and it is possible they might be many more. In this palace 22 colossal statues still remain, and a great many statues of granite, and fragments of the size of nature; besides which, the walls were nearly covered within and without by faifo reliefs and pictures. The better structures in this group of buildings were adorned in the same manner, and communicated with the other temples of Luxor and Medinet Abou, as well as the Memnonium, which was the magnificent tomb of Olymmandae or Memnon.

The Memnonium looks to the east: it is a palace of the most ancient construction, and its dimensions also colossal. In one of its courts are seen the remains of the celebrated statue of red granite, which may be considered as that of Memnon. Its height was 64 feet, and its remains are scattered 40 feet around it. One of its feet is 55 feet more than the other, and one of its ears measured 30 inches in length. The excavations are still visible, where the wedges were placed which divided the monument, when it was thrown down by Cambyses.

Between the Memnonium and Medinet Abou, and distant about half a league from each of them, are the remains of a great number of colossal statues and traces of buildings, which indicate that these two places communicated with each other by structures which filled up the whole space between them. This mass of edifices appears to have composed, according to Diodorus Siculus, the tomb of Memnon or Olymmandae. We are confirmed in this conjecture, by the conformity which exists between the monuments in their prefered site, and the extensive as well as precise descriptions which that writer has left of pictures which are found in both palaces. They represent the sieges of fortified towns, hostile invasions, and victories obtained by the Egyptians.

The Memnonium has not been finished, as well as the greater part of Egyptian works, where, by the side of objects but roughly hewn, are seen examples of exquisite finishing. Between the Memnonium and the palace of Medinet Abou are the largest colossal statues which now remain in Egypt: these are the figures now called Memnon. They are both fitting, with their heads looking straight forwards; both their hands lying equally on their knees; their feet straight forward, and their legs in an upright position, and both alike. One of these, according to the descriptions in Diodorus and Strabo, and those who copy their writings, was the famous statue of Olymmandae, the largest of all the colossi. The height of them is about 58 feet. Three smaller female figures accompany each of the colossal statues, which are standing one on each side of the chair, and one between the legs of the principal figure: there are in the rotunda an expanse, and that on the pedestal or chair of the southern figure wants no charm of delicacy in the execution. It is on the leg of that figure, towards the north, on which the inscriptions are written of those illustrious ancient travellers who visited the statue of Memnon: there are innumerable inscriptions of names of all dates, and in all languages.

But Denon gives it as his opinion, which is also that of Ripaud, that the two statues now standing are the mother and son of Olymmandae; the figure of Olymmandae itself now lying in ruins, as was before described.

The great temples of Hermopolis; the great city of Mercury; of Tentyris, or Dendera; of Latopolis; of Karnac; of Apollinopolis, or Edfu; of the islands of Phile, and of Elephantine; are all now in ruins, covered with remaining examples of Egyptian sculpture, both in statues and in hieroglyphical representation, on the walls, and on the pillars and porticoes, within and without; many of which are works of great labour and care, as well as intelligence in art.

M. Ripaud says, the execution of the figures engraved on the exterior and interior walls at Dendera, is an example of the highest point of perfection to which the Egyptians attained. All the minuteness of their drapery is finished with a purity and delicacy most admirable, conferring the impracticability of the stone. The elevation of this temple is 72 paces in breadth, and 145 in length; the portico is 60 paces in length, and 30 in breadth. Its most remarkable decoration is the great zodiac, divided into two bands; it enriches the ceiling of the two last intercolumniations to the right and left. The colonnade is one to the portico, and is supported by 6x columns, whose capitals display four figures of Isis, with the ears of a cat. The compartments of the walls are decorated with pictures, in which is a great number of female figures.

On the terrace of the great temple is a small one, the columns of which are like those of the portico: this temple forms a square of nine feet, and is the portico of a chapel, of which there are no traces. In the inner part of the temple is an apartment, which is adorned with a zodiac; it is circular, and occupies one-half of the ceiling. The apartment appears to be consecrated to astronomy. It is separated from another astronomical sculpture by a female figure in bas relief, of a large size, occupying the whole diameter of the ceiling; it presents a contour easy, and of beautiful
beautifull proportions; its feet, well preserved, are in a beau-
tiful style; it does not prefix any attribute, except a cor-
ner, which is often seen on figures of IIs; the hair is parted,
and falls on each side of the face; and on each side of this
figure are hieroglyphical inscriptions.

At Luxor, which is part of ancient Thebes, are the re-
manus of a palace, having in its front two obelisks of granite;
their height is seventy feet above the earth. Near these are
two colossal figures hurled up to the breasts; and judging
from the size of what is above the earth, we may reckon
that thirty feet are buried, which gives a hundred feet to
these obelisks. They are in perfect preservation; the
hieroglyphics upon them are most laboriously traced: the la-
bour to cut them from the quarry must have been immense,
as well as to transport them to the place where they now stand.
The parts preserved of the two colossal are admirable pieces of sculpturc, and were finished in the most careful manner.
Behind these are two great moles, which formed the gate;
they are covered with sculptures representing chariots drawn
by two horses, each having only one conductor.

It is remarkable, that neither the colossal figures, nor the
monuments, are on a line with each other, nor with the gate:
also, they are so close together, that the distance between
the mole and the obelisks, comprehending the colossal fig-
tures between them, is but eleven paces; each of which ob-
exclus in an insalubrious position, would almost be beholder
with its fire.
The temple of Hermopolis was consecrated to Isis, whose
delivery from Typhon is sculptured on the walls in basso
relevo: it is a beautiful, elegant structure, but dreadfully
ruined.

Edfu, the ancient Latoopolis, has a temple, the portico
of which is in good preservation; it was dedicated to Jupiter
Ammon, as appears from a medallion over the gate in the
inner part of the ruin. The hieroglyphics and pictures rep-
resent a great number of sacrifices offered to this deity, and
to rams, his emblems: the most curious of these represent
the offerings made to crocodiles, and the worship of the
Nile. The triumphs of the signs of Leo and Cancer are
equally distinguished. Hieroglyphics are sculptured in relief
on the columns, very beautiful for their workmanship.
This temple is one of the most remarkable in Upper Egypt, as
well for the perfect preservation of the portico, and its parts
that still remain, and their fine execution, as for the very
interesting pictures, which relate to the banqueting of Egy-
pian worship, which are least known: here is also found one
of the remaining zodiacs. This is one of the most beautiful
monuments of antiquity; most perfect in proportion, and
beautiful in execution, of all the temples in Egypt.

Edfu, or Apollinopolis, is the most farrisuous as well as the
best preserved of all the Egyptian temples, and where the
Egyptian architecture displays itself with supreme magnifi-
cence. It was dedicated to Hermes, the Apollo of the Greeks.
Here it is that the huge materials have been employed with
the greatest care, though many of the stones have not been
placed perpendicularly on their capitals, and several of the
columns vary in their diameters. The drawing of the
figures is correct, and there is some appearance even of per-
fective in the statues of IIs, that decorate the frieze of the
portico.

The sculpture is particularly beautiful in the capitals of
the columns that decorate this temple, every one different,
but every one beautiful; they are totally original in the
composition of their ornaments, and perhaps equally ex-
cellent with the admired Corinthian, or Ionic.

The temples at Elephantine and Philae are by no means
inferior to any in Egypt; they are likewise adorned with
sculptures and paintings of the most perfect Egyptian work-
manship.

But the abodes of the dead were particularly descrip-
ted by the care of the ancient Egyptians. All the Lybian
mountain, which is half a league to the west of the Mem-
noum, and ends opposite to Medinet Abou, is formed
from its base to three fourths of its elevation, with a great
number of sepulchral grottoes: Those which are nearest the
surface of the ground are most spacious, as well as the most dec-
corated; those which are in the most elevated part of the
mountain, are much more rudely contrived and executed;
while such as hold the middle place bear an adjusted propor-
tion of space and ornament. Those which belong to the
poor are the most interesting, because they always contain
some representation of the arts which flourished, and the
trades which were practiced at that epoch. The plan of
these grottoes is in a great measure the same. A door open-
ing towards the cell displays a gallery of about twenty feet
in length, sometimes formed in a straight line; at other times
it runs off from the entrance in an angle: it is differently
supported by columns or pilasters. At the extremity of the
gallery is a well that leads to the catacombs, where the
mummies are deposed. The depth of these wells varies
from forty to fifty feet; and they are connected by long
subterranean passages rudely shapen in the rock, which
terminate in a chamber of about thirty feet square, whose
sidewalls are supported by pillars, and contain large remains of the
mummies. There are evident traces of numerous other
subterranean communications, which probably lead to other
chambers that are at present concealed.

In the upper gallery are sculptured in basso relievo, or
painted in fresco, a great number of subjects relating to
funeral ceremonies. The most interesting pictures which are
seen there, present a detail of circumstances connected with
the ancient inhabitants of the country. There are repre-
ented their first occupations, such as the chase and the
fishery. Thence we may trace the progress of civilization
in the employments of the fader, the cartwright, the potter,
the money-lender, the husbandman, and in the duties and
the punishments of the military life. Each grotto is adorned
with a ceiling painted with subjects of fancy.

The tombs of the kings are about six thousand four hun-
dred paces from the river. They have been formed in a
narrow valley in the centre of the Lybian mountain. The
ancient way thither is not known, and the spot is now gained
by an artificial passage. These sepulchres occupy a large
ravine, which is flanked by the bed of a torrent. The plan
of one of those tombs will be sufficient to explain the general
disposition of the cell.

Every grot communicates with the valley by a large gate,
which opens to a gallery hollowed in the rock; its breadth
and height are generally about twelve feet, and its length is
twenty paces to a second gate, which opens to another
gallery of the same breadth, and twenty-four feet in length.
To the right and left of this gallery are chambers of five feet
in breadth, and ten feet long. There are found paintings of
arrows of coats of mail, tygers' skins, bows, arrows, swords,
lances, and quivers. In other sepulchral chambers are found
household utensils, couches, chairs, stools, cabinets of ex-
quisite forms; and if the artist has copied what existed,
it is certain that the ancient Egyptians employed the wood of
India carved and gilded; there are also other utensils equally
elegant, as cups and vellies in all variety. Other funeral
chambers are consecrated to agriculture; others to the
utensils of the ploughman; others to instruments of music
elegantly executed. The detail of preparing food is also
there represented.
SCULPTURE.

It is in one of these chambers where are seen the two Harps which were copied by Bruce. A third gallery succeeds, of the same dimensions as the former, and leads to a chamber above the level of the other apartments, which is eighteen feet square; from this chamber is the entrance to a gallery of thirty-four paces in length. There is also an inclining gallery, whole length is twenty-eight paces. At its extremity is a corridor of sixteen paces, leading to a chamber of eleven paces, which is connected with another of the same size, by a gallery of six paces; a square portal then succeeds, supported by eight pillars; its length is twenty paces, and its breadth twenty; here is the sarcophagus which contained the mummy of the King. The Romans made some attempts to carry away this sarcophagus from the grotto where it is deposited; they had even tried to level the ground in order to facilitate its removal, but they very soon renounced the impracticable enterprise.

To the grotto of the sarcophagus another apartment succeeds, of twenty-five paces in breadth, and forty in length; the height of the tomb is seven feet, its length eighty, and its breadth fix; the total length of the gallery is two hundred and twenty-five paces. The tombs of the kings, throughout their whole extent, are covered with pictures, and hieroglyphics, but the greater part are painted in fresco, and represent the most pleasing subjects. The researches into Herculaneum have discovered a great number of paintings executed in a similar taste.

One of the most interesting of these grottoes contains a sarcophagus that is still entire, and in its place; its length is sixteen feet, and its height twelve, and its breadth fix; it still preserves the lid adorned with the figure of the king, which is a single block of granite. How this was transported across the mountain, and afterwards introduced through a subterraneous passage two hundred paces in length, we can have no conception.

From the time of Strabo there were reckoned seventeen tombs of kings; and we shall still find the same number, if we may comprehend in this enumeration a superb grotto, whose plan is equally large and beautiful with that of the sepultures of the Theban sovereigns.

This grotto is half a league to the north of the Memnonium, and is scooped out at the bottom of a mountain, whose enclosure contains many other tombs; the entrance of several of them is closed, but the greater part of them have been violated. It appears that thofe of the ancient Egyptians, who had remained faithful to their worship, endeavoured to conceal the knowledge of the sepultures of their kings from their conquerors, or from the profilers of other religions.

Two of these grottoes remain unfinished, and a third is altogether without sculpture; and some others offer to view several decorative objects in a very unfinished state.

The quarries of Sililis, in Upper Egypt, present a species of façade cut into door-ways of immense size, and porticoes, in which are other door-ways leading into tombs, in the chambers and passages of which are figures as large as life, cut in the native rock, often only rough hewn, and the walls are both sculptured and painted. On the borders of the Nile we find these porticoes, entablatures, and cornices covered with hieroglyphics cut in the rock. Beneath these are a great number of tombs, all cut in the rock. They are formed into galleries, at the end of which are funeral chambers of seven feet by ten and eight feet by twelve; these chambers, and the passages leading to them, are ornamented with hieroglyphics traced upon the rock, and finished with coloured fixtoo, representing offerings; the ceilings are also stuccoed with ornaments and scrolls; often they are arched with an elegant elliptical arch, and painted and sculptured in an exquisite style, displaying an agreeable assortment of colours, and an effect rich and graceful.

Most of the tombs are entered by a single door and gallery, and have only a single chamber, in which are one, two, or four figures as large as life, cut out of the rock, perhaps two brothers and their wives; the men sit in the middle and the women on the outside, with their hands posed under the arms of their husbands, who sit each with their arms crossed upon their bosoms. Some tombs have but one figure; perhaps of one who led a simple life; another has three figures, a man and two women; the man in the centre and the women on each side, with their hands posed under the arms of the man, who has his arms curled upon his bosom. The figures of men have little square beards, with head-dresses hanging down behind the shoulders; those of women have the same head-dresses, but hanging before their naked breasts. In some chambers the floor is cut into many tombs, of dimension and form to receive the mummmies, and in the same number as the sculptured figures. Sometimes the principal figure holds the flower of the lotus, an emblem of death. And on the side of the door-way, at the entrance, we often see the figure of a woman in some attitude of lamentation. Sometimes there are two galleries or entrance into a single tomb; and one tomb in these quarries of Sililis, the largest and best preferred of any, is 55 feet long in front and 15 high, with an entablature having five doors; the middle door is ornamented with an architrave covered with hieroglyphics; within the door is a gallery or passage 50 feet long and 10 wide, in the midst of which is another door-way leading to a chamber, at the further end of which are seven figures standing; and on the inside of the interior door are two niches, in each of which is a figure also standing; other figures are also in the passage or gallery, all cut in the rock. In the façade without the door are seven niches, three large with figures, the others smaller; those with the figures are all cut in the rock, the rest of the rock remaining in its primitive form.

Such are the ruins of a nation so celebrated, that it was the place where the wife men of that truly wise people, the Grecians, rejoiced to the school of science.

The universal and profuse employment of sculpture by the Egyptians, both in colossal and minute dimension, for public and domestic purposes, for the service of the living and the dead, all induce us to enquire into the principles and quality of their productions.

We have not only the written evidence of ancient authors, but the demonstrative evidence of remaining works, that almost the whole of Egyptian sculpture was faced, that is, representing divine qualities, attributes, and personifications, if we except the historical furies on their tombs and palaces.

The Egyptian statues stand equally poised upon the two legs, having one foot advanced, and the arms either hanging straight down each side; or if one arm is raised, it is at a right angle across the body. Some statues sit on seats, some on the ground, and some are kneeling; but the positions of their hands seldom vary from the above description. Their attitudes are of course simply rectilinear, and without lateral movement; their faces are flatish; the eyebrows, eyelids, and mouths formed of simple curves, slightly but sharply marked, and with little expression. The general proportions are something more than seven heads high; the form of the body and limbs rather round and effeminate, with only the most evident projections and hollows: their tunics or other draperies are without folds in many instances. Winckelmann has remarked, that the Egyptians executed quadrupeds better than human figures, for which he
Sculpture.

He gives the two following real facts: first, that as profusion in that country werebardorous, Greeks must be willing to represent the human figure in perfection; and, secondly, that profusion in reverence for the works of their ancestors prevented improvement. This is an amazing but well-told hypothesis, for there are statues in the capitals of nations with as great a breadth and choice of grand parts proper to the human form, as ever represented in their kings or other minor deities. In addition to the other observations on Egyptian statues, we may remark, that the form of their hands and feet are gods, they have no anatomical detail of parts, and are totally wanting in grace of motion. This last defect, in all probability, was not the consequence of a superstitious determination to perfect in the practice of their sculptors; it is better accounted for in another way: Pythagoras, after he had studied several years in Egypt, fascinated with joy of having discovered that a figure of the largest side of a right-angled triangle is equal to the two squares of the lesser sides of the same triangle; and thence it follows, the knowledge of the Egyptians could not have been very great in geometry at that time, which will naturally and sufficiently account for that want of motion in their statues and reliefs, which can only be obtained from observation of nature allied by geometry.

The date of Egyptian science in the time of Pythagoras being surmised, leads us to another consideration respecting the date of their architecture and sculpture. Most of their great works are mentioned by the ancients as done in the reign of Seoklos, and afterwards. Seoklos lived in the time of Rehoboam, king of Israel, about the time of the Trojan war, or 1000 years before the Christian era, which shows the arts of Egypt and Greece were in a progressive state at the same time. And from the Greeks refining with them to study of theology, philosophy, and science; from the great intercourse, political and commercial, between the two countries from the heroic times; from the Greeks being long settled in the city of Naukareis, and other parts of Egypt, we may fairly conclude their communication in arts was just as free as in other concerns, which seems the more likely, as there is a considerable resemblance in the features and contour of the early Greek and Egyptian statues.

The Egyptian baso reliefs are (generally but not always) engravings on the back-ground, being left with the highest part of the relief; for which practice two reasons may be assigned; first, that as many of these baso reliefs were cut in exceeding hard stones, basalt, and granite; as much time must have been consumed to clear away the ground about the figure, as had been employed to cut the figure itself; but besides the economy of time, when some thousands of figures were engraved on the sides of a lofty obelisk, or the walls of a temple: the far greater number of them were at a great distance from the eye 50, 60 feet or more; in this case the ground, being left perpendicular to the figure, the whole circuit of its outline, gave it a greater breadth of shadow and dimness to the spectator. These baso reliefs, which we comprehend in the general term hieroglyphics, or faceted gravings, represent different subjects, according to the place and purpose for which they were employed. On the walls of tombs they represent the professions, actions, and funerals of the deceased: in palaces, wars, negotiations, triumphs, processions, trophies, with civil, military, and domestic employment of kings. In temples, they were the symbolical registers of theology and faceted science. On obelisks, they express hymns to the gods, or the praises of their kings. Ammianus Marcellinus has preferred part of a translation by Hermannus the Egyptian, of the hieroglyphics on the obelisk which formerly stood in the centre of the Forum Maximus, as present the church of St. John Lateran in Rome. It imports, that the king, the lord of the country, goes to Rames the kingdom of Egypt, and descends all the earth in the city of Memphis. The temple was sufficiently pillared in the upper lines of the hieroglyphics, where a diversity is fitting; in the act of leaving a man, who kneels before him, stretching his hands to receive. In the following line the figure is seen on a pedestal, taking possession of an altar, on the side of which is the Amon, and on the top the sacred hawk, symbol of Osiris. This was the sacred symbol of Egypt.

The numerous works of Egypt have broken every foreign visitor with wonder and awe, to the members of the French Institute. However, few, one of their buildings is equal to many of the most considerable Greek buildings taken together, and M. Ribot observes, those works are so prodigious, they make every thing we do look little; and indeed, if we consider the execution of a statue 75 feet high, in so hard a material as granite, the boldest heart would be appalled at the incredible labour and difficulties of the work.

In the Egyptian sculpture we shall find some excellent first principles of the art. Their belt figures are divided into seven heads and one-third, or seven heads and one-half; the whole height of the figure is divided into two equal parts at the pubis; the rest of the proportions are natural, and not disagreeable. The principal forms of the body and limbs, as the breasts, belly, shoulders, breeches of the arm, knees, shin-bones, and feet, are expressed with a lively roundness, although without anatomical knowledge of detail; and in the female figures these parts are often puffed considerably, and give the greatest elegance and beauty. The forms of the female face have much the same outline and progression towards beauty in the features as we see in some of the early Greek statues, and, like them, without variety of character; for little difference can be traced in the faces of Isis, in her different representations of Diana, Venus, or Terra, or indeed in the face of Osiris, although sometimes understood to be Jupiter himself, excepting that in some instances he has a very small beard, in shape resembling a peg. The hands and feet, like the rest of the figure, have general forms only, without particular detail; the fingers and toes are flat, of equal thickness, little separated, and without distinction of the knuckles: yet altogether their simplicity of idea, breadth of parts, and occasional beauty of form, intrile the skilful beholder, and have been highly praised by the best judges, ancient and modern.

In their baso reliefs and paintings, which require variety of action and situation, are demonstrated their want of anatomical, mechanical, and geometrical science, relating to the arts of painting and sculpture. The king, or hero, is three times larger than the other figures. Whatever is the action—a figure, a battle, taking a town by storm, there is not the slightest idea of perspective in the place; or magnitude of figures or buildings. Figures in male action are equally destitute of parts, and other anatomical form, as they are of the balance and spring of motion, the face of a bow, or the just variety of line in the turning figure. In a word, their historical art was reducing the beholder, in the most manner they could, according to the rude characters they were able to make. From such a description, it is easy to understand how much their attempts at historical representation were inferior to their figure statues.

What has been hitherto said of Egyptian sculpture describes the ancient native sculpture of that people. After they
The Ptolemies, succeflors of Alexander the Great, were kings of Egypt, their sculpture was enlivened by Grecian animation, and refined by the standard of Grecian beauty. In proportions, attitude, character, and drefs, Obris, Isis, and Osiris, their three great divinities, put on the Macedonian costume; and new divinities appeared among them, in Grecian forms, whose characteristics were compounded from materials of Egyptian, Etafen, and Grecian theology and philosophy.

In the reign of the Roman emperor Adrian, a number of statues, in imitation of the ancient Egyptian, were made to decorate the Canopus in his magnificent villa of Tivol; several of which have been dug up, and placed in the Capitoline Museum. But Winckelmann has remarked of these, that they may be known from the ancient Egyptian sculpture, having so hieroglyphics on them. But, besides this distinction, they are entirely unlike the genuine Egyptian; as the drawing and character are Roman, in Egyptian attitudes and dresses.

The ancient authors, who give the most satisfactory account of Egyptian antiquities, are Herodotus, Diodorus Siculus, Josephus, Strabo, Clemens of Alexandria, Jamblichus, and Orus Apollo.

The best modern books on this subject are Pocceke's Voyages, Savary's Travels in Egypt, Norden's Egypt, Denon's Egypt; to which may be added, the most magnificent work of Ancient and Modern Egypt, now publishing in Paris, which will occupy twelve folio volumes, containing 840 plates, from the observations, researches, accounts, and drawings, of the learned men and artists of the French nation, who formed the French Institute.

Of Grecian Sculpture.—After Egyptian sculpture, the course of our subject naturally leads us to consider the fame art in Greece, which is thought by some to have received its first principle from Egypt, and certainly preferred the character of Egyptian sculpture in many of its works, down to a late date; as Plini observes upon the works of Egina.

In early times, the greater divinities were worshipped under the form of rude flones; and afterwards the lifeless representation of the human figure was attempted. with the eyes a little opened, the arms close to the sides, and the legs united in one common pillar for the support of the mass.

But about 1300 years before the Christian era, a sculptor appeared, whose works exalted the praise of poets, the speculations of philosophers, the record of historians, and continued to be perceived with zeal, and spoken of with respect, centuries after sculpture had reft to its zenith. This was Dædalus, the countryman and contemporary of Thæfeus, not inferior perhaps in fame and variety of adventures to that hero. Born of a royal race, the occasional friend and adversary of kings, admired for his works when living, and honoured with a chapel by the Egyptians after death; to him are attributed various mechanical inventions, fabulous and real: a fine portico to the temple of Vulcan at Memphis; the Cretan labyrinth, which was the copy of a hundredfold part of the Egyptian labyrinth. Diodorus Siculus speaks of his works in Sicily. Paufanias mentions those remaining in Greece in his time, nine in number, of which three may be particularly noticed: one a naked Her- cules of wood. The works of Dædalus are indeed rude, says Paufanias, and uncomely in aspect; but yet they have something as of divinity in their appearance.

Paufanias, besides the high character given of this statue, mentions it twice in his Grecian Tour; from which we must understand that it was held in considerable esteem and veneration. This would naturally lead us to hope we are not without some copy of it in gems, coins, or small bronzes, by which all the most famous works of antiquity were multiplied. In the British Museum, as well as in the other collections of Europe, are several small bronzes of a naked Hercules advancing, whose right arm, holding a club, is raised to strike; whilst his left arm is extended bearing the lion’s skin as a shield. From the style of extreme antiquity which characterizes these statues, the rude attempts at bold action, the peculiarities of Dædalus, the general adoption of this action in the early ages, the traits of favage nature in the face and figure expressed with little knowledge but strong feeling, by the narrow loins, turgid muscles of the breast, thighs, and calves of the legs, we shall find reason to believe they are copied from the above-mentioned statue.

The fame author says, the Gnothians had a chorus in white flone, made by Dædalus for Ariadne, which is mentioned in the 18th book of the Iliad, as youths and damsels dancing hand in hand. The most early Greek baso relieves and paintings represent choruses of the Graces and Hours in this manner.

Endæus, the disciple of Dædalus, made a statue of Minerva, which Paufanias saw in the Acropolis of Athens. The learned author of the Introduction to the volume of Sculpture, published by the Dillettanti Society, supposes the heads of Minerva, on the early coins of Athens, were copied from this statue, which seems very reasonable, when we compare the style and costume with other works of the highest antiquity. And here we must observe, that in the early times of which we are now speaking, the rude efforts were intended to represent divinities and heroes only. Jupiter, Neptune, and several heroic characters, have the self-same face, figure, and action, as the Hercules of Dædalus described above; the same narrow eyes, thin lips, with the corners of the mouth turned upwards, and pointed chin; the same narrow loins; turgid muscular forms of breast, thighs, and legs; the same advancing position of the lower limbs; the right hand raised before the head, and the left hand extended; and their only distinctions were, that Jupiter held the thunderbolt, Neptune the trident, and Hercules his palm branch or bow; as may be seen in ancient small bronzes and coins of Athens and Paflum, and on the most ancient painted vases. The female divinities were clothed in draperies, divided in few and perpendicular folds; their attitudes advancing like those of the male figures. The hair of both male and female statues or paintings of this period is drefled with great pains, collected in a club behind, and sometimes entirely curled, in the fame manner as practised by the native Americans, and the inhabitants of the South sea islands. Dædalus and Endæus first formed their statues of wood. Metal was also used for various purpofes of sculpture in the most ancient times, as we learn from Homer, Hecfod, and Plutarch.

Dipanous and Scyllis, the Cretans, were celebrated for their statues in marble, about 776 years before Christ; still retaining much of the ancient manner in the advancing position of the legs, the drawing of the figure, and the perpendicular folds of drapery, diversified in zigzag edges. Soon after elaborate finifhing was carried to excefs, undulating locks and spiral knobs of hair, like cockle-shells, as well as the drapery, were wrought with the most elaborate care and rigid exactness, whilst the tafteles and barbarous character of the face and limbs remained much the fame as in former times. This passion for high finifhing in sculpture, will reconcile to our reason a passage in Pliny (b. xxxv. c. 8), which has frequently been thought to difagree with the general history of ancient painting: he says, "that the picture of the battle of Magnete, painted by Bularchus, was paid for, with
with its weight in gold, by Candaules, king of Lydia, who was coeval with Romulus, and lived in the 26th Olympiad, or about 750 years before Christ: thus," continues Pliny, "proving the fame and perfection of the art." Now, according to the same author's account, the ancient painting did not arrive at its greatest perfection until after the time of Phidias or two hundred and fifty years later; and therefore it is likely that Bularchus's picture was chiefly valued for the fame high flattery we see in the earliest marble statues, of which the following are examples:—colossal busts of Hercules and Apollo, in the British Museum, most likely done by Dipoenus and Scyllus for the Sicyoniens:—very ancient statues of Minerva, and a priest of Bacchus, lately in the Villa Albani, published by Winckelmann in his Monumenta Inedita, and Storja dell Arte. To these might be added examples of extreme mutilation in early Greek picture and other bronzes. This observation on Bularchus's picture, and the sculpture of the same time, will naturally lead to another of more general comprehension, that the improvements in sculpture we have reason to believe followed those in painting according to the dates, as far as we are able to ascertain them in remaining works. Soon after this time may be reckoned the Amymone Apollo, described by Paufanias as very ancient. The throne, with the image fitting upon it, Paufanias conjectured at not less than thirty cubits; he enumerates the subjects sculptured upon it; they comprehend the history of the fabulous ages underneath. The base is the sepulchre of Hyacinthus, which is entered by a brazen door. In the sepulchre are many works of sculpture: The figure of Apollo, Paufanias describes as of very rude art. Paufanias also mentions a brazen Hercules of ten cubits, as the work of a disciple of Deldalus. Philocles the Egyptian, or Cleantus the Corinthian, is said first to have introduced the manner of the Greeks in the practice of which they were followed by Arides the Corinthian, and Telephius the Sicyonian, who used other lines within the outline, to express the marking of the body and limbs, also writing the names of those they painted, which agree with the earliest paintings on Greek vases, as their attitudes and peculiarities agree with early sculpture. Cimon Chiron invented cataphory, as the oblique representation of images, to give different views of the face, looking up, looking down, and looking backwards: he represented the veins, and the folds and plaits or wrinkles in garments. This Cimon is mentioned as living before the time of Phidias, which affords an additional argument for believing improvements in painting to have preceded those in sculpture; because oblique views of objects, and the veins of the limbs and body, seem not to have been attempted in sculpture before the time of Phidias.

Fortunately for us, the compendious history of painting and sculpture, left by Pliny, was selected from the writings of the best Grecian artists, and arranged, with attention to the several improvements, in chronological order, with such perspicuity and comprehension, that whenever, from the brevity of the work, we do not find all we wish for, yet by attending to the information before and after, we shall be enable to supply the defects from other writings or monuments of antiquity. In this manner we shall satisfy ourselves concerning the progress of sculpture, in the two hundred and fifty years which elapsed between the time of Dipoenus and Scyllus and that of Phidias. The better drawing of the figure, with a more careful attention to its parts, more precision and variety of attitude, a less elaborate curling of the hair, the forms of the figure better shown through the draperies, are all certain signs of a nearer approach to the age of Phidias. If we add to these observations the different ages of writing on works of sculpture, what better are wanting, and whether the inscription is in the Boeotothephen or ploughing manner, we shall not err much from the date of the work.

From the few historical observations now offered, it is evident that sculpture was eight hundred years from the age of Deldalus, to the time immediately preceding Phidias, in attaining a tolerable representation of the human form, which proves the slow growth of art perfected by manual labour in the infant state of science; whilst the means of subsistence are precarious, the rights of individuals undeemed, and the general attention of society employed on self-preference and defence, rather than on the increase of comfort or civilization of manners. Poetry and oratory, the more independent efforts of mind, appear in the earliest states of society, distinguishing man as an intellectual and rational creature, better the first feeds of knowledge, lay down theories for the government of future generations, expand the mind, and direct the power towards whatever is most useful and most desirable in the more perfect states of humanity.

The chief occurrences in the early history of Greece are, the Argonautic expedition; the war of Thebes; and the taking of Troy; in which particular heroism, or the united achievements of petty states, are interwoven with poetic fiction. Their consequences produced no considerable change in the manners of the people or the character of the country; but the battles of Marathon and Salamis, which destroyed the Perian army, whole myriads, like locusts, swarmed over the country, destroyed the Perian power, and gave a beginning to the Grecian or third great monarchy of the world. An event of so much importance has been conducted by changing fortune and transferring power in such a manner that a portion of the civilized part of mankind, raised the character of Greece, in proportion to the abatement of Persia. The Greeks, particularly the Athenians, the champions of the war, whose heroic ardour was increased by success, sought additional distinction by every great and praiseworthy exertion of body and mind in arts and arms. The accumulated wisdom of ages, and discoveries in science, were taught by their philosophers; their temples and public buildings were raised with a magnitude unknown before, and decorated with all the powers of art. Aechylus, Euripides, and Sophocles, ennobled the minds of the people by their dramatic poetry. The five exercises which formed the body to exertion and beauty, and the mind to fortitude and patriotism, were universally practised, cultivated, and honoured. In this general spirit of enterprise and improvement, sculpture appeared in the school of Phidias, with a beauty and perfection which eclipsed all former efforts.

About 450 years before the Christian era, Phidias flourished at the same time with the philosophers Socrates, Plato, and Anaxagoras; the statesmen and commanders Pericles, Miltiades, Themistocles, Cimon, and Xenophon, with the tragic poets above-mentioned. This period was as favourable in its moral and political circumstances, as in the emulation of rare talents, to produce the display and encourage the growth of genius.

The city and citadel of Athens had been burnt by the army of Xerxes; but the Greeks, being conquerors, raised more stately buildings in the room of those destroyed. Phidias was engaged by Pericles in the superintendence and decorations of the temple of Minerva, and other public works.

Superior genius, in addition to his knowledge of painting, which he practised before sculpture, gave a grandeur...
to his compositions, a grace to his groups, a softness to flesh, and a flow to draperies, unknown to his predecessors, the characters of whole figures were stiff rather than dignified; their forms either meagre or turgid; the folds of drapery parallel, poor, and representing geometrical lines, rather than the simple but ever varying appearances of nature.

The discourses of contemporary philosophers on mental and personal perfection, assisted him in selecting and combining ideas, which stamped his works with the sublime and beautiful of Homer's verse.

How this sculptor was esteemed by the ancients will be understood from the following short quotations. Pliny says, "Phidias was most famous through all nations." And when enumerating the most celebrated sculptors of antiquity, he says, "but before all, Phidias the Athenian;" and Quintilian says, that "his Athenian Minerva and Olympian Jupiter, at Elis, polished beauty which seemed to have added something to religion, the majesty of the work was so worthy of the divinity."

After such positive and magnificent testimony, there will be little room for our surmise, in the descriptions, fragments, and other authentic memorials, of some works only which he conducted and performed; such as the temple of Minerva, and the Acropolis of Athens, erected by Icacinus and Callocrates, under the direction of Phidias; and to him it is we likewise owe the compositions, figure, and character of the sculpture, in addition to much affinment in the drawing, modelling, and choice of naked figures and draperies, as well as occasional execution of parts in the marble.

Pliny says, the emulators of Phidias were Alcamenes, Critias, Nellocles, Hegias; and twenty years afterwards, Agelades, Callon, Polycletus, Phradmon, Gorgias, Lacon, Myron, Pythagoras, Scopas, Parnes. In this list we certainly have the names of the sculptors employed on the temples of Minerva and Thefeus; and as the styles of different hands are sufficiently evident in the alto and baso relieves, so there might perhaps be no great difficulty in tracing some of the artists by resemblance to others of their known works.

The two pediments of the temple of Minerva were each eighty-eight feet long, filled with compositions of entire groups, and statues from eight to nine feet high. The story of the western pediment related to the birth of Minerva, or rather perhaps represented her introduction among the gods. The eastern pediment was occupied by the contest of Neptune and Minerva for the patronage of Athens. Forty-three metopes were charged with combats of the Lapithes and Centaurs, and a frieze of three hundred and eighty feet round the wall of the temple, under the portico, was decorated with the procession of the Grecian states, in honour of Minerva, in chariots, on horseback, leading animals for sacrifice, bearing offerings, and presenting the sacred veil, in presence of the gods, sitting on thrones to witness the solemn ceremony.

The marquis Nanteuil had a drawing made of the western pediment of this temple, when the statues were all, excepting one, in their places; and notwithstanding some mutilations of parts, the whole was sufficiently entire for the composition to be perfectly understood from the marquis Nanteuil's sketch, carefully compared with the original fragments in the earl of Elgin's museum. In the centre, Jupiter sits holding his sceptre in his right hand, the thunder in his left; on the right of Jupiter, in an advancing position, Minerva takes possession of her car, while the reins are governed by Themis and Mars; from behind Themis, a genius leads Victory forward to attend the patroncnes of Athens; on the left of Jupiter, Vulcan stands by his mother Juno; Amphitrite sits next, whose feet rest on a dolphin; Latona succeeds, with her infant Apollo and Diana, beautifully implying that the maturity of divine wisdom was older than the sun and moon. The left group is Venus sitting on the lap of Ocean; the figures at each end of the pediment are not shewn, because they are mere contingents, spectators only; not partaking in the action.

The idea of this composition seems to have been suggested by Homer's hymn to Minerva, a short poem, but one of the author's highest flights; in which he describes Pallas in full figure, and completely armed, issuing from the head of Jove; Olympus, the whole earth, and surrounding seas, trembling at the vibration of her spear; the fun flaying his couriers in their race, and partaking in the fame amazement with the other immortals.

The statue of Minerva, in the Parthenon at Athens, one of the masterpieces of Phidias, is thus described by Pliny, Paufanias, and other ancient authors. It is in height twenty-six cubits, formed of ivory and gold, standing upright, her tunic reaching to her feet, holding a victory fix feet high in her right hand, and a spear in her left; the drapery is of gold; the uncovered parts of the statue are of ivory; the head of Medusa on the breast-plate of the goddess is of ivory; at her feet is her shield; in the convex part of her shield the Amazonian war; in the concave part is the war of the gods and giants; in the base Pandora's history: the gods are here pretent thirty in number; the Lapithes and Centaurs are sculptured on her sandals; a serpent at her feet admirably executed; a sphynx on the top, and a griffon on each side of her helmet. The quantity of gold in this statue was forty talents. Plato says the eyes were of precious stones.

There was also, in the citadel of Athens, another statue of Minerva by Phidias, thus described by Paufanias. Of the spoils taken at Marathon from the Persians, Phidias made Minerva's statue of brais, in whose shield the battle of the Lapithes and Centaurs was engraved by Myes, and painted by Parrhalus, the son of Evenor. The top of the spear, and crest of the helmet, might be seen by those who fall by Sucion.

But the great work of this great master, the allonishment and praisef of after ages, was the Jupiter at Elise; thus described by Paufanias. The god is seated upon his throne, made of gold and ivory, a crown of olive branch on his head; in his right hand a Victory, alof of ivory and gold; the heer a fillet, and is crowned; the left hand of the goddess holds a sceptre of various coloured metals, a eagle of gold sitting upon the sceptre; his garments are of gold, and on his garment are wrought animals and flowers, particularly the lily; his hands also are of gold; the throne is variously ornamented with gold and gems, and also with ivory and ebony: on it animals are painted in their proper colours, and sculptured with great labour. Four victories, as in the dance, are on the hinder feet of the throne, two on each side; and on the front the children of the Thébans taken away by the sphynx; and beneath the sphynxes, Niobe and her children slain by Apollo and Diana; on the frames that join the feet of the throne ornaments are carved; on that in front Hercules warring with the Amazons. Paufanias numbered upon them all together twenty-nine figures. Among Hercules' companions was alof Pallas. There were also pillars which adjoined to the feet supporting the throne, equal in size to the feet. There is not an entrance underneath the throne, as under that of Apollo at Amyclis. It is hollow, but the spectator cannot enter, because a wall includes the throne. Of this wall, that part which fronts the door is painted
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Alessander was celebrated for his Venus Aphrodite, to which Phidias is said to have given the last touches.

Praxiteles excelled in the highest grace of youth and beauty: Pliny says he not only excelled the ancients by his marly statues in the Cesaricu in Athens, but that the Venus was preferable to the rest, and all other statues in the world, to which many failed to add. This sculptor having made two Venus, one with dewy, the other without; the Caesars preferred the clothed figure, on account of its severe modesty. The fame price being let upon each, the Caesars decided for the Venus, and afterwards refused it to King Numa, who would have forgiven them an immense debt in return; being resolved, says our author, and with reason, to suffer any thing, so long as the statue of Praxiteles embodied Numa. The temple was entirely open in which it was placed; because every view was equally admirable. The figure is known by the descriptions of Lucian and Cebrenus; and it is represented on a medal of Caracalla and Plautilla, in the cabinet of France. This Venus existed in Gnidus during the reign of the emperor Caracallus, or about 400 years after Christ.

This statue seems to offer the first idea for the Venus de Medicis, which is likely to be the repetition of another Numa also the work of this artist, mentioned by Pliny.

On the reverse of the empress Lucilla's medals, is a clothed Venus, with an apple in her right hand; which from the grace of its attitude, and its resemblance to several antique marble statues, is likely to be the clothed Venus chosen by the Caesars.

Among the known works of Praxiteles, are his satyr, cupid, Apollo, the lizzard-killer, and Bacchus leaning on a fawn.

The celebrated Venus of Gnidus was found, about eighteen years since, in the neighbourhood of Rome, which was afterwards the property of Duke Brafides, nephew of the late pope Pius VI.

Polycletus of Sicyon, the fheolar of Agiledes, was particularly celebrated on account of his Doryphorus, or lance-bearer; and Diadumenus, or youth binding a fillet round his head. This statue was valued at an hundred talents. The Doryphorus was called the Rule by authors, from which they studied.

The Dicobolus of Myron is ascertained by an antique gem, and the description of Quintilian, who apologizes for its forced attitude. An ancient example of this figure is in the British Museum.

The Dicobolus of Naucydas is uniformly admired for its forms and momentary balance.

The wounded man, in which might be seen how much of life remained in him, was the famous work of Ctesilas, and perhaps is the fame as the statue commonly called the Dying Gladiator, but more properly a dying herald, or hero, according to Winkelmann.

Ctesilas, or D_NEWIUS, is known by his wounded Amazon. Pliny mentions the nine muses by Phileus of Rhodos; and the muses also, brought by Fulvius Nobilius to Rome. From one of these series must be the greater number of those formerly in the pope's museum, now in the gallery of France, of which the Comedy is remarkable for grace, and the Tragedy for grandeur.

The Hermaphroditic of Polycleus is one of the most delicate and graceful productions of antiquity.

The Apollo Phileus, or in love, by Cnachus, is witnessed by many fine repetitions in the different galleries of Europe.

The Ganymede, borne in the eagle's talons, is exactly descried by Pliny. An example of this work exists in the pope's museum.
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The Apollo Belvedere is believed, by the learned Vitconti, to be Apollo Alexicacos, the deliverer from evil, the work of Calamus; mentioned both by Pliny and Pausanias; and the history of its removal is given in the Museum Phum Clementinum. Only one small antique repetition of this statue is to be found; and indeed admirable and sublime in its beauty as it is, there is a reason which might render it less popular among the ancients than the moderns. Maximus Tyrius describes a statue by Phidias very similar to this, but in greater motion, either discharging an arrow, or preparing to do so. (Τεχν.) There are traces of this statue in some ancient baso-relieves; and it is possible the stronger expression of Phidias’s work, together with the authority of his name, might have diminished the public attention to Calamus in a comparative production.

The Venus de Medicis is fo popular a favourite among the Greeks and Romans, that a hundred ancient repetitions of this statue have been noticed by travellers. The individual figure is said to have been found in the forum of Octavia. The style of sculpture seems to be later than Alexander the Great; and the idea of this statue seems to have its origin from the Venus of Gnidos.

We may now notice some statues of great excellence, which Pliny has not mentioned. And no wonder they are omitted, when of more than 11,000 reckoned in his history, he professes to give a catalogue of about 500 only.

The colossal statues on Monte Cavallo in Rome we may fairly presume to be the works of Phidias and Praxiteles, as inscribed on their pedestals; because the animated character and style of sculpture seem peculiar to the age in which those artists lived; and because, in the frieze of the Parthenon there is a young hero governing a horse, which bears so strong a resemblance to those groups, that it would be difficult to believe it was not a first idea for them by one of those artists.

The heroic statue by Agasias the Ephesian, commonly called the Fighting Gladiator, is shewn by the ingenious and learned Abbate Fea, to be Ajax, the son of Oileus, as his figure is fo represented on the coins of Locris, his country.

The Hercules Farnefe was evidently one of the first favourites of antiquity, from its frequent repetitions in bronze and marble, gems and coins. Its history, according to the facts, seems to be this. The city of Prieneus was twice besieged by Philip of Macedon; the citizens, however, by the strengh of their situation, their own valour, and the intervention of friends, preferred their liberty. As their city was dedicated to Hercules, they represented him on their coins resting from his labours. The floating figure is the Hercules Farnefe, which, on the coin, was copied, as usual, from an honoured statue in the city; most probably from the work of Glycon the Athenian, whose country once delivered them from the oppression of Philip. The style is later than the time of Alexander.

We shall now proceed to those precious monuments of art, the ancient groups; in which we see the sentiment, heroism, beauty, and sublimity of Greece, existing before us.

The group of Laocoön, animated with the hope of agony of the father and sons, is the work of Apollodorus, Athenodorus, and Agelander of Rhodes. The style of this work, as well as the manner in which Pliny introduces it into his history, give us reason to believe it was not ancient in his time.

Zethus and Amphion, tying Dirce to the bull’s horns, an example of filial vengeance for a perfecuted mother, is as heroic in conception as wafhy in execution. The restorations of this group are fo bad, that they only become tolerable by something like an assimilation of spirit in their union with the ancient and venerable fragment. It is the work of Apollonius and Tauricus of Rhodes.

The group of Hercules and Antauris, in the Palace Pitti at Florence, may be a marble, from the bronze of which the copyist inferred the name of the original artist.

The groups of Atreus, bearing a dead son of Thyettæ; Orestes and Elektra; Ajax supporting Patroclus; are all examples of fine form, heroic character, and sentiment. There seems only to be one reason for their being omitted by Pliny, that they were too recent at that time to have obtained an equal rank in public estimation with the fine works of Phidias and Praxiteles, and their immediate descendants.

The group of Niobe and her youngest daughter, by Scopas, is an example of heroic beauty in mature age. The sentiment is maternal affection: the expotes her own life to shield her child from the threatened destruction.

The separate statues of the children all partake of the same heroic beauty, mixed with the passions of apprehension, dismay, or death.

To this series belongs that fine example of anatomical study, in difficult but harmonious composition, the group of The Boxers.

The beautiful and interesting group of Cupid and Psyche is not mentioned by Pliny, perhaps for the same reason that several other fine works are not noticed, because it was after the times of those great masters who were looked on as the standard of excellence in his days. It is most likely to have been produced after the reign of Augustus, when the Pythagorean philosophy was revived, from which its subject is taken.

From what has been said, it will appear sculpture did not arrive at its maturity until the age of Phidias, 490 years before the Christiant era; and Pliny’s catalogue of the most celebrated Greek artists continues 160 years later, or to 330 years before Christ. After which time, however, the Laocoön, and several of the finest groups and statues, seem to have been executed; nor can we believe, from the admirable busts and statues of the imperial families still remaining, that sculpture began to lose its grace until the reign of the Antonines; and, indeed, fo strong were the flaminium of Grecian genius in the art of design, that after the time of the Iconoclasts in the fifth and sixth centuries, when the noblest works were destroyed, when great works of sculpture were not required, even then, and until Constantinople was taken by the Turks in the 15th century, the Greeks executed small works of great elegance, as may be seen in the diptychs, or ivory covers to confular records, or faced volumes used in church service.

The works of sculpture, here enumerated, will also shew, that almost all the great and most valued productions were of marble, and not bronze, as fome have been inclined to believe. And although several of the statues mentioned by Pliny were bronze, from which we have marble copies, yet all the groups, with two or three exceptions only, are marble; and some of the most celebrated statues, as the Veneres, and the Cupid by Praxiteles, with many others.

The principal schools of sculpture were Athen and Rhodes. The sculptors of the Laocoön, and the Torus Farnefe, and the Colossi, were Rhodians; and it is almost incredible, that from this little island, only forty miles long, and thirteen broad, the Roman conquerors brought away 300 statues. But we shall more readily believe this when we recollect that the force and enterprize of these islanders were sufficient to conquer the navy of Antiochus, commanded by Hannibal.

Sicily had long been the work-shop of metals of all countries.
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countries. Eginia was also famous for bronze sculpture, and continued the Egyptian style.

Etruscan sculpture must be considered entirely the work of Greek columnists and their disciples.

The Sicilian sculpture is also Greek. Some of their finest works in particular are of the Corinthian school.

At the enterprise and taste of the present age have rejured two noble examples of Etruscan sculpture, the pediments of the temple of Jupiter Pancenum in the island of Eginia, and the frieze which surrounded the interior of the temple of Apollo Epeiros at Phrygilla, it may be proper to give some description of them in this place.

The figures, which were decorations of the east and west pediments of the temple of Jupiter Pancenum, were found among the ruins, nearly under the site in which they had been originally placed: their number was nine in the west pediment; that in the centre was the figure of Minerva; the rest seemed to be combatants, as well as in this pediment as in the six figures in the east pediment. On each side of an ornament, in the centre of the west pediment, were two female figures; and at each corner of the pediment the remains of a griffin. The statues were of fine small nature; and, according to Pliny's description, partaking of the Egyptian style of workmanship.

Among the ruins of the temple of Apollo Epeiros at Phrygilla, in the Argolis, were discovered, in many pieces, the frieze which adorned the interior of the temple. They represented the battle of the Athenians with the Amazons, and the Lapithæ with the Centaurs. The compositions are grand and energetic; the actions are natural, original, and elating; the lines of the bodies and limbs are beautifully variegated by the draperies, as flowing from the motion of the figures, or furnished in the air by impulsive wind; the beauty of the figures and countenances is heroic; and the general style and character of the work renown the after-locations in the temple of Theseus. The figures are about two feet high; and the whole extent of the different baso reserves, taken together, about ninety feet.

Of Roman Sculpture.—The earliest inhabitants of Italy, without doubt, practised the same kind of barbarous art, which is common in all early stages of society; but the accounts given by Herodotus, Diogoras Siculus, and other Greek writers of indisputable authority, concerning the emigrations of Greeks into Italy, who settled in that part which has been called Magna Graecia, comprehending nearly the whole western coast of that country, together with the evidence of nearly every work of art which has been discovered within those limits, prove satisfactorily, that all the earlier painting and sculpture, worthy to be called so, are properly colonial Greek, either the production of Greek artists themselves, or of natives who were their scholars.

We may observe upon their coins, that they all seem to have been derived from the earliest coins and weights of Greece. Their earliest coin money or weights, signed with an α, lead to a strong suspicion that they were imitations of similar weights alluded to by Homer, which had relation to the value of an α. Their coin casts or weights are also marked with the head of Janus, with two faces on one side, and the prow of a ship on the other; but it is to be observed that this double-faced Janus, when bearded, is only an imitation of the Greek heads of Jupiter, or the eastern Bacchus, who, according to the earlier systems of philosophy, was that which is past and that which is to come. When the head of Janus is without a beard, it sometimes seems to be a copy of the head of Hercules, and sometimes of Mercury; and in order to leave no chance of being deceived in the personage, he is represented with the pectus or hat upon his head, as well in the double as in the single head; besides which, all the divinities represented on such coins or cast weights, are but copies from well-known heads of the divine divinities, as Jupiter, Hercules, Mercury, Ceres, &c.; and by far the greater number of them from Greek heads of these divinities not earlier than the time of Phidias.

Concerning their painting, though it may be difficult to make the same allusion to politically and to extensively as that concerning their coins; yet we must assert that the subjects of those paintings, whether on walls or canvas, resemble Greek philosophies, Homer, personages, and stories; scenes from the Greek tragedies or Greek history; and that those representations in those paintings are written in Greek, expressing Greek names of the artists who painted, or the persons represented.

The sculpture also which has been called Etruscan has the same Greek characteristics with the paintings; to which we may add, in many instances, that it represents Greek arms and dresses.

The accounts given by Pliny of the figures of the Roman kings, and other illustrious personages of early times in the Capitol, together with the Terra Cotta figure of Jupiter Capitolinus, were from the Etruscan schools of art established in Etruria; and such were all the works of painting, sculpture, and architecture, executed for the early Romans, who do not appear to have polluted any works of magnificence or distinguished merit, before the Scipios introduced them to an acquaintance with Greek arts and letters.

After the enormous ravages and barbarities of Mummius at Corinth, and Sylla at Athens, the Romans ingrafted taste on rapine, and exhibited an inordinate curiosity and ostentation for works of fine art, which puffed in home instances for patronage. They filled their palaces, villas, temples, and public places with the spoils of Greece.

Although some general heads of Greek art have been already delivered in this dissertation, yet as Pliny the Elder's writings contain such satisfactory accounts of Etruscan, Italian, and Greek sculptur, it will be highly proper to give the English reader these accounts in his own words, which were collected from the writings and treatises of the ablest and most learned artists among the ancients. Pliny's Natural History, l. xxxiv. c. 7.

The flautary art was familiar in Italy in ancient times, as is shown by a Hercules consecrated by Evander, as it is said, in Foro Boario, which is called the Triumphal, by his having on the triumphal habit: besides the double Janus dedicated by king Numa, which expresses peace and war, and by its fingers signifies the number of days in the year, the god himself indicating the times and feasts of the year. There are also Tuscan statues dispersed very widely, which there is no doubt were made in Etruria; such were also believed to be their gods, except by Metrodorus Scipius, who offered it to the Senate and is said to have been by Brutus, of the ancient Romans, for two thousand statues, when the Volscians were conquered, were dispersed abroad. We have wondered to see the original statues of ancient Italy, of wood perhaps, or modelled in clay, the images of gods dedicated in temples until the conquest of Asia, from whence came luxury.

It will be proper to speak of the first origin of expressive likenesses in that kind which the Greeks call modelling, and that it was prior to flautary. This would extend to infinity in a work of many volumes, if any person should follow up the subject: every one does what he is able.

When Scipion was at Carthage, the statues were made in the scene of a temporary theatre. Mummius, when he conquered Achaea, filled the city; but dying, left his daughter without a dowry, which was insupportable. Lucullus brought many; from Rhodes there were as many as three thousand statues.

Mutianus.
SCULPTURE.

Mutianus, thrice consul, brought not fewer from Athens: from Olympia and Delphi, it is believed, a greater number.

What mortal can recount those which are most distinguis hed or noted for some reason or other; indeed, to have named the distinguished artists would be a pleasurable task. Their number also is infinite, when Lytippus alone produced to the number of 610 works, which were all famous; their number at his death, when his heirs opened his treasures; he was used, on receiving his payment, to deposit a golden denarius for every work. The art, in the success of its darnings, is elevated above human faith. One example of this fact we shall offer: the mutilation expressed is not of God nor of man. Our age four in the Capitol, before it was consacrared in the fire of Vitellius's times, in the chapel of Juno, a dog of brasses, licking his own wound, whose most wonderful and unequalled verisimilitude suggested the reason why it was dedicated: the life of its keepers was pledged for its safety. Innumerable are such daring examples of art: males have been deviued equal to towers. Statues which are called Colossus, such as Apollo in the Capitol, brought by M. Lucullus from Apollonia, a city of Pontus, of 30 cubits: its expence was 500 talents. Such, in the Campus Martius, is the Jupiter dedicated by Claudius Caesar, which is called the Pompeian, from its vicinity to Pompey's theatre. Such is that at Tarentum, made by Lytippus, of 40 cubits; admirable in this, the hand being stretched out and in danger of being broken by the stormy wind; the artift therefore provided, it is said, within a little interval, an opposing column, to prevent a great wind from breaking his work. Consequently, because of its magnitude, and the labour required, Fabius Verrucosus did not meddle with it at the time he brought from hence the Hercules which is in the Capitol. But above all, as objects of admiration, was the Colossus of the fun of Rhodes, by Chares the Lindian, the disciple of Lytippus before mentioned, 70 cubits in height. This statue, after 50 years, was thrown down by an earthquake, but lying prostrate it was still a wonderful spectacle; few could clasp round its thumb; its fingers were larger than whole statues. The vault caverns of its broken members were displayed within great mafles of fHONE, whose weight kept it fleadfast. Twelve years it was in making, at the expence of 300 talents, which were supplied by king Demetrius, being interrupted by the tediousness of delay. There are other less Colossus in this city, 100 in number, each of which would enable the place wherefore it was fixed. Besides these were those of the five gods made by Bryaxis, who made many Colossus in Italy, in particular an Apollo, which is seen in the Tuscan library of Augustus, 50 feet high, of fine brasses, and exquisite workmanship. Sp. Carvilius made a Jupiter, which is in the Capitol, from the breast-plates, helmets, and greaves taken from the Sammites, of an ampli tude to be seen from the temple of Jupiter Latiaris. The ref of the figures which are before the feet of the statue, are also from his file. Two heads also are admired in the fame Capitol, which P. Lentulus, the conful, dedicated, one made by Chares above spoken of, the other by Decius, overcome in the comparison to that degree, as feemed by no means probable, according to the works of the artift. But in statues of that kind, Zenodorus in our age has excelled. He made a Mercury in the city of Gallia Arvernus, the labour of ten years, which was afterwards so approved, that he was called to Rome by Nero, where he was defignated to make the colossal statue of that prince 110 feet high, which should be dedicated to the fun, by way of reverence, and which is among the atrocities of this prince. It is wonderful that in his workshop there does not remain any clay model of this work of a large fize, but there are many first sketches in small, like first attempts. This statue indicates that the art of founding in brasses is perfifyed.

Nero had prepared liberally both gold and filver, and Zenodorus in modelling and carving is not considered as inferior to any of the ancients. When he had finifhed the statue for the Arverians, Vbius Avitus, being the president of that province, two cups were sculptured by the hand of Calamis, which Germanicus Caesar highly valued, gave to his preceptor, Caius Syllaus, his uncle. As much as the excellence of Zenodorus was greater, so much may be found the decay in works of brasses. The statues which are called Corinthian are for the most part such as may be carried from place to place. Such was that of the Sphynx, which Hortenufus, the orator, received as a present from Verres, and occasioned a reply from Cicero. When Hortenufus faid, in altercation with him, "I do not understand your enigma;" Cicero replied, "You ought, for you have the Sphynx at home." Nero, the emperor, it is faid, took about with him a statue of an Amazon. And a little before our time, C. Cellius, the conful, always carried an image with him in the field of battle. Alexander the Great had a tent furlained by four fingle statues, of which two are now dedicated before the temple of Mars the Avenger, and the other two before the palace. The art is ennobbled by almost innumerable leffer statues. Before all, Phidias the Athenian made a Jupiter of ivory and gold. He also made statues in brasses. He floured in the 84th Olympiad, about 300 years from the building of Rome. In the fame period his emulators were Alcamenes, Critias, Neltocles, and Hegias. Afterwards, in the 87th Olympiad, Ageledes, Callon, Polyeletus, Phidias, Praxidias, Gorgias, Lacon, Myron, Pythagoras, Scopas, and Parehus. Among thefe, Polyeletus had for his disciples Argus, Alopolodorus, Alexis, Arrhikes, Phrynon, Dimon, Athenodorus, Damcas, and Myron. In the 95th Olympiad flourifhed Naucyes, Dionysus, Canachus, and Patrocles. In the 102d, Polyclus, Cephiadro fus, Leochares, and Hypatodorus. In the 104th, Praxitiles and Exuphranor. In the 107th, Echion and Theramachus. In the 148th was Lytippus, in the time of Alexander the Great; and at the fame time Lybiflatus and his brother Sthenis, Eu chronides, Sofratus, Ton, Silanion, who was admirable, none being more learned. He had for disciples Zeuxis and Jades. In the 120th Olympiad, Eutychides, Euthycrates, Dalippus, Cephiadora, Timarchus, and Pyromachus. The art then ceafed. And again, in the 125th, revived, though allowed to be inferior, yet approved; Antaues, Calibritis, Polycles, Athenanzus, Callixenus, Pythocles, Pythias, and Tumoles. We fhall pafs hastily over the moft distinguis hed of the celebrated artists in their distinct ages. A Venus was made with a kind of emulative contention, as formerly they made an Amazon, which was dedicated in the temple of Diana, at Ephesus; that work was approved which every artift judged to be next in merit to his own. This was the work of Polyeletus; the next was Phidias, the third Ctesfus, the fourth Cydon, the fifth Phra ridon. Phidias, beides the Jupiter Olympius, which no one attempted to rival, made also, from gold and ivory, Minerva at Athens, which stands in the Parthenon. Of brasses, also, before that Amazon just mentioned, he made a Minerva of supreme beauty, from which it received the name of Callimorphos. He made also Ciliduchus, or the key-bearer, and another Minerva, which Alexander Paulus dedicated at Rome in the temple of Jupiter. Also two figures clothed in the pallium, which Catullus dedicated in the fame temple, and another which was colossal, naked. He first discovered the art of alto relievo, and demonstrated its merit. Polyeletus of Sicyon was the disciple of Age ledes;
Sculpture.

Ladies; he made a statue of tender youth, called Diadumenus, from his binding up a garland, valued at one hundred talents. Also one called Doryphoros, from his carrying a spear, a youth in the vigour of his age. He made also what his art was called the Rule, seeking the loss of art from a certain low. He was the only man who made art its own judge. He also made a knight, and one throwing a discus and two bows at the darts, which are called Altagalzontes; they are in the emperor Titus's court. No work is judged to be more perfect than this. Also a Mercury, which belonged to Lycurgus, and Hercules slaying Antaeus from the earth; which is at Rome; also Artemon, an eminent voluptuary, who was called Periphetoros, from his being borne about in his couch. He was judged to have perfected the science. He was also highly skilled in alto relievo, which had been first discovered by Phidias. But what was peculiarly his own, he found out the balance of the figure on one leg; notwithstanding, as Varro reports, his figures were squared, and all imitated from one example. Myron, born at Eleutheria, the disciple of Agelades, was very famous for a heifer, prattled in celebrated verses, whereas many are commended more by the ingenuity of others than their own. He made a dog and Dicobulus; Perice, leamonters, and a fayry adorning the pipes; a Minerva; a Pentathlist, or master of the five exercises; a pancrastati or boxer; a Hercules alto, which is at the Circus Maximus of Pompey the Great. He made also the monument of a grafshapper and lacustris, to which Erina refers his verses. He made also Apollo, which the trunvour Antiox took away, but it was restored to Ephesus by Augustus, amassed for this purpose in a dream. No artist, for multitude or variety, surpassed Polycletus, or was more accurate in symmetry; but although he was so curious in the representation of bodies, he did not express the feeling of the soul. The hair also, and the pubes, he made like the rude ancient work. Pythagoras of Rhegium surpassed him in a Pancraatist, placed in Delphi; and also Leontinus, who made the pedestrian Affylon, which is shown at Olympia, with Libys, the boy holding tablets, and one bearing apples, naked; a Syracusan, also lame, the sufferers of whose ulcer affect the beholder; also Apollo the harper, the serpent slain with his arrows, which is called Dceus, which was taken from Thubes by Alexander. He first expressed the nerves and veins, and the hair also with accuracy.

There was another Pythagoras of Samos, at first a painter, whose statues of the seven goddesses naked, and an old man, are very much praised. This artist was said to have been indirminate in the likenesses of the face. The disciples of Rheiogus is said to have been his fellow's son, called Solfratus. Whereas Tully affirms, that Lytippus was his disciple, which Duris denies. He first became a worker in brases, from hearing the answer of Euompos the painter, who being questionned who should be followed of those before his time, answered, bowing a multitude of men, that nature should be imitated, not the artifit. It is said that he made more statues than others, being most proficic in his art; among which is a man using the trunqul, which Marcus Agrippa placed before his baths. This was very much admired by the emperor Tibcrius, who, not satisfied with it where it was, had it brought into his chamber, and another statue put in its place, at which the people of Rome were moved to revetment, and demanded it to be restored, which was done. Lytippus made a drunken piper, a hunting dog, and a charioteer and four horses, with the fun of Rhodes. He made also Alexander and Great in many works, beginning from his childhood, with a statue of whom the emperor Nero being very much delighted, commanded it to be covered with gold; but afterwards, when the art was discovered to be destroyed by it, it was taken off; and it was esteemed more precious with the cuts and lines remaining in the work to which the gold adhered. He made also Heracles, Alexander the Great's friend, which was 150 years before him. Also Alexander hunting, which is confconated at Delphi, and at Athens a crowd of satyrs; of Alexander's friends he made the strongest resemblance. Metellas, when he conquered Macedonia, brought them to Rome. He made also chariots with four horses, of many kinds. He added much to the art of statuary, expressed the baw, made the head less than the ancients, the body more flamer and dry than the ancients made theirs, by which the magnitude of the statues appeared enlarged. The Latins have not the word symmetry, which he most accurately observed, by a new and stiffer rule in changing the squared statues of the ancients; he had they made men as they are, he made them as they appear to be. He left tins and discipules very much admired artists, such as Dalippus and Bedas: but above all, Euthycrates, although he emulated rather the conftancy of his father than his elegance, and was pleased with the affuerite rather than the agreeable. Therefore he bell expressed the Delphian Hercules, and Alexander, Thephis the hunter, and Thephides, a battle of horsemen before Trophonius's oracle, chariots and four horses, many statues of Medea, hermes, and hunting dogs. His disciple was Tiberarri the Sicymon, the nearest to Lytipus of all his followers, in his works are more fully engraven and more vividly than those of Thelaen, an old man, king Demetrius, Peucelles, Alexander the Great's preferer, worthy of too much glory. Artificers, who have brought these things together in the volumes they have composed, celebrate Telephanes the Phocæan, unknown on other accounts, because in Thesaly, where he dwelt, his works are concealed; otherwise by the suffrages of others he is equal with Polycletus, Myron, and Pythagoras. His Larissa is praised, and his Wrtiter with the thorns, and his Apollo. Some think he had no other dement, but that he gave his workshops to Xerxes and Darius. Praxiteles was also particularly happy, and also celebrated in his works of marble. He made also in braes beautiful works; the rape of Propherine, the Sybil and propheteis, the drunken woman, Bacchus, and a most famous satyr, which the Greeks call Periboea; statues also before the temple of Felicity, and a Venus which was confumed in the fire of Claudius's palace; his marble, famous through the earth, was equalled by himself only. Also statues called Stephena, Philemon, Oeno- phorus, Harmodius and Arifton, the Tyrannides; which were taken by Xerxes, the Persian king, and were sent back to Athens by Alexander. He made also a youth, feeding upon a lizard, which he approaches to strike with an arrow; it is called Saurooten. He made two statues, expressing opposite effects, a mourning maeton, and a rejoicing harlot: they think this to be Phryne, discovering in her the love of the artifit, and the reward of the woman: this statue possesfes much grace. Calamines made a charioteer with four horses; in his horses are never found any defect, though he is thought to be defective in his men. The same Calamines made other chariots, both with four and with two horses, in which the men are not inferior. Nothing is nobler than his Alcmenes. The discipule of Phidias, Alcamenes, worked in marble; also in bras he made a Pentathlon, who is called Encrinomenos. But Aristotle, the discipule of Polycreteus, made chariots both with two and four horses. And Lucretius, by Iphocrates, is praised. Thus is the harlot who in the lyre and song was the familiar of Haremodias and Ariiftont, and partook of their counsel in the Tyrannicide. She was tortured to death, and did not betray them to the tyrant; wherefore the Athenians willingly hold her in honour, not that
that they celebrate her as an harlot, but they have made an animal of her name; and that the cause of the honour might be understood, they forbade the artist to add the tongue. Bryaxis made Aesclapius and Seleucus; Bedas made Battus adoring Apollo, and a Juno, which are at Rome, in the temple of Concord. Cteslaus made a wounded man fainting; in which might be understood how much life remained; and an Olympic Pericles, worthy of the sanction. He was admirable in his art, and noble men he made more noble. Cephisodorus made in the Athenian port an admirable Minerva, and an altar to the temple of Jupiter the favour, in the same port, with which few can be compared. Canachus made an Apollo Naked; it is called Phileius in Didymus: it is of the Eagean mixture of braies. Alca, a deer suspended in his steps, that a line might be drawn under his feet, retained only in the alternate bite of his hoofs and heel, so that turning about his teeth to both parts, he flarls from the repulse of his action by turns. He made also Cele- tizontes, or boys holding hatchets. Charreas made Alexander the Great and Philip his father. Ctesias, or Defilas, made a Doryphoros and a wounded Amazon. Demetrius made a Lythmachus, who was priest of Minerva sixty-four years. He likewise made a Minerva, which is called the Musfal; because the serpent’s in her Gorgan refound to the stoke of the harp. He also made Simonis, the horfeman, who first wrote on horsemanship. Dadasalus made, among his famous works, two boys uising the Irtigl. Dinomenes made Protefialus and Pythodemos the wrestler. Euphra- nor’s work is Alexander Paris, in which is praised what is intelligible at once; the judge of goddesses, the lover of Helen, and also the flayer of Achilles. His is the Minerva at Rome, which is called Catuliana, being dedicated in the Capitol by Quintus Lutatius Catulus; also the statue of Good Fortune; in his right hand holding a paste, and in his left a phylak of corn and a bowl. Allo Latona, the child-bearer, in the temple of Concord, sustaining in her arms Apollo and Diana. He made also a chariot with four, and another with two horses; also Clidunchus, or the key-bearer, of the most perfect form; also a Virtue, and Gracia, both of them cofalial; also a woman, admiring and adoring; and Alexander and Philip, in a chariot and four horses. Eutychides made Eurotas, in which many faw that art was more liquid than the river itself. Hegias made Minerva, and king Pyrrhus, highly prais’d, and Ceteizontes, boys; and Cal- tor and Pollux, before the temple of Jupiter the Thunderer. In the Parian colony is the Hercules of Iphidorus. Eleuthereus, the Lycian, was Myron’s disciple, who made (worthy of his preceptor) a boy, blowing the languid fire; and the Argonauts. Leochares made an eagle, who underfoot what he took away in Ganymede, and what he bore, fiercely touching the venr with his talons; also the boy Autolycus, victor in the Pancratium, on whose account Xenophon wrote his Symposium; Jupiter also, thundering in the Cap-itol, praised above all; also Apollo with a diadem. Ly- cicus made the boy Lagon, cunning, fable, and impudent. Lycus made a boy offering incense. Menechmus made one, with his neck bended, and his face preying his knee: this Mene- chmus wrote of his art. Naucyes made Mercury, and a Difcobolus; and, as it is thought, a person sacrificing a ram. Naucerus made a wrestler, drawing his breath. Niceratus made Aesclapius and Hygeia, which are in the temple of Concord at Rome. Pyramus made a chariot with four horses, governed by Alcibiades. Polyclees made a Her- maphrodite, a noble work; Pyrrhus, Hygeia and Minerva; Phoenix, the disciple of Lyuppus, Ephephers; Stipax, the Cyprian, one celebrated statue, an augur; here was the flave of the Olympic Pericles burning the entrails of a sacrifice, with a full mouth blowing the fire. Silanion made Apollodoros the most accurate among all in the art, and his own inimical judge, breaking the scarcely perfect statue, because he was unable to satisfy his own wishes in the art, and he was therefore surmamed the Madman; in this he expressed not the man made of braies, but rage itself; a noble Achilles he also made, and Epitale exercising the acrobatics. Styrigones made an Amazon, which, from the beauty of her leg, was named Eunemon; the emperor Nero always carried it with him; he also made a boy, whom the love of Brutus of Philippi rendered illuftrious with his name. Theodorus, who made the labryn- th at Samos, caft his own likenes in braies: besides the admirable resemblance, it is celebrated for the delicacy of its execution; the right hand holds a file and the left a square; it was taken to Preneile. He also compofed a car and driver, so small, that they might be covered with the wings of a fly. Xenocrates, disciple of Tificrates, or, as others say, of Euthyphores, excell’d, both in the number of his statues, and compofed volumes on his art. Many artifals made Attalus and Eunemon fighting against the Galatians. Tigionus, Pyromachus, Stratonicus, and Antigonus, compofed volumes on the art. Boethius, although more excellent in working silver, made a most beautiful infant frangling a goose. But of all the works I have mentioned (says Pliny), the principal were dedicated by the emperor Vespafian in the temple of Peace, and his other buildings, being brought together by the rapine of Nero into the city, and difpofed in situations in his golden house. Besides, there are other artifals equal in their merits, but none of their works are pre- eminent; Ariflon, who was ufed to work in silver; Cal/ades, Ctesias, Cantharos of Sicyon, Dinysodorus, disciple of Critias, Delades, Ephorion, Eunicus, and Heceatus. Among the sculptors in silver were Leiboeles, Prolorus, Pythoducus, Polypothus; these were not ufed alone among the sculptors in silver; Stratonicus and Scyraus, who was disciple of Critias. Pliny then enumerates those who made works of this kind, as Apollodoros, Androbulus, Alescle- dorus and Alevas, who made philofophers; Apellas made adoring females; Antigonus and Peryxionemon made the Tyrannicides above spoken of; Antimachus and Atheno- dorus made noble women; Ariftodemos made wrestlers, and a chariot with two horses, with their charioteer; philofo- phers; an old woman, and king Seleucus; his Doryphorus also is a graceful work. There were two of the name of Cepheidorus; the first made Mercury feeding the infant Bacchus; he made also an orator, with his hand raised up, but the perfon is uncertain; the other reprezented philofo- phers. Colotes, who worked with Phidias on his Olympian Jupiter, reprezented philofophers; also Cleon and Cen- cramis, and Challicides, and Cephis. Chalcothenes made a comedian, and an athleta; Daiphus made a trigilit; Dai- phon, Democritus, and Dæmon, the philofophers. Epigonus excelled almost all the relz already recorded, in his imitation of a trumpeter, and a mother piteouzly embracing her slain infant; and Eubolis counting by his fingers. Mycon made a beautiful Athleta; Menogenes a chariote and four horfes. Nor was Niceratus inferior to them all, reprezenting Al- cibiades in his attack; and Demaratus sacrificing; his mother lighting a lamp. Tificrates made a chariot and two horfes; Bithias placed a woman upon it; also he made Mars and Muccurus, which are in the temple of Concord at Rome. Perilus, whom none one prifes, more cruell than Phalaris the tyrant, made a bull, in which he promised that a man, by the power of fire, might be compelled to bellow, but he himfelf, by a more juft act of cruelty, was made to experience it. Thus a moft humane art was called away from the fim- litudes of gods and men. Was it for this that fo many la- bourzard to rear an art that it might become a torment?
Therefore one cause of preferring his work was that, who
soever should see it might hate the hand that produced it:
Sthenis made Ceres, Jupiter, and Minerva, which are at
Rome, in the temple of Concord, also matrons weeping,
and adoring, and sacrificing. Simon made a dog and an
archer. Scopas worked in all kinds; athletes, and fielders,
and Bacchantes, Batton, Bacchus, Gladiators, Heliodorus,
Hebe, Lysippus, Lycophron, Leon, Medardus, Mylboro,
Polykrater, Polydorus, Pythocles, and Protagoras, who
were famous in painting. Patrocles, Pufis, Pericles, who
also carved excellently in silver; they were Ephorini,
Pericleophanes, Philon, Sinemus, Tim monstrous,
Timarchides, Timon, Tritas, Thrasos; among all these
the most known and remarkable is Callimachus, always his
own calumniator; nor did he set any limit to his accuracy;
hence he was called Callimachus: he exhibited memorable
examples of his excessive attention. His are the dancing
Laec-diomedian females, an over-laboured work, in which all
the grace was taken away by the accuracy: he also, as
it is said, was a painter. One statue alone of Zeno, Cato
in his expedition to Cyprus, did not fail: not gratified with
the brafs, nor with the art; but because it was the portrait
of a philospher; this was obvcrse by the way, although
it may turn out an useful example. One statue was
mutilated and not passed over, the author is uncertain:
Near the Rilium at Rome, a Hercules, clothed in a
tunic of the Elean habit, with a frowning face, as
furious in the highest degree from the tunic. On this are three
inscriptions, L. Lucullus, imperator, from his spoils;
the other is the son of Lucullus, a minor, from fatitus con-
tum; the third is, T. Septimus Sabinus, a curule edile,
from his private property restored to the public. This
statue was thought worthy of such a distinction. Pliny,
l. xxxv. c. 19. &c.

Dibutades, a Sicyonian potter, first found the art of
making likenesses of clay, in Corinth, by the help of his
daughter, who being in love with a youth who was going
on a journey, feared lines round the shadow of his face
by a lamplight on a wall, which her father impressing
with clay, made a type, or cast, and with the rest of his
pottery placed to be hardened in the fire. It was pre-
ferred in the Nymphæum till Mummius overturned Corinth,
as it is said. There are those who say that Rhoces and
Theodorus first found out modelling in Samos, before the
Battledes were driven from Corinth. Demaratus fled from
that city, and in Etruria was the father of Tarquin, the first
king of the Romans; he was accompanied by Eucides and
Eugrammus, the modellers; by these modelling was first
brought into Italy. Painting them red, or making them
of red clay, was first practised by Dibutades; he is the first
who added marks to the extremities of tiles which threw
off the flowers, which at first were called protypes; after-
wards he made eptypes, or moulds of them; hence arising
unto the top of the temple, they were named models. The
likeliness of man was taken from the face itself in plaster;
and wax was produced in that form as poured into the plaster.
Lyfifrus, the brother of Lygippos the Sicyonian, improved
this invention; he first determinate the representation of
portraits; for before him, they endeavoured to make them as
handsome as possible. He did the like in his statues. Such
improvements were made that no statue was produced with-
out a model. It appears, therefore, that this art was more
ancient than calling in brases. Damophius and Gorfas
were very eminent modellers; they were also painters, who
executed both arts: in the temple of Ceres at Rome, and in
the Circus Maximus, there are verses inscribed in Greek,
which signify that the work on the right hand was that of De-

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nopolis, and on the left that of Gorfas: before this all the
work in this temple was Tuifus; as M. Varus says. From
this temple, when it was restored, the surface of the wall
being cut away, the pictures were included in frames, the
statues from the roofs also were dispersed. Cloudes
made several models at Athens, in a place which was called
Cereneus, from his workshop. M. Varus says that he
knew a man named Polis, who made at Rome statues of
grapes and apples, which could not be disdained from real
ones. He also extols Arethusa, the intimate friend of L. Aus
Lucullus, whose calls often sold for more than the other
works of his art; by him was made a Venus Genetrix, in
the former of Caesar; it was placed before it was finished,
from the battle of the dedocation. Afterwards by the same
hand, a statue of Felicity was to have been set up, but both
delights were frustrated by death. A cup was made for Octavius,
a Roman knight, the model of which is plaster cast a talent.
Patisteis is praised, who says modelling is the mother of
statuary, sculpture, and engraving. This art was very
much used in Italy, and chiefly in Etruria. Timnus,
being called from Cregillum by Tarquins the elder, made the
statue of Jupiter, to be dedicated in the Capitol: it was a clay
mould, and after cold, coloured red: he also was the model
on the top of the temple of a chariot and four horses, which
has often been spoken of. In this way he made a Hercu-
leans, which at this day in the city retains the name of its
material. Pliny, l. xxxv. c. 43. 45.

The first of all who were famous for marble sculpture, were
Dipenius and Scyllis, born in the island of Crete. When it
was under the dominion of the Medes, before Cyrus began
to reign in Persia, that is, about the 50th Olympiad, they betook
themselves to Sicily, which was a long time the workshop
for the metals of all countries. The images of certain
gods they publicly placed at Sicily, but before they had
finished them, the artificers, complaining of some injury, fled
to Eotia. Forthwith famine and barrenness invaded Sicily,
and direful afflictions. A remedy being asked from Apollo
Pythias, he immediately answered, "Let Dipenius and Scyllis
perfect the statues of the gods." They were intended to
do this with great rewards and liberal offers. These images
were Apollo, Diana, Hercules, and Minerva, which after-
wards were touched with lightning from heaven.

In their time there was, in the island of Chios, Malar,
a sculptor; then his son Nicciades; and then his grandson
Anthemus, a Chian, whose sons, Bupalus and Anthemus,
were famous in this science in the age of Hipponax, the
poet, who, it is certain, lived in the 60th Olympiad. If
this family had traced back their progenitors, they would
have found art to have originated with the commencement
of the Olympiads. Hipponax had a singularly ugly counte-
nance; wherefore his likenesses, produced in a vulgar joke,
was held up to public ridicule: at which Hipponax, indignant,
bore so hard upon them with the bitterness of his verses,
as compelled them to hang themselves. But this is an error,
for they made a great many statues afterwards in the
islands. In Delos, where the song was composed, they
could not escape the ceniture; but at Chios are the works of
Anthemus, the son; and there is shewn at Jafius a
Diana, made by their hands; and in Chios it is said there
is a Diana of their work, whose face is much above the
spectator's eye, and so contrived, that to those entering the
temple she appears severe, but to those going out she
appears exhilarating. At Rome their statues are on the Pal-
antine Hill, on the top of Apollo's temple. In their country
of Delos also are their works, and in the island of Lefbos
Dipenius has certain works at Ambracta, Argos, and
Cleone. All these artificers used the white marble that comes
from

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from the island of Paros; which Rome took the appellation of lychnites, because it was cut in the quarries by the light of the lamp, as Varro writes. Afterwards a much whiter kind was found; lately also in the quarries of Lunenum. But of the Parian a wonder is told: the fomy glebe, divided by the wedge, fell apart, and an image of Silenus appeared within. It must not be omitted, that these arts, both of painting and statuary, so anciently produced, were taken up by Phidias in the 83d Olympiad, 332 years afterwards: for Phidias brought forward the art of sculpture in marble. His Venus at Rome, which is in the forum of Octavia, is a work of the most beautiful perfection. He taught Alcamenes the Athenian, who, it is certain, is distinguished among the hero of the Athenians; whose works are at Athens, in many faced temples. Famed above the rest is his Venus without the walls, which is called Aphirodite in the Garden. It is said that Phidias put the finishing hand to this statue. His disciple was Agoracritus of Paros, so agreeable to that age; therefore many works are given about in his name. There was a trial of skill between the master and the disciple, in making a Venus. Alcamenes conquered not by his work, but by the suffrages of his city, which favoured him against a stranger. Under the condition that it should not be at Athens, Agoracritus fold it. It is furnamed Nemesis. M. Varro preferred it to all statues. There are in the temple of Magna Mater, in the fame city, works of Agoracritus. Phidias is undoubtedly famous through all nations, which have understood the fame of his Olympian Jupiter. That those may know how deferably to praise his works, who have not seen them; we fhall offer some arguments relating merely to his ingenuity; without comprehending the beauty of the Olympian Jupiter, and referring merely to the structure of the Athenian Minerva. It is 26 cubits, composed of ivory and gold: in her shield the Amazonian war is engraved; in the swelling part of the buckler, and in the concave part, the war of the gods and giants; in her hands the Lapiths and Centaurs, every minute particular put together with the greatest art. In the bafe is engraved the birth of Pandora. Here are gods produced, twenty in number: Victory is chiefly admirable. The skillful have admired the serpent, and, under the creft of her helmet, the fphyx of brafs. There are transient obfervations: the art can never be sufficiently admired, whilst it is known that he was no lefs distingu-ished by much magnificent, than by the smallest things. We have fpoken of Praxiteles, among the flaturaries of his age, as having excelled in the glories of marble, others, and alfo himself. His works are at Athens, in the Ceramicus. But before all, not only of Praxiteles, but on the whole globe of the earth, is Venus, which is viewed by multitudes who fall to Gnidos. He made and alfo fold two statues; one clothed, by means of which it was intended that there might be a preference. The Caesars took one at the fame price, confidering that as the more severe and modeld. That which was rejected was bought by the Caesars. Immense the difference in their fame! Afterwards king Nicomedes would have purchafed that of the Caesars, promising to pay the whole debt of the city, which was immense. But they rather bore all, nor without caufe, as long as the figure of Praxiteles ennobled Gnidois. Her little temple was wholly open, that the figure of the goddes might be viewed from all points; the goddes favouring them, as it was believed. No part was seen with less admiration than another. It is faid, a certain perfon was enamoured with the figure, and hid himself in the temple all night. There are in Gnidos other statues of marble, by illustrious artists: Bacchus, by Bryaxis; and another, by Scopas; and a Minerva. Neithet is there any other fpemcim of the work of Praxiteles more ex- ceellent than the Venus, that should be recorded among these by itself. Of the fame artift there is one a Cudip, objected by Cicero against Verres: it is that for which Thephia was visited. It is now in the Octavian Gallery. His is also another Venus, in a Parian colony of Propontis, like the Venus of Gnidos in noblenes and alfo in injury. At Rome are works of Praxiteles: Flora, Triptolemus, Ceres in the Servilius gardens, Good Fortune, and another statue of Good Fortune in the Capitol; also the Marsaeus, and those called Thyades and Caryatides; and Silenus in Afnins Pollio's monument, alfo Apollo and Neptune. Cephifforus was the fon of Praxiteles, and the heir of his art as well as of his elate; whole work of children embracing is at Bergam, a very much admired and a noble performance of art; the fingers seem to imprefl the body rather than the marble. At Rome his works are: Latona in a chapel of the palace, Venus in Afnins Pollio's monument, and in the temple of Juno, which is in Octavia's portico, Efeulapius, and Diana. The fame of Scopas contends with his: he made Venus, and Pothon, and Phaethion, which are worhipped in the faced ceremonies of Samothracea; alfo the Palatine Apollo. The fitting Vefa is very much praised in the Servilius gardens; two chariilayers or companions around her fitting on the ground. Two like them are in Afnins's monument; where is a canephorus, or man bearing a bafket, by the fame artift. But the greatest honour in Cn. Domitius's temple, in the Circus Flaminius, belongs to his Neptune and Thetis, and alfo Achilles; Nereides fitting upon dolphins, fea-monsters, and hippocampi; alfo triton, and a chorus of phorci and prikles, which are different kinds of fea-monsters, and many other marine fubjects, all by his hand. This was a moft famous performance, if it had been the whole work of his life. Now, besides what has been said above, we shall faak of things of which we are not certain. A Mars of his work, colorful, a fitting figure: it is in the temple of Brutus Callicus, in the Circus. Besides a Venus, in the fame place, furpassing the Gnidian, taking a preference to that of Praxiteles: it would have ennobled any other place. Rome, from its greatnes, has caufed that work to be forgotten; and the crowd of businesfs and offices draw away from obfervation, becaufe admiration is deferved only in things fitted to great silence and more lefler. Equal doubt is in the temple of Apollo Sobanes, whether Niobe and her children were made by Scopas or Praxiteles. Alfo Janus the father, which Auguftus brought from Egypt, and dedicated in his temple, but of whose hand it is fame does not tell us. Likewife in Curia Octavia, there is question concerning a Cupid holding the lightning; though at length it is afcribed to be the likeness of Alcibiades at that age. Many other things are in the fame gallery, which pleae, whose authors are unknown: four Satirs, with Bacchus, one of whom holds a flying garment over his shoulder; another fimilar Bacchus; a third quieting a crying infant; a fourth with a cup, satisfying the thirft of another with drink; two winds with flying vels. Nor is there lefs qefition who made Olympus, and Pan, and Chiron, with Achilles, in the Septis; particularly when their reputation has rendered them worthy of the pledge of their keepers' lives. Scopas had emulators in the fame age, Bryaxis, Timotheus, and Leochares, who are always fpoken of together, becaufe they wrought together on the Maufoleum. This was the sepulture of Maufolus, king of Caria, which his wife Artemifiia made for him, who died in the second year of the 106th Olympiad. It is a work reckoned among the seven wonders of the world, which these great artifts made. It is from fouth to north 63 feet, but shorter in front; its whole
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whole circuit is 441 feet, raised in height 25 cubits, surrounded with 36 columns. To the left it was flanked by Scopas, to the right by Hel docles, who both had a place on the first porch of the temple, as occurred from his work. Scopas placed at one of the piers, but at the elevation of their place, and his celebrated. All the work is in the temple, a Hercules, at which the Colossus stood for many years offered, therefore, the

It stands the ground, but the extra of the time leads to the statues of the Tuscan. There are standing the statues of the Thracians before the temple of Felicité, of which one was placed by a Roman noble, Junius Pecileicus, as a Roman noble; admired also, by Pausanias, who wrote five volumes on the noble works in the whole world. He was born at the Italian Greek town. Rich both in the city of Rome and its towns, he made a Jupiter of worr, in Metellus's temple, which looks over the fields. It beheld him, that in a step, in which were African wild beasts, forming at a den and carefully of leaving a den, which he meant to carpe, a painter broke off a head from another garden, not of flight peril to bring this art work. He made many works, as he is said; but of the which he made, the names are not reported. Arcebuchus also, very much praised by Varro, who himself had a marble honor, as he says, and wanded cupids (porting with her) of whom some held her bound, others force her to drink from horns, others kiss her with their fingers: all of one stone. He made also, for Coponius, fourteen nations, which are in Pompey's circus. I find Caenoxus (says Pliny) very much praised among the statues for works he made of marble. Nor must Sauron and Batrachus be forgotten, who made the temple of Octavia, included in the portico. They were Lauros and Amrasians. They are said to have been very rich, and they built this temple at their own expense; very carefully hoping to have an inscription, but it was denied them, notwithstanding they took another place and method to obtain it. There are, at this time, in the palaces of the columns, the inscription of their names carved; a frog and a lizard. In Jupiter's temple it is to be seen a picture, containing articles of dres; and all other things relating to women; for when the temple of Juno was completed, and they carried in the statue, they are reported to have changed the moveables; and that being guarded by religion, even as the seat partitioned among the gods themselves: in the temple of Juno is consecrated that which ought to be Jupiter's. Pliny, l. xxxvi. c. 4. Such is Pliny's account of ancient sculpture.

It is well known, from the testimonies of later authors who have written on the subject, as well as from the names of Greek artists found on their works, that all the noble productions of sculpture executed at Rome after the times we are speaking of, were the productions of Greek artists.

The busts of the twelve Caesars, from Julius to Domitian inclusive, are the first productions of portrait sculpture. The whole imperial series, both in busts and statues; are done to the emperors Balbinus and Pupienus, pofts the latest marus, and carried in that period the decline of art; but from the time of these emperors to that when Constantine fixed his capital at Byzaunium, the decline was so evident, that the life and beauty of former times were nearly lost in his productions.

Before we quit ancient Rome, we must notice in a general observation one of the great works of art still remain is that capital, which could not be properly introduced in the foregoing series.

The Trajan colonnade is one of the most beautiful monuments of ancient Rome, and the most superb column in L 2 the
the world. It was raised about the commencement of the second century, by the Senate and people of Rome; in honour of the Emperor Trajan, after the victory that he had obtained over the Dacians. This column is admirable for its height, and more still for the beauty of the base, with which it is ornamented; which represent the first and the second expeditions, and the victory obtained over king Decebalus. These bas reliefs are correctly designed, and most beautifully executed. There are numerous more than 2500 figures, all in different attitudes, without counting those of horses, elephants, arms, machines of war, and an infinity of others; altogether forming a variety of objects, which no one can see without admiration. Upon the capital of this column is a pedestal, on which was anciently a colossal statue of Trajan in gilt bronze. In the place of this statue, Pope Sixtus V. caused to be placed, in the year 1588, that of St. Peter the apostle in bronze, which was modelled by Thomao Porta. The same pope caused also to be cleared away the earth which encumbered the pedestal.

At the bottom of the pedestal, or base of the column, in one of the sides is a door, by which we mount to the top of the column. The flaire-cafe contains 185 steps, cut in the same blocks as the column: and to them are made 44 windows, which light the flaire-cafe; and there is on the top a balustrade, by which we may walk around and enjoy the prospect of the whole city of Rome. The height of this column is 118 feet, comprising the pedestal of the column and the statue on the top. The column alone, with its base and capital, is 92 feet; the pedestal of the column is 17, that of the statue 9; the lower diameter of the column is 7 feet 3 inches, the diameter of the upper part is 10 feet. This column is formed of 22 blocks of white marble, fixed with lead one upon another. The shaft of the pillar is in 23 pieces; the pedestal in 8; the capital 1; and the pedestal of the statue another.

The magnificence of this column answers to that of the ancient forum of Trajan, of which it occupied the centre. The Forum or Square of Trajan was surrounded by grand porticoes, and the edifices were built with the greatest magnificence after designs by the celebrated Apollodorus. These consisted of a temple or palace, where the consuls sat in judgment; the temple of Trajan, where was the Ulpius library, ornamented with statues of the learned; a superb triumphal arch with four equal faces, that the Senate caused to be built to the honour of the prince after his death; and a beautiful equestrian statue of Trajan, in gilt bronze: the statues, the cornices, the architraves, and the friezes which ornamented these edifices, were also in bronze. It would be difficult to describe all the magnificence of this superb square. Trajan caused a valley to be filled up, and levelled one part of Mount Quirinal, to make a level for this beautiful situation.

The Antonine column has given its name to the place of which it is the principal ornament. It was raised by the Roman Senate, and by the Emperor Marcus Aurelius Antoninus, in honour of Antoninus Pius, his father-in-law, whom he succeeded in the empire. His ashes were enclosed in a golden urn, and placed on the top, with his statue in bronze gilt; and because he had not obtained any one great victory in war, they caused to be sculptured around the column the victory over the Marcomanni. Time and various revolutions, and above all the fires, which had been anciently very frequent in Rome, have much damaged this column. Pope Sixtus V. caused it to be repaired in the year 1589, and the statue of the apostle Paul, in bronze gilt, to be placed upon its summit. This column is of white marble, surrounded by bas reliefs from the base to the capital. The artiff appears to have taken for his model the Trajan column; it is of the same style, though of inferior execution. The whole is composed of 28 blocks of marble: it is 15 feet in diameter, and 116 in height, without including the statue, which is 13; and the pedestal, on which it is placed, which is 9. The column contains a beautiful winding flaire-cafe of 100 steps, which conduct commodiously to the top; it is lighted by 41 windows.

The arch of Titus was raised by the Senate and people of Rome to the honour of Titus Vespasian, for his conquest of Judea and the taking of Jerusalem. It is of the most excellent workmanship, but has very much suffered from the injuries of time. It is ornamented with beautiful bas reliefs, and two fluted columns of the Composite order. Under the arch is seen the triumph of the emperor, drawn in a chariot by four horses, accompanied by his lictors; and in the triumph the famous candlestick of seven branches, the tables of the law, and other spoils of the temple of Jerusalem.

The arch of Septimius Severus was raised by the Senate and people of Rome, at the beginning of the third century, to the honour of that emperor, for having subjugated the Parthians and other barbarous nations. It is all of white marble, with three arches and eight fluted columns of the Composite order, ornamented with bas reliefs, of middle sculpture. It has suffered very much, and because it is partly buried in the earth, we cannot to well judge of its beauty; formerly there was an arch to the top of the arch, by a flaire-cafe in the interior; and there was placed upon its roof the Emperor Severus in a triumphal charriot drawn by six horses.

After the famous victory obtained over Maxentius by Constantine the Great, the Senate and people of Rome caused a triumphal arch to be raised to his honour: it is of the Corinthian order, having three arches; the two grand fronts are ornamented by eight fluted columns of yellow marble, and many bas reliefs of very different merit. Those that were made in the time of Constantine make us perceive the barbarity into which the fine arts were beginning to fall; the others, on the contrary, were taken away from the arch of Trajan, without such beauties, as indicate an age when sculpture was in high perfection. These are twenty in number, of which ten are of a square form, and are in the upper part; eight are round, above the side arches, and two others more large under the grand arch. All these bas reliefs, and the eight figures of Dacians placed upon the columns, prove themselves to belong to the expeditions and victories of Trajan.

The arch of Marcus Aurelius formerly stood in the Flaminian way, now called the Corso, or principal street in Rome; it was taken down by Alexander VII.; two fine remaining bas reliefs from which are at present in the Capitol; one of these is an apotheosis of the emperors Faustina, the other is an address of the emperor to the people of Rome. The figures are larger than life.

In general observations on the sculpture of the arches and columns here enumerated, we shall remark, that the earlist of them, the arch of Titus, must have been executed about the year 70 of the Christian era, consequentally when sculpture had lost much of its primitive ideal beauty; we shall of course find in these works less of fulness and more of conventional forms, consisting of subjects which were confined to battles, entanglements, triumphs, and acts immediately connected to them. The Roman general and soldiers, as well as the barbarians whom they fought with and conquered, are represented with an individual vulgarity of face and person, very different from the choice selection of beauty in the works of Greece. The dres and armour
armour are more complicated and divided than those of the ancient Greeks, added to the interior and exterior of parts, still augmented by the introduction of wings, bridges, poles of wood, battering rams, catapults and other military engines, &c., wholly omitted in the works of the last ages. The costrels are of the costest means, and of the most brutal forms, unlavished by any interference of supreme beings, and unexcelled by the beauty of the ancients. With such a character in the whole, the sculpture in the arch of Trajan, now the arch of Constantine, is superior to the rest of these works. Upon the whole, although the bas relief of the apotheosis of Faustina, formerly on the arch of Marcus Aurelius, is more sublime conception, the sculpture of the Trajan column has a great variety of natural attitudes, according to the situations in which the persons are placed, and the relieve has that general breadth, which is well fitted to show the outline of the column in all views. The figures and groups on the Antonine column are carved with a bolder relief; but such as deforms the shaft of the column by its irregular hollows, producing something of the appearance of rock-work to the whole outline. The sculpture on the arch of Severus is still more deteriorated in its style and conduct; and such of the bas reliefs on the arch of Constantine as were executed in the reign of that prince, have such a Gothicism and barbarity of execution, as would utterly exclude it from that class of sculpture, which has moderate pretensions to science, or any pretension whatever to sentiment.

We must not omit to mention some colossal statues, still existing entire or in parts in the city of Rome; i.e., two colossal statues of marble on Monte Cavallo, standing before the pope's palace, each nineteen feet and a half tall. The figures are in the prime of youthful manly beauty; the faces are of the highest class of Grecian beauty; the figures seem to breathe and move; their position is advancing; with one hand each holds his charger. They have been called Castor and Pollux, Achilles and Patroclus, Alexander and Hephestion, also Achilles, at the moment when his horse declares the will of Jupiter; on the authority of two coins of Nero and Adrian struck at Corinth, bearing on the reverse a hero holding a horse, much resembling this group; it has been called Bellerophon holding Pegasus. One of these statues bears the name of Phidias on its pedestal, the other statue seems to be this original, reverred by some other artist, to stand as its companion in some conspicuous situation.

In the cortile of the Capitol remains in marble of the colossal statue of Domitian, which appears to have been, when entire, about forty feet high; the head and neck to the bottom of the gutlet is of one stone, and above eight feet high; the feet are each six feet long; the knees, elbows, and some other fragments, are remaining. It appears to have been nearly naked, to have floor erect, to have had a chlamys hanging on the left arm; and is perhaps the same colossal of Domitian as that described by Philo Byzantion, according to his testimonies from different Latin authors. There is, in the same cortile, a head in bronze, believed to be that of the emperor Commodus, which from other remaining fragments was a colossal statue also.

The equestrian statue of Marcus Aurelius, considerably above the size of nature, in the centre of the Capitol, of noble workmanship, is sufficiently known to lovers of art by the prints of Perrier and other artists.

When Constantine removed the seat of empire from Rome to Byzantium, he and his successors are said to have taken from the ancient capital of the world, as many of the fine works of art as they could possibly remove. The Greek artists were employed in their own country to decorate the new capital, with the same magnificence indeed as in former times, and like their predecessors were employed in the cause of religion, not in emulation of Phidias' Jupiter or Praxiteles' Venus, but in the cause of that farce perniciously defaced, and of his followers who propagated the new delusion of mercy. The architects were employed in building Sancta Sophia and other great faced buildings in the city; and the painters and sculptors in the illustration of the Old and New Testament.

The controversies of religion and philosophy had been agitated with so much violence by the philosophers of Alexandria against the Christian divines, as induced the successors of Constantine to abolish the schools both of Athens and Alexandria; they also enrolled orders for the removal and destruction of the Pagan idols; and in the fourth and fifth centuries it is believed that the Olympian Jupiter at Eleusis was destroyed, either by imperial order or the ravages of barbarians. The Iconoclasts, and the irritations of the followers of Mahomet and other barbarous people, very nearly destroyed all the remains of the finest Greek sculpture in the East as well as in western Europe. This destructive fury against the arts and artists, continued with interruptions for two hundred years; still, however, the Christian Greek contributions from the Old and New Testament, from the time of Constantine down to the thirteenth century, were followed as examples of character and composition by the revivers of art in western Europe, down to the times of Michael Angelo and Raphael.

After the sacking of Constantinople by the Venetians, the only efforts of that feeble state were a few faint struggles for existence, previous to its destruction by the Mahometans.

To give some idea of the magnificent sculpture which adorned Constantinople, we shall insert the description given by Conitius, of those fine works which decorated this city, before it was taken by the Venetians.

The Roman conquerors, who were of an avaricious temper even to a proverb, practised a new method of rapine and plunder, unknown to those who had taken the city before them; for breaking open by night the royal sepulchres in the great grove of Heroum, they fearlessly rifled the coffers of those blest disciples of Jesus Christ, and carried off whatever was valuable in gold, rings, and jewels, which they found in these repositories of the dead. They spared neither the house of God nor his ministers, but stripped the great church of Sancta Sophia of all its fine ornaments and hangings, made of the richest brocades of ineffable value; but they no sooner cast their eyes on the brazen statues than they ordered them to be melted down. The fine statue of Juno in brass, which stood in the forum of Constantine, they chopped to pieces and threw into the forge. The head of this statue was so large, that four yoke of oxen could scarcely drag it. On the base of it was cut, in baffe relievo, the figure of Paris presenting Venus with the apple of discord. The noble quadrilateral pillar, supported by several ranges of pillars, and which by its height overlooked the whole city, and was both the wonder and delight of the curious spectator, shared the same fate. This lofty column was adorned with rural representations of all kinds of birds, folds of cattle, and of sheep bleating and lambs frisking and playing, &c. There was also engraved upon it a view of the sea and sea-gods, some of whom were catching fish with their hands, others ordering their nets, then diving to the bottom, while some in a
wanton manner were throwing balls to one another. This pillar supported a pyramid on the top of it, on which was placed the statue of a woman, which turned about with the wind, and was therefore called Anemone. This excellent piece was also melted down for coinage, as was also an equestrian statue, fixed upon a quadrilateral pedestal in the Taurus. This was a bold figure, of an heroic countenance, and surpfixing stature. He was said to be one of the spoils who were sent by Joshua, the son of Nun. With one hand he pointed sailward, with the other to the west. But this statue was generally reported to be Bellerophon sitting upon Pegafus; for the horse was without a bridle, as Pegafus is mostly figured, scouring the plain, deloping a rider, flying and driving about in a headstrong manner. This horse and his rider were also melted down; the barbarian soldiers expressing their utmost fury against the finest statues and most curious pieces of workmanship in the Hippocorn. The greatest statue of the Hellenic Hercules, which was fixed upon a magnificent pedestal, and clothed in a lion’s skin, which seemed to live and alright the spectators with his tremendous voice, felt the effects of military power. He was not armed with his quiver, his bow or his club; but stretching out his right leg and arm, he kneaded upon his left knee, and leaning upon his left elbow with his hand open, supported his head in a thoughtful manner, fesmning to lament his misfortunes. This figure was broad-shouldered, the shoulders large, the hair long, curled, and reaching to the waist; the arms were brawny, and as long as those made by Lytaeus, which was the original of this, and was the first and last masterpiece of his skill. In short, of such a stupendous size was this statue, that his writ was as thick as a man’s body, and his leg equal in height to any ordinary perfection. This noble statue did not elapse the rage of these mighty pretenders to virtue and honour. Besides this they also carried away the image of the afs and his driver, which figures were set up originally by Augustus Caesar at Aetium, of whom the story reports, that when he went out privately in the night time, to make a view of Antony’s camp, he met a man driving an afs, and asking him who he was and where he was going, the man answered, “my name is Nicon and my afs’s name Nieander, and I am going to Caesar’s army.” The statues of the hyena, and of the wolf which hung Romulus and Remus, underwent the same fate, and were coined into little bronze flaters. The severall statues also of a man fighting with a lion; of the horfe Nefios covered with scales behind; of an elephant with a moving proboscis; of the sphynxes, beautiful as women and terrible as beasts, which can occasionally walk or fly in the air; there was also the statue of a wild horfe, pricking up his ears, curvetting and prancing:—this and old Sylla were served in the same manner. She was figured like a woman to the waist, with a grim frightful look, just as she appeared when the sent her dogs to destroy Ulysses. There was also placed in the Hippocorn a brazen eagle, which was the invention of Apollonius Tyanes, and a celebrated monument of his forcour. This impostor being requested by the Byzantines to heal them of the bitings of serpents, which were then common among them, using charms and diabolical ceremonies placed this eagle upon a pillar. It was a pleasant light enough, and defend to be more narrowly inspected, for it made an agreeable harmony, and was dangerous than the Syrena. Its wings were stretched out as ready for flight, and it was quivering upon a serpent, which wreathed itself about the eagle. The serpent seemed to make the utmost effort to bite the eagle; the eagle looked brisk and lively, and seemed to have obtained the victory, and to be ready to bear him through the air in triumph, de-

noting that the serpents that tormented the Byzantines would hurt them no more, but suffer themtheselves to be handled and stroked by them. But these were not the only curiosities to be examined in this aquiline statue; for the twelve hours were engraved under his wings, under each wing fix, which flowed the hour of the day, by the sun darting through a hole in each wing made for that purpose. There was also a fine statue of Helen, whose charms led Troy in ruins; her fine proportions, in breathing braids, captivated all beholders; her habit fat loohe upon her, which discovered too great an inclination to gallantry; her long and delicate hair seemed to wave in the wind; it was braided with gold and jewels. Her robe was girt about her and falling down to the knee; her lips seemed like opening roses; you would fancy they moved; and such an agreeable smile brightened her countenance, as entertained the spectator’s eye with pleasure. There was also placed upon a pillar a more modern statue of a woman. Her hair hung down behind, combed close down from the forehead backwards, not braided up but bending, as if to the hand of the spectator. Upon the right hand of this statue stood a splendid statue of a woman; the horse stood upon one leg, the other bore a cup with liquor. The rider was of a large size; his body completely armed; his legs and feet covered with greaves; his air was manly, rough, and warlike. His horse was mettleome and high couraged, pricking up his ears as if he heard the trumpet; his neck was high, his look fierce, as eager for the battle, rearing up his fore-feet and prancing as a war horfe. Near this statue, hard by the eastern goal called Rufius, were a range of statues of charioteers, dextrous in driving the chariot and turning the goal. They were very busy in managing their bridles and fmaking their whips, and directing their horses, with their eyes fixed steadily upon the goal. There seemed to be describ’d in these figures all the tumult and fury of a chariot race, with the mott vigorous struggle for victory. But what excited the greatest admiration was a large pedeslal, having on it an animal call’d in bra’s large as an ox, with a short tail and a moderate dew lap, something like the Egyptian cattle; it had no hoofs; it held in its teeth, ready to brangle, another animal, clothed all over with scales that seemed impenetrable. This appeared to be a baflake; it had a mouth somewhow like a serpent’s. These figures seemed to represent an odd kind of fight, each of them furiously striving for victory. The creature which seemed to be the bafi- law was in colour like a frog, and was all over bloated from head to foot; he was casting out his venom upon his antagonist, to destroy him, while he was represented as bearing upon one knee and in a languishing state. There was also a figure of another animal, in whose jaws was repre- sented a smaller creature whose mouth was open, as almost choked by the teeth which held him, strugghing to get loose but to no purpose. His tail, which was very short, seemed to tremble; his shoulders, his fore-feet, and a part of his body, were hid in the mouth of his enemy and mailed by his jaws. This is the case with nations and kingdoms, which thus mutually destroy one another.

For further satifaction concerning the state of sculpture in the fourth and fifth centuries, a short decription of the column of Theodouis, erected at Constantinople, will be added.

This column was, in its general shape and fize, an imitation of that of Trajan in Rome; although, by the description of such travellers as saw it standing, it appears to have been larger, and formed of the same material, flatuury marble, decorated like that column, with a spiral base relief, from the bottom to the top of the shaft, surmounted by a statue of the emperor. The pedestal was covered with mi-

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literary bas reliefs, on one side of which was the emperor,
leading, crowned by two victories, with a glory, raised
above the crown. The shaft of the column was by Gaius
Belien, the type, and the triumphal arch of Theodosi-
us, Arcadius, and Honorius, as it is believed, with the
emperor Gothic and Ledder Tartars; then id., kings,
trees, wagons, horses, draymen, elephants, and so on;
the captive multitude, with emblazoned figures, repre-
senting the city of Carthage, and the various figures of
the virtues, complementary to the emperors, particularly
related to their valor and elegance. Whoever desires to
be more particularly informed of the remains of ancient sculpture
which decorated Constantinople, may consult Glydullus
and Diti, and the Byantine writers.

Of Modern Sculpture. — From the fourth century the art
continued to decline, by the invasions, first of the Goths and
Vandals, and afterwards of the Saracens: and this decline
is manifest in fragments and ruins of the ages as they succeed
each other.

Theodoric, king of the Goths, established the seat
of his kingdom at Ravenna; his reign was long, and as he
very much loved building, he applied himself to his capital,
and at Rome, and in the principal places of Romani and
Lombardy, he built several palaces and churches, which are
yet to be seen; all of them, of a rude character, remote from
the principles of architecture, and the exact rules of the
ancients; he caused palaces to be built at Ravenna, Pavia,
and Modena, after a barbarous way; which were rather
great and rich than good of architecture. The same may
be said of the church of St. Stephen at Rimini, of St. Mar-
tin at Ravenna, and of the temple of St. John, built in the
famous city in the year 438, by Gallia Placidia.

The capitals of columns in buildings erected by Theodoric
and his family, are gross copies from the ancient Doric
Ionic, in which no attention is paid to the outline; the
leaves and volutes are without relief; the whole masses are
coarse, and without effect; the sculpture of baso relivo
on the sarcophagi of this king and his family at Rimini,
which represents our Saviour and his Apostles, is without
design, and of the rudest workmanship.

The church of St. Vitalis was built at Ravenna in 547.
Queen Theodolinda caused the church of St. John the Bap-
tist to be built at Monza, where was painted the history
of the Lombards; her daughter, queen Gundippiga, caused
a church to be built at Pavia. They are all of the ancient
Gothic style.

By the ancient Gothic is here meant a gross imitation of
the Roman buildings and Roman sculpture, without har-
mony, proportion of parts, or design, as nearly as these
unpracticed barbarians could imitate from the ruins of
Roman buildings, without any science, and with clumsy instru-
ments.

If the Gothic kings who embraced the Christian religion
had their painters, sculptors, and architects, they had also
to counteract these cruel wars to support against the barba-
rians, who still remained adverse to art and science; all Europe
was involved in such confusion, that little satisfaction can be
derived from the histories, and still less from the few barba-
rious remains of workmanship.

In the year 466, Clovis, king of the Franks, was con-
verted to Christianitv; he built the church of St. Peter and
St. Paul at Paris, which is now called St. Genevieve. The
fame rude workmanship is in the church of St. German,
built by Childebert, son of this king. Although these two
venerable remains of antiquity have been destroyed in the
French revolution, yet specimens of the sculpture are pre-
erved among the French monuments at the church of the
little Augustus; some of which, laid to be of that age,
appear to be much later, as the statue of the king, at the
portico of St. Germain des Pres, seems rather to have been
in the tenth century. The church in this direction of the city of Charlemagne, built from St. Denis, called La Ferté, there is in
it may be called, in its law, the model of all; it was with
every period of art, both of its own country, and it is not
with its feairs that we need deal; that statue
were a model for the rest of Europe.

What we have had in the State of Fiesole, in Tuscany,
will answer equally well for everything that was done in
England, Italy, Germany, and through at the east,
at this time.

In the year 825, Charlemagne built the church of the
Apostles in Florence, which has always been admitted by
architects of the greatest beauty, to that length which it
as a model so long afterwards as the year 1527.

In the eleventh century, when the territories of the Norman
invasion, in addition to that of the minor barbarians, had
pulled away, the governments began to be more regular and
established; agriculture and commerce began to revive; and
the crusades had diffused a very lively taste among the northern
nations, derived from the arts and literature of the East, so
that then the arts of design began that rapid course of
improvement which has been demonstrated in their works.

In 1016, the Pisans founded their great church, called
the Dome of Pisa. The commerce they had by sea, and
particularly into Greece, was a favourable means for the
establishment of architecture and sculpture. They brought
from thence several columns and fragments of ancient archi-
tecture, of marble, which they made use of in this church.

They brought together by these means several Grecian
sculptors into Italy, and also Grecian painters, who worked
after their own old methods, for using in their painting only
simple lines, which they coloured all over equally, without
any shading: their works were not very artificial, notwith-
standing these remains of art taught the Italians the practice of painting in water colours, or fresco and
mosaic.

But among all the artists of that time was Butchettu, a
Grecian of Dulichium. This cathedral of Pisa was built
under his direction; for besides the magnificence and fine
plan exhibited in this church, he used with great dexterity
those ancient pieces of Grecian architecture, and some of
them which they brought from Greece.

This great building excited in all Italy, and particularly
in Tuscany, those who had any genius for designing.

Thus the arts of designing began to be revived in Tuscany
before than were known in other countries; and very great
fabrics were reared in several cities of Italy. At Ravenna,
in the year 1384, Il Basso, a sculptor and architect, built
a great many palaces and churches; also at Naples
the castle of Capasso, now called the Vicarage, and Caltel
Dellomo; also at Venice he built the belfry of St. Mark.

In the year 1563, the IPS which the Pisans brought from
Sicily enabled them to add to the magnificence of their cather-
dral. The capitals and fragments of pillars they had brought
from Greece and Sicily, were employed in the cathedral
church and church of the bell tower; in which latter building
every capital almost is of fine ancient Greek workmanship.

The sarcophagi, chief preserved in the Campo Santa, formed
the school, in which Nicolo Pifano and his followers improved
their sculpture. The consequences of these improvements
are seen in the works of Nicolo Pifano, which are the pulpit
of Siena, the pulpit of the baptistery of Pisa, the bas relief
of St. Martin's at Lucca, the bas relief in the cathedral at Orvieto, and in other parts of Italy, in which his constant attention to the ancient bas reliefs is always observable. At this time the crusades had diffused such a spirit of piety, that magnificent churches were built all over Italy, in the designing of which, as well as the decoration with sculpture, Nicolo Pisano and his scholars were universally employed.

On the basement in the west front of the cathedral of Orvieto, there is a series of balto relieves, the work of Nicolo Pisano and his school, containing the most important subjects of the Old and New Testament, from the Creation to the Last Judgment, with separate figures of the prophets. The different subjects are contained in a running foliage, making the most rich and beautiful decoration to the four basements formed by the three doors in that part of the church. The figures are each about twenty inches high, very highly finished in flautary marble. There is in many of them a beautiful simplicity of sentiment, and in those of the Last Judgment, and the other bas reliefs that immediately relate to it, there are various striking instances of passion and terror. The pulpitos allo in the cathedral of Sienna, and in the baptistery of Pisa, which were before mentioned, are magnificent architectural designs, richly adorned with scriptural balto relieves by this artist.

At Pisa, in 1174, William Otramentano and Bonmamo, a sculptor, founded the fieceple of the dome. The royal gate of brafs in this church was made by Bonnann.

John Cimabue was born at Florence in the year 1211; he very much improved the art of designing; his disciple Ghiberto was both a painter and sculptor. Cimabue learned his art of Greek painters, who were employed in Florence. At the same time with Cimabue, flourished Andrea Tafi, a Florentine painter in mosaic; he went to Venice to perfect himself in his art; having learned that there were Grecian painters who worked in that way in Venice, he engaged Apollonio, one of them, to come and work with him in Florence, where they made several pieces. Tafi learned of this Grecian the art of making enamels and plalettes that would last a long time: he died in the year 1294.

About the year 1216 appeared Marchione, architect and sculptor of Arezzo, who worked much at Rome for the pope Innocent III. and Honorius III. he made the fine chapel of marble at St. Mary Maggiore, with the sepulchre of that pope, which is of the best sculpture of those times. But one of the first architects who began to reform in Italy, was a German named James, who built of stone the great convent of St. Francis; he dwelt at Florence, where he made the chief fabrics; he had a son, named Jacopo Amafio Lapo, who learned architecture of his father, and designing of Cimabue. He founded the church of St. Crof, at Florence, and several other buildings, the most considerable of which is the magnificent church of St. Mary del Fiore.

John Pisano was the son of Nicholas, and was also a fculptor and architect. In 1285 he was at Naples, and built there, for king Charles, the new castles, and several churches, and being returned into Tuscany, he made several pieces of sculpture at Arezzo, and also of architecture in that province, and died in the year 1320.

John Pisano deviated from his father's rigid imitation of antiquity, in giving a more waving line to his figures, and broader and less determined folds to his draperies, like the paintings and designs of Ghiberti. There is a general grace in the character of his figures; of which the bronze statues of a madonna and angels in the cathedrals of Orvieto and Florence are examples; there is no strong resemblance between the styles of these statues and those of queen Eleanor at Northampton, Geddington, and Waltham, on her crofles; as affords reason to believe they were produced by one of the ablest of John Pisano's scholars, if not from some flature or model by himself: nor is it here that the resemblance ceases, for this style is to be traced in most of the sculptures of Europe from this time to the reign of Henry VII. This sculptor had for pupils, Agolino and Andrea Sanso; they were, in the opinion of Ghiberto, the best sculptors of the time, which procured them the chief busnefs of Tuscany. They worked also at Bologna and Mantua, and bred up several ingenious pupils, and particularly carvers in silver, as Paul Arcino, a goldsmith, Maefiro Cione, and Jacomo Lanfranco, a Venetian, and Peter Paul, of the same city.

Ghiberto made designs for the brazen doors in the baptistery of Florence, which were engraved by Andrew Pisano, who also made several figures of marble in the church of St. Mary del Fiore. Andrew was as famous for sculpture as Ghiberto was for painting. The bas reliefs on the doors of the baptistery represent the life of St. John the Baptist, and possess great simplicity and grandeur for the age in which they were produced.

Stephen Florentin, Taddeo Gaddi, and Peter Cavallini, were scholars of Ghiberto, and in 1350 they formed at Florence an academy of designing, which was the first that had been formed since the revival of the arts. Taddeo Gaddi began to collect ancient sculpture for his studios, and there is a fine Greek body of a fain which belonged to him, which is kept in the Ducal gallery, and is known by the name of Gaddi's Torso.

This ingenious society was afterwards encouraged and affiliated by the princes of Medicis, which perfected at Florence the establishment of the arts of design, for there came out of that school a great number of painters, sculptors, and architects, who embellished that famous city, and all Italy, like another Sienon, where, in the time of the first ancients, the first academy of design had been established; this quickly shewed at Florence those great geniuses Lorenzo Ghiberti, Donzello, and Brunelieghi, and many other ingenious contemporaries.

Bartolocceo Cione was a sculptor in bronze, gold, and silver, and father of Lorenzo Ghiberti, who, besides following his father's profession, added to it the study of painting and architecture. He made the two fine brazen gates in the baptistery of St. John, one of which represents the history of the Old Testament, which Michael Angelo said was worthy to be a gate of Paradise; the other gate is adorned with the principal acts of our Saviour's life. Besides the beauty of the historical subjects in the panels, the architraves and friezes of those gates are of exquisite design, containing flowers, fruits, plants, and animals, so perfect that they seem to have been call from nature. He executed a figure of St. Matthew, in bronze, of a colossal size, in the church of San Michele, but this figure is inferior to his smaller works, from an attempt at excessive grace; the folds of drapery are too minute, curvilinear, and not well accounted for. He executed some bafio relieves in bronze, of the life of St. John the Baptist, on the baptismal font in the cathedral of Sienna; he also executed some painting in the same church when he was young. Ghiberti made also several curious figures, and a triple crown for pope Eugenius; it was of gold and jewels, valued at thirty thousand liras. Afterwards he became supreme magistrare of Florence, but till prattified architecture, managing for some time the building of the church of St. Mary del Fiore.

Donatello very much excelled architecture, managing for some time the building of the church of St. Mary del Fiore.
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and life of his designs, and in the character of nature in his statues, which are to be seen in Florence; he was born in 1443, and lived to be above 80 years old. His statue of St. George is a youthful pedestal figure, standing with his legs considerably apart, his two hands before him leaning on his shield. Michael Angelo admired the head of this figure to much, that he copied it in the monumental statue of Julian, duke of Nemours. Donatello designed some time the base of reliefs from the life of St. Anthony of Padua, which were executed by one of his pupils, and decorated the principal altar of the cathedral of Padua. He compos'd and executed the greater part of those noble reliefs from the life of Our Saviour, in bronze, round the two pulpits of St. Lorenzo, in Florence; the sentiment, passion, and composition of which, in parts, it seems impossible to exalt. He executed different statues of St. John, and crucifixes in wood, the characters of which are rather vulgar, and consequently very inferior to his bas reliefs. It was laid of this artiff, upon the Pythagorean idea of transfiguration, that either Michael Angelo's soul energized in his body, or his in Michael Angelo's. There is a bronze figure in the market of Florence, of Judith with the head of Holofernes, which, though, by his hand, has nothing striking in the attitude; and its drapery is confused. But there is another statue of a youth naked, about twelve or fourteen years old, in the ducale gallery, which is worthy to be ranked with the fine statues of antiquity.

Bramacichi, the friend of Donatello, was an excellent sculptor, goldsmith, and architect, and revived the true and ancient way by his indefatigable care. The remains of his sculpture are very few; there is an admirable crucifix, carved in wood by him, in the church of St. Mary Novella at Florence.

About the year 1450 appeared Andrea Verrochio and Donato Ghirlandaio, sculptors and painters in Florence. Verrochio was an excellent sculptor and engraver, not only in brass, but also in marble; he was also a good architect. He was esteemed of the first rank of sculptors, and preferred to Donatello and to Ghiberti, in making St. Thomas feeling our Saviour's side, which he constructed of brass for the oratory of St. Michael. He was the master of Pietro Pugnago and Leonardo da Vinci, and other excellent pupils. His last work was the famous figure on horseback of Bartholomeo Cogoleto da Bergamo, which is at Venice, in the square of St. John and St. Paul.

Donato Ghirlandaio was the master of Michael Angelo; he worked more in painting than in sculpture, particularly in mosaic for pope Sixtus IV. in the Vatican. He was particularly qualified as an instructor to that great man, from the delicacy of his genius as well as his original and copious invention.

But the progress of art was greatly accelerated by the progressive discovery of those miraculous productions of ancient Greek art, which had been buried so many ages, and were by degrees restored from the bowels of the earth. Poggio, the secretary to Eugenius IV., in the year 1429, particularly enumerated all the remains of ancient magnificence in Rome existing at that time, among which he reckons only five statues; two of them were the colossal statues by Phidias and Praxiteles, on mount Cavallo; the third the equestrian statue of Marcus Aurelius, at that time before the church of St. John de Lateran; the two others, perhaps, were the figure called Marforio, which is a recumbent statue of the Ocean, now in the Capitol; the other a fragment of the group of Ajax supporting the body of Patroclus, called Patroclus. The Laocoon was found in the year 1506.

In the year 1474 was born at Florence Michael Angelo Buonarroti; he was brought up to learn, but being himself always in private about designing, which his father desired, he put him to Damiano Ghirlandaio. In a little time Michael Angelo disdained to liken above his other disciples by the insipid beauty with which he designed. This great genius was very fortunately favored by prince Lorenzo de Medici, who, with great love to art, and a desire to assist men gifted and learned therein, established in the gallery of his garden an academy, which he filled with fine pictures and pieces of sculpture, both ancient and modern, and sought out at Florence those young designers who promised to do him service, to whom he allowed pensions to promote their studies. Those of the school of Ghirlandaio were chosen the first, and particularly Michael Angelo, who, having one day taken up a piece of marble, set about making a head, though he had never before handled a chisel, which so much surprised prince Lorenzo, and he conceived to great an affection for Michael Angelo, that besides allowing him the pension, he made him a companion at his table, and gave him a lodgment at his palace. After the death of this prince, his succesor, Pietro de Medici, continued Michael Angelo the same affection he had enjoyed from his father.

At Rome he made a marble statue of Bacchus, with several other marble statues. At his return to Florence, he applied himself with the same diligence, and made a David of marble, which was set up before the palace. Peter Soderini, the Gonfaloniere, and the citizens in general, were so charmed with the statue, that they required of him other works in bronze and in painting. The Gonfaloniere then ordered him to paint one half of the council-hall, and Leonardo da Vinci the other.

Michael Angelo in this work gave proofs of the excellence of his designing, both with respect to the composition of the subject, which was the war of Pyra, and in the correctness of his naked figures; and to have an opportunity to shew the better, he chose the time when the soldiers were bathing in the river Arno, to introduce the figures naked. Raphael, and the artistes his contemporaries, improved the grandeur of their design from that cartoon.

Julius II. being raised to the papal chair, sent for Michael Angelo to Rome, resolving to engage him in a mausoleum in St. Peter's, which was intended to flord under the centre of the dome, to be the most magnificent of the kind ever raised, and the principal object in the church. This work, however, was delayed till the pope died, and then one of its faces only, and upon an inferior scale, was erected by his nephew in the church of St. Peter in Vincole. The figures which decorate the architecture of this tomb are those of the pope, Moses, and allegorical virtues. Two statues of marble, which were to be part of this sepulchre, are now in the castle of Richelieu in France.

The execution of this monument was interrupted by Michael Angelo being at the same time employed by the pope to paint in fresco the arch of the church of the chapel of Sixtus IV., which so much raised his reputation, that besides the general applause that he received at Rome, the pope rewarded him also with several prebends. Julius II. being dead, Leo X., his successor, honoured Michael Angelo no less than he had done, employing him on the architecture of the front of St. Lorenzo at Florence.

After this, in the popedom of Clement VII., he designed the architecture of the vestibule, in the same church, for a mausoleum for the house of Medicis, and adorned the east and west sides with the sepulchres of Julian, duke of Nemours,  

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and the duke of Urbino, opposite to each other; with three
statues on the north side, the Virgin and Child, St. Peter,
and another saint. Both architecture and sculpture are
still admired among the finest productions of this art.

The fortification of the city of Florence was committed
to him: he fortified mount St. Miniati; but when the
wars of Italy in 1525 obliged the artists to leave Rome and
Florence, Michael Angelo was one of the number, and
going to Venice; where the doge Gritti employed him,
and he made the design for the bridge of Rialto, which
is one of the master-pieces of architecture. He painted in
that city sixe pictures, and among others that of Leda,
which he gave to the duke of Ferrara, who sent it to
Francis I.

The wars of Italy being ended, Michael returned to Rome,
and there finished the sepulchre of Julius II., after which
he painted, by order of Paul III., the great front of the
altar, whereon he represented the Last Judgment, it being
this only which was not finished of all the paintings in the
chapel.

The Last Judgment, and the ceiling of the Sistine chapel,
may be considered, together, as the noblest production of
modern painting existing in the world; and it is to be
doubted whether any work of antiquity could be compared
with it for grandeur of conception and power of execution.

He painted also, in the Pauline chapel, the Conversion of
St. Paul, in which the Saviour descends in the midst of his
heavenly ministers, as he addresses the fallen convert, who
is surrounded by flying harleions, and the on foot in dif-
ferent directions and inexplicable terror. The Crucifixion
of St. Peter, on the opposite side of the chapel, exhibits the
horror of the action, the patience of the saint, the grief
of attending friends, and the dolorous solemnity of the sur-
rounding multitude.

Michael Angelo, in his old age, applied himself more to
architecture than to sculpture and painting. After the
death of Anthony San Gallo, the pope appointed him chief
architect of St. Peter's, and of the apostolic chamber, al-
though he would have excused himself from it; but having
accepted the charge, he went to St. Peter's to examine
San Gallo's model, which not approving, on account of its
being a composition of parts, without sufficient reference
to a whole, he caused another model to be made, which not
only produced a much grander and more magnificent fabric,
but at one-eighth of the expense. And this great church
was finished according to the design of Michael Angelo,
excepting the front, which is not his. While he carried
on this building he made also several others, which constituted
part of the beauty of Rome: such as the palace of Farnefe
and the Capitol.

After he had arrived at the age of 80, and had withdrawn
himself from most works of importance, except the building
of St. Peter's, he gratified the pitty of his own mind, and
amused his leisure hours in working on one large block of
marble a group of four figures, representing the dead body
of our Saviour supported by Joseph of Arimathea, attended
by two of the Marys; a pathetic and noble composition,
which he did not live to finish. It is now to be seen on the
back of the high altar in the cathedral of Florence.

Michael Angelo died at Rome in 1564. He was almost
90 years of age. This great man, besides the affection of
seven popes, whom he served, is said to have gained very
great reputation among the following princes: Solymau,
emperor of the Turks; Francis I., king of France; the
emperor Charles V.; the princes of the republic of Venice;
and all the princes of Italy, particularly with the great
duke of Tuscany, who reigned when he died; for when his
body was in the church of the holy apostles, and the pope
was about to set up a fine sepulchre for him, this great duke
could not to be privately fetched away to be buried in
his capital city, and performed his funeral obsequies with
all imaginable pomp and splendour. This pomp was cel-
brated in the church of St. Crofs, at Florence, attended by all
the academy of design, who on that occasion gave sufficient
testimony of the esteem they had for their master by the
magnificent representation which the Italians call Catafalo,
and adorning the whole church with painting, and sculpture,
and lights. A panegyric was there pronounced over him
by Meller Benedetto Varchi.

Michael Angelo's character, as a man and an artist, was
equally honourable to painting, sculpture, and architecture:
his integrity is unimpeached; his generosity and gratitude
were princely; his piety and temperance were exemplary;
his studies were indefatigable; his genius was universal
and original; and his execution equally powerful, beyond
all thole who went before him and all his subsequent
imitators.

John of Bologna was a sculptor of great merit, both in
bronze and marble, who lived rather later than Michael
Angelo: his groups are remarkable for the good composition
and fine undulation of his lines, of which the Rape of the
Sabines, in the market-place of Florence, is an instance.
His statue of Mercury rising from the point of his toe into
the air is also justly admired. Many smaller works by this
artist partake in the same grace and beauty, and may be
studied with advantage.

Benvenuto Cellini, who was a goldsmith and sculptor in
metals, executed a fine colossal group, of Perseus holding
the head of Medusa in his left hand, with the sword in his
right, and standing on the body from which the head has
been separated: the pedetial is most whimsically adorned
with bas relief and chimerical figures relating to the subject.

After these artists, the Florentine school of sculpture
lindered into a state of infancy.

Bernini was employed in Rome by pope Urban VIII.,
and built the noble semi-circular porticoes of St. Peter's
church. His best work of sculpture is the group of Apollo
and Daphne: he designed and modelled inmumerable figures
for St. Peter's and the bridge of St. An-
geo; he executed the monuments of Alexander VII. and
Urban VIII. in St. Peter's; the colossal statue of St. Lon-
gius; and four doctors, which support the chair of St.
Peter.

This sculptor, whose works are fom numerou8, as he was
first a painter, and formed in the Lombard school, endeav-
oured to embody Coreggio's style of painting in sculpture,
forgetting the impossibility of representing flying draperies
and the extremities of hair in marble, which is to easily done
on canvas; and which, when universally attempted, remains
an equal testimony of the sculptor's want of judgment, and
the impossibility of the attempt. Although there are fine
ideas in the general conception of both the papal monu-
ments above-mentioned, by this artist; yet his allegorical
figures are affected in their attitudes, simpering and con-
ceived in their countenances; their forms are flabby and in-
correct, and their draperies confused: yet this style, de-
praved and flatly as it was, in spite of the beauties of
Nature, which continually appear before our eyes, and the
Grecian examples of rigid perfection which adorn the city
of Rome; notwithstanding thefe, it produced a train of
followers, Rafconl, Algardiz, Mosco, &c. &c. who continued
to be employed, till within these fifty years, in Italy,
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where the flimsy materials upon which they formed themselves were entirely worn out; and the human intelligence returning to the doctrine of art, which is the imitation of Nature, began the work anew, studied the principles of the ancients, and applied themselves with diligence to a representation of the human form divine.

This same mode of study has produced a new and better school, which promises something like a just emulation of the best days of Greece, in the works of that distinguished sculptor Mr. Canova, and some other sculptors, both natives and foreigners, in Italy.

The French nation, from its vicinity and intercourse with Italy, as well as from the friendship which the early kings of France cultivated with the emperors of Constantinople, always preferred a taste for fine art in that country, and supplied the means of its improvement, both in painting and sculpture. The large collections of fine Greek manuscripts, with their numerous beautiful illuminations, wereimitated by the French painters, and the nearness of the countries to each other, enabled the French artists to study sculpture and architecture in Italy, as well as the kings of that country to supply their great public works with architects and sculptors from Italy also. In the reign of Francis I., Leonardo da Vinci, Benvenuto Cellini, and Primaticcio, laid the foundation of a school of fine art, similar to that in Italy, as improved from the lately discovered Grecian works. The natives, who distinguished themselves most immediately after this period in sculpture, were Pilon, Counin, and John Gonjon, whose bas reliefs on the foundation of the innocent deserve admiration and praise. In them is an union of the elegance of Raphael's school, with the Grecian purity and delicacy. The genius and abilities of the people, added to national munificence, have kept up a respectable school of sculpture in France till the present time.

Whatever has been done in painting and sculpture in Spain, was also derived from Italy. The native powers and virtues of the Germans, which have contributed so largely to modern improvement in arts and letters, have not been deficient in the art of sculpture. Our present limits and object will not allow us to produce many examples; therefore we shall mention one which would be honourable to any nation, in any period. The monument of the emperor Maximilian, father of Charles V., stands in the church of St. Anthony at Innsbruck: it is in bronze, and was made by Alexander Collins of Mechlin, the sculptor. The idea of this monument is as extraordinary as the effect is pathetic. Maximilian lies in his imperial robes upon his tomb, elevated about five feet from the ground. There are, at the distance of two feet from the tomb, marble steps about two feet high. On one step stand eight colossal statues of his illustrious relations; and on the opposite step as many more facing them. They represent distinguished royal persons from the time of Godfrey of Boulogne, of whom he was one. The spectator is awed by this silent and imposing assembly, who stand in striking attitudes and solemn grief by their relation. The actions are bold and forcible; the armour is rich and elegant in the highest degree; but it may be objected that the ladies have something of muscular heroism in their characters.

There are several other fine statues in bronze, of inferior dimensions, representing German princes, in the same church. There is also a most noble monument by this artist in bronze, representing St. George, with one foot on the dragon, which he has just slain.

England, like the other nations of Europe, chiefly derived her arts and letters from her Roman conquerors. Altogether she is not without her obligations to Christian Greece as well as ancient Greece, for the arts and learning of the different ages. Those which were called Saxon architecture and sculpture, were in fact only barbarous imitations of the proved Roman arts. The Norman architecture and sculpture of this country were likewise an imitation of Roman art; but through the more diffused medium of the Norman French, subsequent improvements in the revival of arts were derived more or less remotely from Greek or Italian affinities; though, in justice to the genius of the English, it must be acknowledged that their progress in the art of sculpture, down to the Reformation, kept a respectable pace with their neighbours on the continent, as may be still seen by the sculpture on the west front of the cathedral of Wells, completed in the reign of Henry III.: in Exeter, Litchfield, and Salisbury cathedrals, but more especially in the sculpture in Henry VIIIth's chapel of Westminster Abbey: in also reliefs of scripture subjects, monumental sculpture, and figure statues, to be seen in different ecclesiastical structures throughout the kingdom. From the time of the reformation, when painting and sculpture were expelled from the native genius of the country, and left entirely without employment, and wherever painting was required for the decoration of palaces, or sepulchral sculpture for the churches, foreign artists were employed, and, with little exception, supplied the country with a degeneracy of French, Italian, or Flemish art. The belt of the foreign sculptors who have been employed since that time were Cibber, who executed the statues of Raving and melancholy maidens on Bedlam gates, the bas relief on the pedestal of the London column, the greater part of the kings in the Royal Exchange, and a multitude of other statues for different buildings in various parts of the kingdom: Roubiliac, who executed several monuments for Westminster Abbey, with much labour and attention to common nature, the compositions of which, however, are either conceits or epigrams, and the parts too often mean and vulgar. Scheemacher executed some of the statues on St. Paul's, and the bas relief in the pediment; but he is not distinguished for pre-eminence and ability.

Since the establishment of the Royal Academy, and the frequent employment of the sculptor's talents in public monuments, the art has been practised by natives, whose own industrv, studies in Rome and foreign countries, and the zealous exercise of their profession, have raised works equally creditable to the country and their own talents. Mr. Bacon's works have been much admired. Mr. Banks has left statues and baso relieves which might be ranked with some of the best works of antiquity: and some of the public monuments by English sculptors of the present day, might be compared with advantage with the ablest productions of the same kind on the continent.

In the general treatise on an art, we cannot pass over in perfect silence the productions of a great empire which has pretended to the highest antiquity in its cultivation; the ingenuity and beauty of whose finer manufactures and more delicate works have claimed universal attention, and have been admired and collected by most of the curious. The Chinese sculpture must be noticed; though, from the productions we have seen in Europe, and from the fact authenticated inquiries, we have great reason to believe that such of their paintings and sculptures as can lay any just claim to those titles, have received but little of their charms from European communication. There is great reason to believe that their smaller models and bronzes were improved from a very barbarous state. Among other branches of knowledge by Catholic
mansionaries who went over in the fourteenth century, their arts received a further improvement from the learned and ingenious Jesuits who visited them in the beginning of the seventeenth century; and again in the beginning of Louis XVth's reign, sixteen Chinese in the city of Paris were instructed in the European arts of designing, light, and shadow; optics, colour, and perspective; since which the painting and sculpture of China have become more nearly allied to the European practice of those arts than ever. These facts are attested by the known attainments of the several missionaries who have visited China; by the testimonies of the bolt writers who have written on that country; by the representation of European head-dresses and fashions in their works; and by Chinese subjects drawn and engraved by Jesuits who were resident in that country, and whose art of designing flew that the Chinese artists, of the same ages, formed their school of art upon the works of these men.

Motives for the Employment of Sculpture in Greece, and the Encouragement given to the Art.—The chief motive for the encouragement of sculpture in Greece was religion, which induced the several states and independent individuals to work with each other in employing the choicest talents of their countrymen for the production of the most beautiful and approved works, to adorn their temples and public places in honour of the different divinities, which they believed to be their more immediate patrons and protectors in that state of polytheism. This species of piety became more popular; and its effects became more general from another motive, the relation which most of the powerful families of Greece claimed with the several divinities and heroes, by dedicating their own genealogies from some one or more of them.

In a state of society where the families of all lived nearly in the same habits of simplicity, because the luxury and magnificence of private life created a jealousy among fellow citizens, likely to terminate in most tragical consequences; in this state of society the more wealthy employed their stores in building and equipping ships, raising troops of horse or foot, increasing the temples, placing in them magnificent tripods, beautiful statues, or other costly gifts; in strengthening the walls of their cities, and all such public works as provided for the safety, or increased the fame of their country.

Patriotism, in addition to religion, was another motive, not much less powerful than the former, for the encouragement of sculpture in Greece. The Olympic games, instituted at an early period in that country, encouraged the trials of skill to the utmost extent, which educated the human frame in the greatest habits of strength, activity, and promptness of exertion, for all the most useful employments of peace and war. They also publicly exhibited the finest forms and examples of personal beauty to the assemblies of Greece at the Olympic exercises, and by that means enabled the philosopher to analyse, the physician to enquire and deduce, the artist to form principles from nature for the perfection of his works, and the generality of spectators to judge of the phenomena of health, strength, activity, proportion, and pleasing parts of the human form, among those who were engaged in the exercises, and rendered themselves, by their prowess, ability, and fortitude, the objects of universal admiration and applause.

The immediate honours bestowed on the victor was an herbal crown, rendered equal in value to the richest diadem, by the approbation and congratulation of the whole state. The victor was likewise honoured with a brazen statue on the very ground where he had thrown himself properly qualified to be a defender of his country in war; and for prudence, activity, and fortitude, a valuable citizen in time of peace; and if any one obtained the crown three times in these exercises, he was not only honoured with a bronze statue on the spot, but that statue was made an exact portrait of him, not only in the face, but every part of his body and limbs. These general remarks on the religion and public institutions of Greece will sufficiently account for the immense sums expended in works of sculpture, and the prodigious multitude of these works produced in that country.

The statue of the Olympian Jove, made of ivory and gold by Phidias at Elis, was paid for by all the spoils taken from the Persians. If we might calculate a small part of this statue, only by the price of ivory at present, the covering of ivory only, which must have been perhaps the least article of expense in it, without the workmanship, could not have cost less than 2000. There were 8000. Hefting of gold in the statue of Minerva made for the Acropolis, besides the ivory, workmanship, and all other expenses.

We are beside told of another statue of the size of nature, valued at 10,000. gold, and of another, the Venus of Gnidus, which was refused to be given up for the payment of the debts of a whole city; and thus we cannot wonder that works produced from the noblest motives, and rewarded by the highest gifts that man could bestow on man, were of a supreme excellence, which have commanded the admiration and interest of all succeeding ages.

Concerning general Beauty in the ancient Works of Sculpture.—After a general view of the motives and circumstances which produced these works in public, we shall next enquire into the more private motives, attainments, and qualities which enabled the artists to produce such works, and here we must remember the observation of Socrates, that the dispositions of the mind may be expressed by the forms of the body; and as Socrates himself was a sculptor of no mean excellence, and a philosopher of the highest character also, what he says upon this subject cannot too carefully be attended to; and indeed it applies to the progressive improvement in this art from the most rude representation of the human form to the most perfect; and to the separate consideration of the mind and its qualities, by which the human form is animated.

As it has been observed in a former part of this article, the earliest attempts to represent the human form in all nations are almost equally barbarous and imperfect; we shall, therefore, begin our description of Grecian imitation, when, by a more general comprehension of science, her imitation of its archetypa was superior to such barbarous primitive attempts in general.

These attempts and their improvement have always succeeded best in those parts of the human figure which are nearest to our view, or present themselves to us most striking and important. In such representations, the features of the face are more accurately represented than any other part of the figure. The body, the arms, and legs attract the most general and less distinct notice; therefore the first improvements in the earliest statues of Greece remaining, approach only to something like a more tolerable proportion, express the arms in general meagre long forms, with the shoulders somewhat more round and prominent, and the fingers separated by nearly parallel channels. The body is distinguished by the paps of the breast, the line of the ribs, and the navel. The legs and thighs have little more of variety in their forms than a small knee-pan, and some projection of the calf of the leg, with feet and toes formed with as little attention to nature as the hands. In this state of improvement little variety of action will
wills conically be expected. Sufferings, illnesses, running, or
breathing, will nearly comprehend the whole extent of the
artist's activity in a single figure or his relief. In the late
state of improvement it is no wonder for experts to experi-
en any discrimination between the characteristics of gods and men; they were
all represented by the same forms: and Jupiter, Hercules,
Mercury, and Neptune were only known to each other by
the thunderbolt, the bow, the caduceus, or the trident.

According to the general improvement of taste, as the
observation of the surface of the heavenly bodies, the
divisions of land, and marking out the plates for building on
the ground, had introduced some practical application of geo-
metrical lines and figures, which must preclude observations
on the balance and motion of bodies; and as something more
like anatomical knowledge was obtained from the facsimile
of animals, or observations on the dead left on the field
of battle, or a human skeleton casually found; as these affl-
fances afforded light on the structure and movements of man;
the artist, applying principles as he became master of
them, copied his example with more accuracy, and repres-
tated the parts more in detail.

The next state of improvement we shall observe is a nearer
copy of ordinary nature, in which the hair, however, is
straight, the eyes full, the eyelids gently marked, the bottom
of the nose and the line of the mouth curved upwards at
the corners, giving a kind of smile to the face; the breast
a little more prominent; some indication of the muscles of
the abdomen by cross parallel lines; the hollow in the
hollow behind, and the general form of the blade-bones, more
natural; more distinction between the breadth of the upper
and lower portions of the thigh; the general forms of the
feet and hands, more accurate according to their angles and
divisions; and the biceps muscle marked in the arm, and
the elbow. Specimens of these different steps of improve-
ment may be seen on the Greek painted vases, particularly
those in which they have black figures on them. There are also many
small bronzes, which are demonstrations of the fame pro-
gress of improvement.

In the age of Phidias, when geometry had made con-
siderable advances, as we find by the writings of Plato, when
anatomical researches had been prosecuted with success by
Hippocrates, in addition to the advantages of seeing the
human figure in more perfection, from the establishment
of regular government, the more regular supplies of agricul-
ture for living; and other improvements in civilization most
favourable to the beauty of the human figure; — with these
advantages, the human figure was represented with the dis-
tinction of youthful beauty and elegant proportion, as well as
with the strength and agility which indicates a rather spare
diet and great exercise, of which the statue called Theefes
in lord Elgin's collection is an example.

It is remarkable, that personal beauty of countenance and
elegance of form frequently occur in works about the time the
Parthenon was built; although in the same works there is an
evident want of proportion and perspective in some of the
parts, with the most careful confusion of the drapery. But
we must remember that the course to excellence is progressive,
even to the greatest genius, and that all arts are perfected by
the accumulation of discoveries and long practice.

Having mentioned the first dawns of beauty in Greek
sculpture, this will be the place for some enquire concerning
that beauty which so eminently distinguished their best
works. A people long acquainted with the naked human
form, and the exertions of the human figure, would practi-
cally learn, that a particular make was favourable to a parti-
cular exertion, as long legs were favourable to walking and
running, broad shoulders and a full head were important
by this. The observed action of the parts would affect in
allowing the more convenient form of all other parts of
the body and hands for strength and grace, and the propor-
tions into the animal economy of the body, and the cir-
cumstances relating to health or hisiency, in the whole or
the parts, according to outward appearance. All this
would affect the artist in the determination of what he should
choose and what he should reject in his creation. The
bloom of youth, the prize of manhood, and the parts best
formed for all the uses and exertions of the body, would
become his standard example for the most fortunate attempts
of his art; and having proceeded thus far, he would be
able to more readily distinguish the usual character of
youth and manhood, the venerable form of advanced age, and
the graceful forms of female elegance.

But other distinctions and other characteristics still remain
in the artill to become acquainted with, to qualify him for
the extensive representation of gods, demi-gods, and heroes,
human creatures and infernal beings; and this could not be
done by the simple representation of common forms and
common expressions, such as controllingly proceeded themselves,
but by a selection from nature of whatever was most excel-
lent in form, accommodated to the highest qualifications
mind, to represent the higher orders of beings, and their opposi-
tions in those which are below humanity, and partaking of
animal and infernal nature.

More form, however harmonious in its proportions, or
beautiful in the smoothness and perfection of its boasted
surface, without the expression of sentiment and action, is but
bad, and no other than a corpse which has been quitted by
its immortal spirit; therefore the artist's great and most im-
portant interest, after he had obtained the geometrical forms
of body, was to watch the strongest and decided emotions
of mind in order to give animation to his works. It was
his concern to investigate and represent decidedly the
strongest affections, contemplation, parental, local, and
sexual; the sentiments of piety and religion; the incidents of
passion in their different degrees, whether of love or hatred; for
by these means only his works fastened on the kindred effec-
tions of the spectator, and obtained his esteem.

The Greek artists who gave these first mental improve-
ments to their works, sought for nobility of sentiment and
distinct characteristics of gods and heroes from the writings of
Homer; illustrated by the speculations of Pythagoras and
Plato upon the essential qualities of divinity, in their omni-
potence and extent, and the limited powers of humanity,
derived and finite.

From these they learned that all bodily perfection and
beauty were derived from mental beauty and perfection;
that as forms which expressed healthful bodies and their parts
were the most perfect, as far as form and animal power ex-
tend; so the expressions of the most perfect mental qualities
added the most perfect animation of beauty to those forms,
and gave the most perfect characteristics of magnanimity, jus-
tice, benevolence, and dignity to the faces and figures of their
divinities, and in an inferior degree to their heroes: and
whatever perfection of face or person they would express,
they found could only be done by the sentiment of this vir-
tue and beauty of men by which it was immediately caused.

Jupiter, the chief of their gods, was represented in the
most perfect human form; powerful in his make, benign in
his countenance, and of that mature age when wisdom is
united to the full development of the bodily powers. His
full beard and abundant flowing hair are collected with the
gratefully dignify the human head is capable of; and the hun-

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like hair and forehead decide the magnanimity of the character. The broad chest, the strength and proportion of the limbs, the whole solemnity of the person, at the slightest view, announces, according to the Homeric expression, the father of gods and men.

The next divinity in dignity to Jupiter is Apollo, whom we can readily believe to be the exact representation of his father, in the dignity of youth; his features are his father’s in youthful bloom and beauty; the form of his body and limbs partake of his father’s strength in youthful lightness and agility; his countenance is adorned by his flowing locks, according to his age, more light and varied than his father’s; his sentiment and employment are also suited to his age and more limited offices. Jupiter, seated on his throne, has little action or corporeal employment; his mental energy regulates the universe by his nod; and his single exertion is the discharge of his irresistible thunder. Apollo is seen in love, in meditation of immortal poetry to accompany his lyre, destroying Python, meditating the cure of diseases, or inflicting death by his arrows.

Bacchus resembles his brother Apollo so exactly, that they cannot always be distinguished one from the other; yet he frequently partakes of a more feminine nature, according to the Orphic description of his double sex.

Mercury, with the same beauty as his brother, and the same youthful resemblance to his father, has a more athletic form, approaching to heroic, as being the patron of gymnastic exercises, and messenger of the gods. His hair is short; he wears a small round hat or pafuas, which is winged; he has also wings to his ankles.

Mars differs little from Mercury in form or countenance, excepting that he is sometimes bearded, and frequently wears a helmet upon his head, or is drest in complete armour.

Neptune resembles his brother Jupiter, but his hair is more disturbed, and he is in general entirely naked.

Pluto also resembles Jupiter and Neptune, but his eyes are more flaring and spectre-like; his abundant hair falls more over his forehead, and gives a greater gloom to his countenance; he is clothed in a tunic and pallium, holds a sceptre in his left hand, and is attended by the triple-headed dog Cerberus.

The goddesses are drest distinguished from each other than the gods. The height of female beauty, in dignified figure, with noble mien, is common to them all.

Juno is represented with a regal diadem and sceptre, generally clothed in the tunic and peplum, or large veil; her countenance is lofty; her eyes and lips are full; her hair is turned up, and tied in a knot behind in simple majesty; her veil is sometimes over her head.

Minerva is distinguished by the serene austerity of her countenance, and the wisdom of her character. She is armed with a helmet and aegis, and bears a spear in her hand, but in other respects is drest like Juno.

Venus is distinguished by her tender softness and graceful action; she is represented as parting her hair and rising from the sea, modestly covering her person as returning from the bath; or drest in a light and thin tunic or veil, and engaged in those concerns of the toilette to heighten or preserve beauty. She is frequently attended by Love, who is represented as an infant divinity.

Vesta and Ceres have much the appearance of Juno; the first distinguished by her lions and myrtle drum; the other bears corn.

Diana has her hair collected on the top of her head; like her brother Apollo her tunic is Lucinæt, not reaching lower than her knees, its length being shortened by the tying of her zone; she wears buxkins, and is generally running, or in an attitude which relates to the chase.

Hercules, the first of their heroes, and who in early times was one of their greatest gods, was not represented with that irresistible strength and muscular force in the time of the first Greek sculptors, in which he was represented afterwards, and he changed his arms as well as his figure, for before the time of Eichylus his arms were a bow and sheaf of arrows; but as his labours became such as required more natural force, according to later mythologists his bodily powers were increased, and his arms changed from the bow to the club. His strength is proverbial, and his powerful form known to every one, by his numerous representations in sculpture and painting. It is well remarked by Winckelmann, that in the likenesses found in the antique statues between the faces of Hercules and Jupiter, there is a character of the bull given to the head of Hercules, by the short hair and the bull forehead. As a proof that this mixture of the bull in the head of Hercules is not fanciful, there are busts representing a mythological modification of the Herculean character, with the bull’s ears, horns, and dewlap.

We shall describe the fawns as one class, companions and minions of Bacchus; in this class we shall mention the Sileni, the foifer-fathers or nurses of Bacchus, one of which is a dwarfish figure, with a round belly, fat limbs, a somber merry face, a bald head, a long beard, undulated and divided; his body is more or less covered with hair. This Silenus is also occasionally called Ampelus. The other Silenus is a well-proportioned elderly man, rather a spare figure, with a philosophical countenance, and a head and beard bearing some distant resemblance to Jupiter. Both these Sileni are crowned with ivy, and have pricked ears.

The fawns have round faces, short noses, and a grinning expression; their hair is short, thick, and like that of a goat. Their bodies are strong, their muscles tender, like those of wild animals, and suited to the elasticity of their actions; they have short goats’ tails.

The satyrs have goat’s legs, their bodily conformation like the fawns, they have pricked ears, sometimes long goatish beards, and frequently faces resembling rams or goats.

The Titans and giants are Herculean figures to the waist; some of them have the lower limbs human, and corresponding to the upper part of their figures; others from the middle end in serpentine folds instead of human legs. Their heads have an Herculean character, fullen and terrific; there are serpents in their hands, perhaps relating to their infernal punishments.

Ocean and the divinities of seas are all Herculean figures, in countenance resembling the Saturnian family in youth or age; they are generally naked, though some are veiled downwards; and Ocean himself has a veiled head. The inferior divinities of the sea, as the family of the Tritons, and their various divisions, have hair, faces, bodies, and arms like the fawns, but with finer hair and gills, their lower halves ending in the tails of fishes, horses, bulls, &c.

The nymphs of mountains are robust figures, with solemn countenances, flowing hair and beards, crowned with pine, oak, &c.

The nymphs of Earth and Ocean are beautiful entire female forms, with hair sometimes flowing, sometimes tied in playful attitudes. The marine nymphs are frequently collected in affectionate groups, and employed in stretching out their flying veils to the wind.

The Three Graces are the beautiful female companions and attendants of Venus; they are represented as three beautiful
beauteous virgins, in the flower of youth, embracing each other.

The nymphs of Diana are habited like their patroness.

The Furies are handsome, but with a terrific expression of countenance; their hair dishevelled, wriggled, and with two small serpent-like heads, and on the tops of their heads; their dreads are shorn nearly short, and their limbs like Diana, and they have snakes and torches in their hands, to torment the wicked.

What has been said is sufficient to convey a general idea of the human figure in Sculpure, and to show what the sculptor should observe when the human figure is intended to appear in a sculptural work.

Concerning the Beauty of Parts in the Human Figure, its Balance and Motion.—The ancients have observed that the human figure is inscribed within the sphere and the circle; the square, when the feet are close together, the posture upright, and the arms extended in a parallel line; when the length from the extension of the opposite finger is equal to the whole height, from the crown of the head to the seat of the foot; the general observation leads to the determination, not only in the position of the body and limbs, but to the figure, by geometrical lines. The human figure being laid upon its back, the arms and legs, extended like the spokes of a wheel, may be inscribed in a circle, the centre of which is taken from the navel. When the figure stands upright, equally poised upon both feet, the centre of gravity falls in a perpendicular line from the gutters between the two ankles.

When the figure sits upon one foot, the centre of gravity falls from the gutter, perpendicularly on the bottom of the tibia bone of the leg on which it rests.

If the figure is in equipoise, the centre of gravity falls from the gutter between the legs.

In advancing from that point before the leg, and in swift running, it is at every interchange of step far before the foot which is next to be placed on the ground.

The figure, in bending sideways to balance itself, must still retain an equality of weight round the centre of gravity, to preserve its balance by stretching out the opposite leg or arm.

For further satisfaction concerning the motion of the human figure, consult Borrellus de Motu Animalium; Covent on the Muses; and Leonardo da Vinci on Painting.

To obtain a more positive idea of the form of the human figure, as well as its balance, together with the breadth of its parts, a reference to a geometrical figure is particularly useful. For instance, view it in profile, and we shall see that its column or general mass is not perpendicular, but consists of undulations, through the middle of which we may suppose the centre of gravity passed perpendicularly downwards. The head is thrown forward over the neck and the breast, to serve as a counterbalance with the breadth against the projection of the shoulders; and the projection of the eyes counterbalances that of the abdomen; so that the back-bone beginning from its uppermost joint, which immediately supports the skull, after being a little curved inwards, though nearly straight for the first seven joints, afterwards forms a bold curve outwards between the shoulders for the next twelve joints downward to the hips, partaking in the same hollow with the ribs, to contain the organs of the thorax.

The projection of the thighs in front is opposed lower down on the opposite side by the projection of the calves of the legs; not only for a counterbalance, but also for counteraction; and for the same reason the bending forward of the body from the head downward is determined by the length of the feet, and its solid weight for support.

The general view of the head in front is egg-shaped. The terminal character of the profile is that of the nose, little differing in straightness from the line of the forehead, the lips and chin making small projections, each about a quarter of a circle. This is the most general and simple idea of the human face, and that principle upon which all of the human ideal heads are formed. Force and passion are deviations from this principle by the application of curves in the outline more or less bold, and the face of infancy is determined by one portion of a circle forming the forehead, and another the cheeks, with a small hole between.

In the ancient sculpture, the most perfect necks for youth, beauty, and strength, are nearly circular, like the portion of a column. The breasts are elevated and broad; the line of the ribs is nearly a portion of a circle gently expressed, a little below the nearly straight line, which terminates the breasts above. The abdomen has a gentle curve below the pit of the stomach to the navel. The lower muscles of the abdomen to the os pubis are a little swelled and evenly plain. The sides of the ribs under the arms are marked with gentle divinations diagonally, tending downwards in front, which indicate the ribs and muscles which immediately cover them. The back of the trunk between the neck and the back is a curve outwards, as has already been decided; and the spine, or back-bone, which is the pillar of support to the upper part of the body, the arms, and the head, having behind an indentation between the two rounded portions of that back, on which the blade-bones and their muscles form a gentle and rounded flattened swell immediately below the neck. The commencement of the arms, as they are affixed to the body, has a hollow and rounded form, in the upper part of which is united the head of the upper arm-bone, to the end of the collar-bone before, and the blade-bone behind; the arm, beginning at the separation from the trunk and continued to the wrist, is a diminishing cylinder. The upper arm finishing at the elbow is broader, and sideways flatter than the lower arm. The lower arm is flattened the contrary way, and less than the upper part of the hum. The wrist is a rounded flattened form in youthful bodies full of flesh. The hand is hollowed within, and a little rounded without. The thumb extends to the end of the first joint, of the middle joint of the first finger, the middle finger is the largest; the next finger outwards is next in length; the finger between the thumb and the middle finger next in length; and the little finger shortest of all: they are less in bulk as they are shorter, and diminished downwards cylindrically. The male hand and finger has more of breadth and fatness; the knuckles are more square and defined even in youth. The female hand is more rounded and fleshly; the fingers are more perfectly cylindrical and tapered, the knuckles less decided, having little more distinction than gentle hollows in the more constricted portions of those knuckles, which unite the fingers to the hand. The nails in men are more squared, in women more rounded, long, and delicate.

The bones of the body are in the side view considerably curved in from the ribs, and project again in a gradual obliquity from the bottom of the ribs to the bottom of the nates. In the front of the figure, the trunk terminates at the os ilium or baron bone, which is marked immediately before the projecting muscles, which terminate the line of the
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From the bottom of the os pubis to the bottom of the patella, is the same length as from the bottom of the patella to the sole of the foot, two heads each; but we must observe, that the ancients generally allowed half a nofe more to the length of the lower limbs, exceeding the length of the body and head.

The arm, from the top of the humerus to the bend, one head and a half; and from the bend of the arm to the first knuckles, the same.

The female figure should not be too tall as the male. The shoulders and loins should be narrower, and the hips broader.

The proportion of the Hercules Farnefe and the Torso Belvedere are nearly one-fifth more in breadth than other statues.

But the ancients varied the proportion according to the character and age of the perfon. There are examples of the Silenus, and Hercules also, when he partook of the fame character, exceedingly dwarfish, not exceeding four or five heads in height; and there are examples on some of the Greek vases of figures nine or ten heads.

Draperies.—To introduce our observations on the draperies of the antique statues, we will first enumerate a few of those garments in which they are most generally clothed; and we will begin with the largest and coarsest woolen garment, called the pallium, which was a large piece of square, or taurish cloth, perhaps about seven feet long, but not so wide; this was generally worn by being folded over, perhaps one-third of the breadth; one end applied to the left side of the body, carried under the right arm, and thrown over the left shoulder in front; it formed broad and simple mafies before and behind, with a few bold and distinct folds, which left the body and limbs well accounted for beneath. It was, according to the convenience of the wearer, thrown in a variety of different manners: sometimes one arm was wrapped in it, sometimes the other, and sometimes nearly both; all the statues of philosophers, excepting the Cynics, are clothed in this manner.

There were other garments nearly of this kind, which are very commonly seen; particularly the manly peplus. The figures of Jupiter and Hercules are sometimes seen wrapped in the peplus, which appears to have no other distinction from the pallium, than that it is made of a finer texture, consequently produces fewer and more numerous folds, and its corners are sometimes ornamented with taffels, or knots.

The chlamys seems to have been a finer and lighter woolen garment than the peplus, much less, but, like that, of a long square; this garment is particularly appropriate to youthful heroes, and is seen on the colossal statues of Monte Cavallo, the Meleager, and many youthful heroic figures on Greek vases, and the young heroes in the frieze of Horfemen in the Parthenon at Athens.

The tunic, or kitos, was an under garment, also worn by men in early times; this had no sleeves, and hung over the left shoulder, leaving the right shoulder entirely bare, not to impede action; in after times it had short sleeves, was full in the body, and when not girded, hung down below the mid-
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The drapery, or web of drapery, such as that of the Flora Pomona, threw all the forms of the body and limbs with nearly the same distinctness as if they had been laid open, at the same time that the gentle and curving folds, upon a near examination, revealed the beautiful forms of the body by a variety of lines tenderly assimilated with the drapery, in such a manner as reduces the spectator to believe that the highest motion of the body would produce a different, and equally pleasing, effect in the folds of the drapery.

What has been said concerning drapery comprehends the principles of the subject; it was the intention in the first instance to produce a noble breadth by their drapery, as well as the figures, and to work out their most illustrious characters. In their more delicate characters they contrived the most beautiful forms by the most graceful display of lines in the drapery; and in all their classical statues they adorned the forms of the naked figure by perpendicular, circular, pendant, or zigzag folds, contriving the forms and adding quantity, but leaving the figure and its position perfectly intelligible.

In the figure of Bacchus in violet-leaf, the flying drapery becomes peculiarly ornamental; veering from the figure in undulating waves, which at its edges and extremities play upon the air in bulder forms, like the extremities of the poppy-leaf.

The Practice of Sculpture.—The first operation of sculpture, like that of painting, is design. The sculptor first makes his idea evident by a sketch or drawing; he then makes a small model, generally in clay, to try the effect of his lines, folds, and light and shadow, as well as the sentiment of his statue, or composition; but if the work requires the utmost accuracy and perfection he is able to give, he makes a model of the size in which the wood, marble, or bronze is to be executed.

He models his figure first naked in its just action and accurate in its forms; he then lays on his drapery either from studies made after the living figure, or drapery laid for the purpose on a clay figure, or manikin.

The clay model, if large, must be supported by a framework of iron; and the masses of clay may be kept together by a number of small wooden crosses attached to the iron frame-work, by wires of different lengths dispersed in different parts of the clay. This method is used by Mr. Canova, the celebrated Venetian sculptor.

The tools used by the modeller are made of wood, ivory, with ends pointed, rounded, square, or diagonal, with which he forms his models; marks out the hollows and dark parts; and does whatever he finds impracticable to perform with his fingers only.

When the clay model is finished it must be moulded and cast in plaster; which cast must also be well supported and secured by bars of iron well cemented, to prevent the rust of the metal from penetrating through the cast.

To copy the model in marble is performed in the following manner. A number of little black points must be marked upon the model, in every principal projection and hollow, to give the distances, heights, and breadth, sufficient to copy the marble with the greatest exactness from the model. The ancients performed this, by considering every three points on the figure as a triangle, which they made in the marble, to correspond with the same three points in the model,
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model, by trying it with a perpendicular line, or some other fixed point, both in the marble and the model.

The moderns perform this operation in another manner. After, by taking rough measures, they have found that the block of marble is sufficient to make the statue equal in size with the model, they then fix it on a base of flone, or a strong wooden bench, called a banker; in the front of which is a long strip of marble, divided into feet and inches. A strip of marble, divided exactly in the same manner, is placed in front below the model; and a wooden perpendicular rule, the height of the whole work, which is capable of being moved from the strip of marble or scale under the model, to the strip of marble or scale under the marble, at the workman's pleasure. This instrument being first placed upon the scale of the model, and the exact distance being taken, from its perpendicular, we will say, to the point at the end of the nose of the model, and the perpendicular rule being transferred to that scale on which the marble is placed; the workman cuts away the marble from the perpendicular rule at the same height, till he has arrived at nearly the same depth that the point of the model's nose was from the rule; and by this means, he finds the point of the nose exactly where it should be in the marble. He proceeds in the same manner with all the other parts of the figure; for example, the top of the head, the chin, the shoulder, and every other part of the body and limbs; until, by cutting down the marble at the same height and depth from the perpendicular line of the rule that he defines to transfer from the model to the marble, he finds a corresponding point to that he has taken from the model; and so goes on until he has obtained the general proportions of the whole work.

When this is done, the sculptor proceeds to work over his statue with a flat-ended steel tool, called a chisel, whose flat square end is about five-eighths of an inch broad. In the naked parts of the statue, and wherever there is a flat surface, he proceeds in this manner: for instance, we will say, upon the breast of the figure, he cuts away the rough surface from a given point in a straight line, to another given point at some distance; he then cuts away the surface from one given point to another, exactly parallel to the course of his chisel, as he worked on his statue; he then cuts the marble in a line at right angles with the former direction of his chisel. He continues to work over the surface in the same manner, continuing to cut it away in lines parallel to each other, leaving the space of about one-eighth of an inch between each course of his chisel; he afterwards cuts away the remaining rough surface of one-eighth of an inch between each two courses of his chisel; thus obtaining a beautiful flat surface to his work, which can be done by no other means, and may be afterwards varied with the curvatures and indentures of smaller parts at his pleasure.

This method of cutting the flone is followed, as much as possible, in all parts of the work; that is, as much as all the varieties of outline and hollows will permit.

When hollows are so deep or intricate, that they cannot be cut out with small chisels struck by the hammer, drills of different kinds are used to produce the rough hollows, which are afterwards finished with the hammer and chisel, or by long tools fixed in wooden handles, used by the hand only, without the hammer.

A particular dexterity is requisite in producing the different characters of the hair with the chisel, to make it look light and soft, whether curled, crisped, or plain; and this may be done by the hand of the practiced sculptor, with nearly the same effect as it can be by the painter, in laying on his colours with the pencil.

The finishing of flesh in imitation of the hues of muscle, the apparent pliability of the softer parts, the greater or lesser durability of tendons and bone, may also be represented on marble nearly to deception; but then the sculptor must be well acquainted with the structure and appearance of the parts he represents, and accurate in copying the object of his imitation. To inform the mafs with life and sentiment, whether it be of marble, bronze, wood, ivory, clay, or wax, is the very end and purpose of imitative art.

The last finish of marble, in the modern practice of sculpture, is performed by the use of rasps, and afterwards of files. The belts rasps for sculpture are those made in Italy; the teeth of these rasps being cut more sharply than those made in England, at the same time that the ends of these rasps and files are capable of being bent in any form, according to the use for which they are to be employed.

When a piece of sculpture is required to have an exceeding smooth surface, the pumice-flone is used after the file; and sometimes the whole surface is rubbed or ground carefully over with small pieces of grit-flone, accommodated to the various forms of the surface, as to flat spaces, rounds, and hollows of different depths. But the hair, in all cases, must be finished with the tool; and for this purpose, the edge of the tool must be sharpened with great accuracy and acuteness; and if it is required that the work should be very highly finished, the last edge of the tool must be given by an oiled Turkey-flone.

Chisels may be sharpened, for the different kinds of work, either on one side, or on both sides, horizontally, diagonally, circular, or pointed.

The sculptor ufed large square four-footed strong tools, with tops which turn round upon little balls of bronze iron, on which he places the marble flate on which the sculptor works. His tools are steel chisels of different sides and lengths; their ends being from an inch broad, and diminishing in succession, till they become perfectly pointed. These are worked with an iron-headed hammer, weighing from two to four pounds, according to the heaviness or lightness of his work. The first tools used in wearing away his marble are strong steel tools, sharpened nearly to a point; which, being struck with a heavy hammer obliquely, knock off the waite marble in much larger pieces than a broader pointed tool would do.

The practice of the sculptor also requires the frequent use of the flare and compasses, as his own ingenuity may direct.

There are some few fragments of marble statues, which have been found in different parts of Greece, especially where the works of sculpture have chiefly flourished, as Athens, Ægina, and Corinth, which appear to be the remains of very early attempts in this art; perhaps in an age when making the proper tools was either not known, or during the infancy of their invention. From these specimens, the edges of the tools, and the manner of using them, appear to have been equally imperfect: the course of the tool is infirm, indirect, and ragged; the surface it paied over, irregular. In the naked figure, the muscles are little determined, and the forms confused by the unpractised manner of working. In the draperies, the edges are undefined, and the hollows are few and shallow; a natural consequence of the workman's want of power over his material; and therefore, of his desire to produce his idea in the grofs, because he knew his incapacity to render a dainté and perfect detail.

High finishing in marble seems to have been a consequence of working in bronze, for two reasons: first, the working of metals requires a considerable knowledge in the
tempering of tools; and, secondly, the first high finished specimen of remaining sculpture seem to be imitations of bronze statues, from the hard parts of execution resembling that of metal, and the rectilinear wavy forms of hair and draperies. Whether this manner of finishing marbles was first introduced by Dipsas and Scyllis, according to our former supposition, or whether it was practised nearer the most distinguished epoch of art, it is certain that the working of marble with the greatest possible dexterity, such as distinguishing small folds from one another, by cutting the marble to a great depth between them, was practised considerably before the time of Phidias.

In the time of Phidias, it is certain the sculptor used chisels of all the different forms described above, of the most convenient forms possible for their works, and much perfectly tempered; of which we are assured, by tracing the forms of the several instruments in their execution, which is so free and characteristic of the parts imitated as could have been produced by the pen of the painter.

The Laecoon, the Apollo Belvedere, and the Venus de Medicis, appear to have been executed by the chisel only, without the assistance of the rasp or file, though there is, in the body and limbs of the Apollo, some appearance of a smoother surface having been obtained by rubbing with pumice-stone or wet grit-flour. Many others of the finest works of antiquity, statues, groups, and busts, appear to have been finished with the chisel only, and the use of rasps and files does not seem to have been very common in the practice of sculpture, till after the time of the twelve Caesars.

The execution of sculpture seems to have descended from perfection in the same steps by which it rose to it. In the age of Adrian and the Antonines, extreme high finishing was again in estimation; the surfaces were finished with a delicacy of smoothness which almost became a polish; the sculptor tried to make the extremities of his hair fly before the wind, and for this purpose laboured his marble with a delicacy of tooling, and a complication of drilling, that is almost miraculous; and there are examples of hair, so laboriously executed in that age, that the spectator is left in doubt concerning the possibility of paying the sculptor for his work, the time necessary to accomplish the undertaking, and for the instruments requisite to produce his effect. There are many examples of this kind in the portraits of M. Aurelius and Lucius Verus; particularly two colossal busts of these emperors lately existing in the Villa Borghese.

But the extreme attention to a polished surface, and extreme perfection of inferior pursuits, having withdrawn the artist's mind from nobler conceptions and sublime sentiment, he soon descended from the sculptor to the stone-cutter, and lost his distinction even as a mechanic, by adopting such a poverty of workmanship as was suited to his debased pursuits; and the age of Constantine exhibits the sculptor as incapable of following the noble conceptions of earlier times, as of shewing any skill in the mechanism of his art superior to the unmeaning and unsuccessful attempts of a barbarous age.

During the ages of the Roman emperors, when beautiful and expensive marbles were used to adorn their palaces and public structures, when the magnificence of effect was considered without relation to expense, porphry also was manufactured for columns, pannels, and other architectural purposes; it was also occasionally employed in sculpture, in defiance of the extreme difficulty and expense of the labour, of which we shall be enabled to judge from an instance mentioned in Winckelmann's History of Art: he says that a manaf was employed to fashion out a vase in the Villa Albani, the inside of which could not be above thirteen or fourteen inches deep, and eight or nine inches in diameter; he was ten months at work upon this, attending his labour regularly nine hours every day. Such a work as this, in England, as makers are paid at this time, would cost fifty five pounds; the payment of the journeyman sculptor should be reckoned at twice that sum.

There are fragments of drapery-figures executed in this material of fine taste and beautiful sculpture, the labour of which must be excessive; but the two greatest works remaining of this marble are in the pope's museum; one is the larcophagus of Constan dubious daughter of Constance; the other of Helena, his mother; which last is of enormous dimensions, and covered with alto relief of soldiers on horseback, and the heads of the emperor and his mother, angels, &c. Many parts of the alto relief on this larcophagus were broken when it was removed into the pope's museum, which were repaired by the following process. The pieces of porphry intended for the reliefs were first rudely shaped with a peening hammer, that is, one end of the hammer being pointed, the workman knocked the flume with repeated blows of this point, until he beat off little pieces, when it was reduced to the general form required; in this manner another instrument was used, called a snatching hammer, one end of the hammer being divided into four points, and being worked over with this instrument, the whole of the former very rough surface was made somewhat more regular; after this, pointed tools were used, struck by a hammer, to take off as much as possible the still remaining roughness of the surface, and to make particular hollows more exactly, the workman wearing spectacles all the while to prevent the splinters of the flume from flying in his eyes, which otherwise would blind him in the course of a few minutes labour. The tools for this work are temper, the handle of a razor, and of this more than four or five blows with the hammer before the points are broken. The last process is to grind the surface down with grit-flour and emery, till a smooth face is obtained; the whole being a process of immense labour and expense. The Egyptian obelisks, which are of red granite, with the hieroglyphics upon them, must have been wrought by a process somewhat similar to the manner of working porphry.

Of Wax-Modelling.—Wax-modelling is properly a branch of sculpture, inasmuch as it affords patterns and examples for very numerous articles of fine art in metals; although, from the nature of the material, a wax model of the Greek or Roman times has come down to us, they must have been almost innumerable during the best ages of Greece and Rome, judging only from their small figures of divinities in bronze, of which, perhaps, upon an average, every person rich and poor, might have half a dozen, so that the amount of these small images, from patterns of wax, would be nearly 15 times in number of the population of the civilized world at any one period.

Wax-modelling besides is required for the patterns of all goldsmiths' and chaser's ornamental work upon a small scale. All the fine medals of the popes were copied from small models in wax of the most distinguished sculptors.

To make the best modelling wax, take two cakes of Virgin's wax, break them in pieces, put them into a clean pipkin, and add the quantity of the smallest hazel-nut of Venice turpentine, and about double the quantity of flake white reduced to the finest powder; place the pipkin over a slow fire till the wax is melted, stir the composition together, and it is the best wax which can be used for modelling.

Models of different coloured wax may be made by putting pounded red, blue, yellow, &c. instead of flake white, according to the colour required.
Wax-modelling is performed, like the same art in clay, by pointed instruments of wood and ivory.

Sculpture in bronze and silver is practiced in the same manner by the model as Pliny describes it to have been done by the ancients, and is of three kinds. The subject is either cast from a model, or carved from the solid metal, or chased from a model upon a flat piece of metal, which is best hollow on the one side, to produce the relief, out of which the chased works the intended figure or figures on the other side. The instruments used in chasing are, for small works, a small hammer with a long elastic handle, which gives the blow a quick and artificial force; also chisels and points, something like those used in the sculpture of marble on a smaller scale.

The tools for carving in wood are so universally known to carpenters, upholsterers, and the different orders of wood carvers, that the description of them would be useless.

For further illustration of this article, the reader is referred to the engravings which are distinguished by the word Sculpture. These consist of select specimens of the sculpture of different ages and nations; particularly the finest examples of Greek and Roman sculpture.

SCULTEUS, or SCHULZ, John, in Biography, a distinguished surgeon, was born in the year 1595 at Ulm, where his father was a water-man. The latter was enabled to afford his son a good education, and sent him to Padua, where he studied medicine under Spigelius, and took the degree of doctor in philosophy, surgery, and physic, in the year 1621. On his return to his native city, he was admitted into the college of physicians in March 1625; and for twenty years he practiced his profession with great reputation. Being sent for to Stuttgart, to administer professionally to a sick gentleman of that city, Scultetus was there attacked with a fit of apoplexy, which terminated his life on the 1st of December 1645. He appears to have practiced surgery extensively, and to have been very bold in his operations, especially in those of bronchotomy, of the trachea, and for empyema. His principal work is entitled "Armedamentum Chirurgicum, 43 Tabulis articulca Ornamentum," and was published after his death, at Ulm, in 1653. It subsequently passed through many editions, and was translated into most of the European languages. Eloy Dict. Hist. de la Médecine.

SCUM, or Spume, Spuma, a light excrement arising from liquors, when briskly fired; called also foam or froth.

Scum is also used for the impurities which a liquor, by boiling, casts up to the surface; and also for those taken from off metals, when in fusion; these are also called fioria. Scum of Lead, is a kind of incrustation, of various colours, procured from melted lead.

Scum of Nitre. See Nitre.

Scum of Salt. See Salt.

Scum of Silver, is what we commonly call latharge of silver.

Scum of Sugar, in Agriculture, a substance sometimes used as a manure. See Sugar-Scum.

Scum, Sugar of the. See Sugar.

Scuma, a word used by some of the chemists for spuma, the scales of any metal, and particularly applied to the flakes flying off from hot iron under the hammer.

SCUOE, Skue, or Skue, in Geography, one of the Faroe or Feroe islands; 5 miles S. of Sandoe. See Feroe.

SCUI, in Ancient Geography, a town of Upper Media, in Dardania, according to Ptolemy.

SCUPPERS, in a Ship, are certain channels cut through the water-ways and sides of a ship, at proper distances, and lined with plated lead, in order to carry the water off from the deck into the sea. The scuppers of the lower deck of a ship of war are usually furnished with a leather pipe, called the scupper-hose, which hangs downward from the mouth or opening of the scupper. The intent of this is to prevent the water from entering, when the ship inclines under a weight of fall. Falcon.

SCUPPER Nails. See Nails.

SCUR, in Agriculture, a precipice faced with rock.

SCURCOLLA, in Geography, a town of Naples, in Abruzzo Ultra; 18 miles S. of Aquila.

SCURELLUR, in Ancient Geography, a town of India, on this side of the Ganges, between the Puelodome and the river Baris. Ptolemy.

SCURF, in Medicine, Furfur, small branny or powdery exfoliations of the cuticle, which occur after slight inflammations of the skin, a new cuticle being formed underneath during the exfoliation.

Scurf may be formed upon any part of the surface of the body; for wherever the skin is inflamed, the cuticle never fails to be separated and fall off. This exfoliation, when the inflammation is considerable, as in scarlatina, takes place in the form of large mafles, or of smaller scales; but in the minor degrees of inflammation, such as of the formation of pimples, or in slight erythematous affections, a mere scurfy skin ensues. In some cases of scurf, indeed, as in the bastard of infants, and in other forms of pityriasis, little or no inflammation is perceptible; but in other cases, as in the scurfy porrigo, affecting the heads of adults, the inflammation is often considerable, and accompanied by feverish itching. The scurf itself, instead, if it be permitted to accumulate, becomes the source of excitement to the inflammation, as well as to the itching sensations.

The first step in the treatment of scurfy affections is, therefore, the careful removal of the scurf, as it is formed; but this must be effected by gentle means, and by washes which do not augment the inflammatory action, where that is considerable. Hence ablation with simple water, or some flight farinaceous decoction, as of bran, is to be preferred to soaps and other irritants. This clearance of the surface having been effected, some gentle retentive lotion, such as lime-water, with or without a little of the liquor ammonia acetatis, or a weak solution of the salts of zinc, may be employed with advantage; or if the irritability of the parts be considerable, the faturnine substances may be preferable. See PITYRIASIS.

SCURFF, in Ichthyology, an English name for a species of salmon, called also in some places the bull-trout. It never grows to any great size, and differs plainly from the salmon of the common kind in this, that its tail is even, and not forked; its head is short and thick, and its flesh is less red than that of most of the salmon kind. See TRUTTA under the article SALMO.

SCURGULU, in Geography, a town of Naples, in Capitanata; 7 miles S.S.W. of Dragonera.

SCURGULUM, in Ancient Geography, a town situated in the most northerly climate of Germany. Ptolemy.

SCURRA, in Ornithology, a name by which the ancients have called the monedula, or common jackdaw. See CORVUS.

SCURRIZANO, in Geography, a town of Naples, in Capitanata; 5 miles N.E. of Alcoli.

SCURVOGEL, in Ornithology, the name of an American bird, called by some the abender-apea, and by the Brazilians jabiruguaçu. See MYSTERIA.
SCURVY.

SCURVY, in M. Liv., is defined, as follows:—It often falls on sea-men, and is attended by pain in the colon, and sometimes by a fever that lasts from ten days to a month or more. It is chronic in its nature, and belyed after its first attack. It is frequently accompanied with other disorders, such as ulcers, etc., which occur in leprosy, tuters, and other cutaneous disorders, usually called februlae.

This mistake requires correction, not merely as a matter of nomenclature, but because a great practical error results from it; namely, the admixture of antiscorbutic remedies in these cutaneous disorders, which cannot be cured, and are often aggravated, by them. The late Dr. Willan conferred a benefit on the profession, by his definite discrimination of these last-mentioned disorders. See Cutaneous Disorders.

The scurvy, properly so called, was first accurately described, and received its name, in modern times; and it is the subject of dispute, as to the cause of other diseases, whether it was known to the ancient physicians, or is a malady of more recent origin. The first specific accounts of the diseaee appeared in the early part of the sixteenth century, when the name of the malady seems to have been familiar among the vulgar: but the symptoms were not noticed by the early voyagers in the preceding century; for considerably more than half the crew, who accompanied Vasco de Gama, in his voyage round the Cape of Good Hope, in the year 1497, were destroyed by this disease. Olaus Magnus, in his history of the northern nations, published in 1555, has described the disease as of considerable length, and states that it was known to the inhabitants of the Baltic, under the name of feberluk, or februla; whence the Latin term februla, and our appellation scurvy. The term signified fever-mouth, and was probably applied to the disease in consequence of the piousy ulcerations of the gums, with hemorrhages, and loofening of the teeth, which are among the more severe symptoms of the complaint. Dr. Lind, however, suggests, with still more probability, that the name was derived from a Scavonian word, febr, signifying disease; the scurvy being endemic in the northern countries of Europe, from whence we borrowed the appellation.

Most of the continental writers have maintained that, although the ancients have not described the symptoms of scurvy, as a single distinct disease, they have, however, mentioned several concurring symptoms, which can scarcely be supposed to belong to any other malady: while Drs. Freind, Lind, Trotter, and some other authors of this country, contend, that the Greeks, Romans, and Arabians, residing in southern climates, and unpractised in long voyages, probably never witnessed the februla, and thence have no where accurately described it. The rarity of the disease, under such circumstances, will probably account for the imperfect descriptions which they have left; but sieges and
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limited experience, when they pronounced these symptoms as exclusively connected with enlarged spleen.

A disease is also mentioned by Strabo and Pliny, as occurring in the Roman armies in particular situations, which can only be referred to scurvy. In this disease, which Pliny ascribed to drinking the water of a certain well, when it occurred in the army of Germanicus while encamped near the Rhine, an affection of the gums, with a falling out of the teeth, is said to have been combined with a loss of muscular power in the lower extremities; the former affection being called *fomaccer* (quali *stomastik* vex, or *viti vitium*) and the latter *feletybrba*. (Plin. Nat. Hist. lib. xxiough they have been referred to the army of Julius Gallus, when in Arabia. (Geograph. lib. xvi.) Some authors, however, have denied that this *feletybrba* could be a feptic disease; because Galen has described *feletybrba* to be a kind of paralysis, in which the patient is unable to walk straight; but such a term might be sufficiently appropriate to that rigidity of the joints, which often occurs in scurvy.

On the whole, therefore, we are disposed to believe, with the early writers upon this subject, that the seconomy was known to the Greek, Roman, and Arabian physicians; although, from its comparative rarity in southern climates, it did not occur so often, or so extensively, as to claim their attention very strongly. That it may occur in any climate where there is a dearth of fresh food, is very obvious; for it is found equally at sea and on the land, in Greenland and in the great South Sea, in befieged towns, in frozen countries, and in ships, when fresh food is not to be obtained. Poupart has very correctly remarked, that the malignant seconomy of Paris bore a considerable resemblance to the pestilential *ignis facer*, described by Lucretius (lib. vi.); an opinion which Dr. Lind, confounding this *ignis facer* with the plague of Athens, confers on Thucydides, confiders as deserving no serious consideration. But the *ignis facer* was extremely different from the *true plague*, as well as from the pestilence described by Thucydides (see *Plague*); it seems to have been, like seconomy, the result of dearth, the *stomach malady*, of which we hear so much in ancient history; it had several symptoms in common with seconomy, but was a febrile disease; and has been ascribed in modern times to the use of corn, instead of the feacity and deficiency of that nutrient. See Ergot; *Ignis Facer*; Kriebel, Krankheit; &c. For the observations of Poupart, see Memoires de l'Acad. des Sciences, an. 1699.

Symptoms of Scurvy.—The first indication of the approach of seconomy is an averteron to any sort of muscular exertion; a lassiness, or strong inclination to fit still or lie in bed; which is accompanied with a spontaneous latitude, or a fence of heavinesses and pain throughout the body, and especially in the muscles of the limbs and loins, like that which arises from great fatigue; which soon becomes actual seelleness, so that the least exercise, especially in ascending or descending a declivity, induces fatigue and shortness of breath. With this aversion to motion and diminished power of exertion, there is also very early a change of the complexion, which becomes pale and bloated, or fawlow, especially about the lips and corners of the eyes, where there is a greenish tinge. These two symptoms, indeed, the diaphanisation to exertion, and the fallow countenance, often portend the approach of seconomy, while the patient eats and drinks heartily, and seems otherwise in good health; and the speedy latitude and difficulty of breathing upon motion, are among the most constant concomitants of the dilatation throughout its course.

As the disease advances, other symptoms appear. Among these the *fomaccer*, or morbid condition of the mouth, is one of the first that presents itself. The gums become hot and painful, and fawlow, growing soft and spongy, and of a livid hue, and afterwards extremely putrid and fungous, conflatuting one of the most disfiguring features of the disease. This occasioned a great terror of the breadth, and the loosening of the teeth, which become moveable in their sockets, and may be taken out without force or pain, and even fall out spontaneously. Hæmorrages also take place from the flighty prelure on the gums, or even without any apparent caue, as well as from the nofe; and ultimately from other parts of the body, where the cuticle is delicate, or the surface broken, in consequence of the apparent loss of cohesion in the folds, and especially in the vascular system.

From this cause the *fein* also exhibits some of the most striking characteristics of seconomy. It becomes dry, and spotted over with discolourations of a red, blue, yellow, and black hue, of various sizes, from the *petechiae*, or spots like flea-bites, to the most extensive *eczemyges*, of the size of a hand-breath, or larger, such as are produced by the feeverest bruises. These appear chiefly on the legs and thighs; but often also on the arms, breast, and trunk of the body; and sometimes, though more rarely, on the head and face. They confit, in fact, of effusions of blood under the cuticle, from the rupture of the small vessels. As the disease advances, this laxity and loss of cohesion in all the folds becomes still more manifest, by the frequent and profuse bleedings which are liable to occur from different parts of the body; especially from the nofe, gums, *fomach*, bowels, lungs, kidneys, and bladder, and from the ulcers and fungous excrences which arise on the surface. In some patients, the hæmorrages from the bowels are accompanied by severe pains and diarrhoea; while others, without either a purging or gripes, discharge great quantities of pure blood by the anus. Other marks of laxity appear in the edematous swelling which takes place in the legs, beginning first about the feet and ankles; which, however, is more painful than common anaæmies, and retain longer the impression of the finger. They appear remarkably also, in the great facility with which the flighty bruises and wounds degenerate into foul fungous ulcers, as well as in the spontaneous appearance of such ulcers, and the breaking out of long-healed sores, and even the divulsion of old fractures in bones. "Whatever former complaints," Dr. Lind observes, "the patient has had, epecially bruises, wounds, &c.; or whatever previous disorders he labours under, upon being afflicted with the feconomy, his old complaints are renewed, and his present rendered worse." Indeed the seconomy often first shews itself by the changes in diseased parts. "Thus, when a perfon has had a preceding fever, or a tedious sickeness, by which he has been much exhausted, the gums for the most part are first affected, and a latitude constantly attends; whereas, when one has been confined from exercize by having a fractured bone, or from a bruise or hurt, theye weak and debilitated parts become almost always first feborous. As for example, if a patient labours under a strain of the ankle, the leg, by becoming swelled and painful, and soon after covered with livid spots, gives the first indication of the disease. And as old ulcers on the legs are very frequent among leamen, in this case likewise the legs are always first affected, and these ulcers put on a feborous appearance, although the patient feemes otherwise perfectly healthy, and preserves a fresh good colour in his face." (Lind.) The effect of the disease upon former maladies is strongly depicted by the elegant writer of Lord Anfon's voyage. "But a moﬆ extraordinary circumstance," says that gentleman, "and
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and what would be scarcely credible upon any single evidence, is, that the scars of wounds which had been for many years healed, were forced open again by this violent distemper. Of this there was a remarkable instance in one of the midshipmen board the Centurion, who had been wounded above fifty years before at the battle of the Boyne; though he was cured soon after, and had continued well for a great number of years past, yet on his being attacked by the scurvy, his wounds, in the progress of his disease, broke out afresh, and appeared as if they had never been healed. Nay, what is still more astonishing, the callus of a broken bone, which had been completely formed for a long time, was found to be hereby disintegrated, and the fracture seemed as if it had never been consolidated. (A Voyage round the World in 1740-41, by Lord Anson, compiled by the Rev. R. Walter, chaplain to the Centurion, p. 102.) The ulcers, which occurred in the legs of the scurvy patients on this occasion, are said to have been "of the worst kind, attended with rotten bones, and such a luxuriance of fungous flesh, as yielded to no remedy." The edges of these scurvy ulcers are of a livid colour, and puffed up with the fungous excreta, which are most aptly called by the sailors, 'linden' leeder; from which substance, when boiled, Dr. Lind says, they bear a near resemblance, both in contumacy and colour. They often arise in the course of a night to a monstrous size, and although destroyed by cauteries, or the knife, (in which latter case, a copious bleeding commonly ensues,) are found at the next dressing as large as ever. Dr. Lind affirms, however, that "they continue in this condition a considerable time without tainting the bone." (Lind on Scurvy, pt. ii. ch. 2.) These scurvy ulcers, which are singular and uniform in their character, are distinguished from all others by being so remarkably offensive, bloody, and fungous.

In addition to these affections of the lower extremities, (to which however they are not exclusively confined,) in the advanced stage of the scurvy, the patients most commonly lose the use of their limbs, having a contraction of the tendons in the ham, with a swelling and pain in the joint of the knee. Indeed, a stiffness in these tendons, and a weakness of the knees, appear pretty early in this disease, generally terminating in a contracted and swollen joint. (Lind, loc. cit.) We have given this description in the words of Dr. Lind, in order to show how distinctly it answers to the account of the steele of the Roman armies, in conjunction with the flecre at.

In the progress of the scurvy, the patients commonly complain of pains, which are often moving from part to part. Some complains of a general pain in their bones, which is most violent in the limbs and loins, and especially in their joints and legs; and a pain, with tightness and oppression in the breast, is very common. The head is feldom or never affected, unless the patient is feverish, which is unusual; for, as Dr. Lind well observes, the disease is altogether of a chronic nature, and fever may be justly reckoned among its adventitious symptoms. It is remarkable, indeed, that in the worst stages of the scurvy, with all the severe symptoms above described, with painful spreading ulcers of the surface, with contracted limbs, hemorrhages, sponginess, putrid, flaking gums, over-run with sprouting flesh, and often deeply ulcerated, with inability to make the least muscular exertion, without fainting or perhaps dying; yet the patients, even in this stage, have a good appetite, with their fenes entire, and, though easily dejected and made low-spirited, yet, when in bed, they make no complaint of pain or sicknells, and appear to be in tolerable health. This singular characteristic of the disease is well depicted by the reverend author before quoted. "Indeed, the effects of this disease," he says, "were to amil every violent - wonderful; for many of our people, though closely in their hammocks, appeared to have no considerable state of health; for they eat and drank heartily, were cheerful, and talked with much seeming vigour, and with a loud strong tone of voice; and yet on their being the least moved, though it was only from one part of the ship to the other, and that in their hammocks, they have immediately expired; and others, who have confined in their seeming strength, and have refused to get out of their hammocks, have died before they could well reach the deck. And it was an uncommon thing for those who were able to walk the deck, and to do some kind of duty, to drop down dead in an instant, on any endeavours to act with their usual vigour; many of our people having perished in this manner during the course of this voyage." Lord Anson's Voyage, loc. cit.

Few of the authors, who have described the disease, have been very industrious in the examination of the bodies of those who have died. The most ample account of the different actions of scurvy patients has been given by M. Poupart, in his account of the disease, as observed at the hospital of St. Louis at Paris. The principal phenomena described by him were the results of the general extravasation of blood, and of the dissolution and separation of parts naturally united. Thus the bodies of the muscles were often found swelled and hard, from the blood fixed among their fibres, so that the limbs remained bent or contracted; and the epiphyses of the bones were found separated, the cartilages of the sternum were loosened from their union with the bony part of the ribs, and the ligaments of the joints were corroded and loose. He adds, that the melenic glands were generally obfuscated and enlarged, and the spleen three times bigger than natural, and fell to pieces as if it consisted of coagulated blood.

Causes of Scurvy.—The predisposing causes of scurvy, or those circumstances which produce a predisposition to the complaint, are various. Preceding diseases, whether of the acute or chronic kind, render persons more liable to the scurvy, where the exciting causes exist; and mevity and indolence greatly facilitate the attack of the malady. Those who are recovering from fevers, or who have been weakened by long attacks or relapses, most readily fall into scurvy; and the mariners on ship-board, who have less work, commonly suffer in a much larger proportion than the sailors. On the other hand, however, excessive fatigue and over-exertion, which exhaust the strength, as well as want of sleep, contribute to accelerate the attack of scurvy. An attention to this point was one of the most effectual means employed by captain Cook for the prevention of scurvy among his crews, as well as the avoiding of cold and moisture, from which much predisposition to the disease arises. A state of despondency and gloominess of mind contributes also materially to invite and aggravate the scurvy: it attacks the discontented and repining, while persons of more cheerful dispositions escape. Hence perhaps newly-impressed seamen are found to be particularly liable to it; and the inhabitants of besieged towns are observed to be very susceptible of its impregnations.

The principal exciting cause of scurvy appears to be the use of a certain kind of diet; and it is probable that every species of diet, which, either from being deficient of digestion, or from containing but little nourishment, fails to nourish the body, is capable of producing the disease under certain circumstances: we say, it is probable; for we shall have occasion to shew hereafter, that this notion is not entirely consistent with all the facts, and is somewhat inconsistent especially
presently with the nature of the remedies. As the disease is most frequently occasioned in modern times by a "fat diet," it has been ascribed to the use of "fatted meats;" but this opinion is altogether erroneous, and has been amply refuted by Drs. Lind, Milman, and others. It has occurred, indeed, to a great extent, where salted meats were not used; but it has been equally prevalent where the diet consisted principally of farinaceous or other unfermented vegetable matters, such as hard biscuits, peas, and beans, or of smoke-dried fish or flet; chese, &c. In some experiments, made by Dr. Stark in his own person, relative to the effects of particular articles of diet, symptoms of scurvy were induced by living a short time exclusively upon sugar. (See Stark's whole works, 4to. Lond. 1788.) And in the Russian armies, at the siege of Ateam, in 1736, and subsequently in their march to Ockakow, the scurvy prevailed to a great extent, although their diet did not consist of fat-provisions. They had little fuel to enable them to dress their victuals, and the fat indigestible fish of the river Don, being half-cooked, and their bread ill-baked, produced frequent sickness, and ultimately the scurvy. (See Dr. Nitzsch's account of this disease in the Russian armies, quoted by Dr. Lind.) The fame calamity occurred in the imperial army in Hungary, about the same period, although the army had fresh beef in plenty, but their other food consisted of a grose and vifeed bread, or other farinaceous matters, and especially of a sort of glutinous pudding, called rollatfchen, which was principally eaten by the Bohemians, who were indeed almost the only people who suffered from the scurvy. (See Geo. Hen. Kramer. Diff. epitolica de Scorbuto; which contains the sake of the imperial troops, addressed to the college of physicians at Vienna.) There is no doubt, therefore, if we examine the history of the malady, that persons predisposed to it, if they live upon any species of indigestible food, whether it be of an animal or vegetable nature,—whether preferred with fat, or not at all impregnated with it,—will be equally attacked with scurvy; and those persons are observed to suffer the most, who make the freest use of these indigestible substances. In all these instances, however, fresh vegetable substances did not probably constitute any considerable portion of the diet.

Other exciting causes, however, must co-operate with this diet to produce the scurvy, especially in its severe degrees. And hence whatever contributes to impair the health, and depress the mind, during the use of such food, materially accelerates the occurrence of scurvy; and we have already stated the effects of indolence, over-fatigue, and the depressing passions, in predisposing the constitution to take on this disease. Indolence and inactivity conduces to excrete the scurvy, because the hard and indigestible diet just alluded to requires a certain degree of exercise to subdue it in the stomach. The influence of exertion was curiously exemplified in the cafes of those persons who have wintered in high northern latitudes. The scurvy was the source of fatality which they had to dread; and it is singular, that those who went prepared to spend the winter in these frozen climates, and supplied with provisions, clothing, fuel, &c. have uniformly died of the scurvy; while those who have been accidentally left, without any provision, have escaped that disease and enjoyed good health. In 1653 two trials were made by the Dutch of establishing wintering-places at Spitzbergen and on the coast of Greenland, in latitude about 77° or 78°. Seven sailors were left at each, amply furnished with every article of clothing, provisions, and utensils. The thought necessary or useful in such a situation. The journals of both companies are preferred. The men at Greenland began to make a continual fire to fit by in October, served out their allowance of brandy, and now and then killed a bear: but in March they were all very ill of the scurvy; and on April sixteenth the first man died, and all the rest were entirely difabled, except one person. This poor wretch continued the journal to the last day of April, when they were praying for a speedy release from their miseries. They were all found dead. The men left at Spitzbergen killed but one fox the whole time. The scurvy appeared among them so early as November twenty-fourth, and the first man died January fourteenth: the journal ends February twenty-fifth; and these too were all found dead. Accident, however, soon afterwards gave rise to an experiment which had a very different result. For on the same fox of Spitzbergen, and in the same latitude, a boat's crew, consisting of eight Englishmen, who had been sent afoile to kill deer, were by some mistake left behind, and reduced to the deplorable necessity of wintering in that dreadful country, totally unprovided with any of the necessaries. Taking advantage of a large substantial wooden building, erected for the use of the cooper's belonging to the fishery, they rendered it warm and comfortable by building a smaller one within it, and by deer-skin beds, &c. They were tolerably supplied with fuel from old casks and boats, which they broke up, and, before the cold weather set in, they laid in a considerable flock of venison, having killed a good number of deer, the greater part of which they roasted, and flowed in barrels, referring some raw, which became frozen. This venison, with a few hares and bears which they killed from time to time, constituted their whole winter's provision, except a very unfavourable article, which they were obliged to make out with, at first two and afterwards four days in the week, which was whale's fritters, or the cerops of fat after the oil has been pressed out. Their only drink during the whole time was running water, procured from beneath the ice on the beach, till January; and afterwards snow-water melted by hot irons. The melancholy of their situation was aggravated by the absence of the fun from the horizon, from October fourteenth to February third, of which period twenty-two days were passed in total darkness. They contrived, however, to keep their fire and lamps continually burning during this period. At the approach of spring, they had the good fortune to kill several white bears which proved excellent food; and these, together with wild fowl and foxes which they caught, enabled them to dispense with their falling days on the mouldy fritters, and soon improved their vigour. Upon this simple fare, without spirits or fermented liquors, they were able to pass this rigorous winter, unafflicted by scurvy or any other disease: at the return of the ships on May twenty-fifth, they all appear to have been in health; and all returned in safety to their native country. (See Mem. of the Liter. and Philol. Society of Manchester, vol. i. p. 89, et seq.) Another still more striking illustration is related by Dr. Aikin, in the paper just referred to, in the cafe of four Russians, who were left at Spitzbergen, and also found a hut in which they refided above fifty years, living on the bears, deer, and foxes, which they caught, and drinking the running water in summer, and melted ice in winter. Three of them remained entirely free from the scurvy during the whole of their abode; but the fourth died of it, after lingering to the sixth year. This person, it is remarked, was of an indolent disposition, and could not conquer his avarice to drinking the rein-deer's blood. The continual exercise, required by the hunting of these animals, appears to have been the great source of health, and to have kept them at a distance from the scurvy, which is endemic in Lapland, Norway, Sweden, Russia, and in latitudes much less northerly than Greenland.
Other circumstances, both on ship-board and on land, by
injuring the aliment of the constitution, are to be
prevented by the sea. The science, however, is not to be es-
craved, as it is in particular places in Holland, where
the ship was on the coast of that country. From
Robinson, a very able and accurate writer, it appears,
that the sea is much more frequent in his ship,
Amsterdam, than in any other. He states, that the
sea was frequently damp, and the weather cold; but
Rousseau, the作者 of the voyage of the ship
upon which he passed, well aware of the state of
the climate, that have taken place in the condition
of the sea, and of the modes of living, the wealth of
Holland has increased, have rendered the disease much
less frequent, and have confined it almost exclusively to the
pursuit, who inhabit the low damp parts of the provinces,
and continue to live upon dried meat and coarse bread,
and to drink wholesome stagnant water.

The effect of certain devouring passions, not only in pre-
dispensing to the fever, but in exciting and aggravating it,
has been strongly manifested. Vander Mye exhibits a
curious and diversified picture of the operations of the pas-
sions of the mind during the famous siege of Breda, when
the feverish committed great havoc in that town. Upon
the report of bad news, it always spread_annuiously;
but it was in a manner whatsoever checked by the arrival
of agreeable intelligence. And the writer of Lord Anson's
voyage observes, "it was most remarkable in all our re-
iteration of experience of this malady, that whatever dif-
couraged our people, or at any time depressed their
hopes, never failed to add new vigour to the dissembler;
for it usually killed those who were in the latter flages of it,
and confined those to their hammocks, who were before
able of some kind of duty; so that it seemed as if alacrity
of mind and disagreeable thoughts were no contemptible prepa-
atives to its fatal malignity."

On the Prevention and Cure of Scurvy. — It is customary
in medical discussions, after stating the symptoms and causes
of any disease, to proceed to the means of alleviating or
prolonging the duration of it, as it is technically termed, of
the malady, before treating of the method of cure, which
would generally be deduced from the consideration of the
whole of these circumstances taken together. In this case,
however, we can scarcely discuss the nature of the proxi-
mate cause, without a previous knowledge of the means
by which the malady is prevented or remedied; since these
means tend to elucidate the nature of the symptoms which
they remedy. We shall, therefore, first detail the means
of prevention and cure.

The prevention of scurvy will consist chiefly in remov-
ing or counteracting the predisposing and exciting causes,
which have already been enumerated. Much is done, there-
fore, by preferring a due degree of general health in the
individuals exposed to the exciting causes; and especially
by avoiding cold and moisture, by means of proper clothing,
warm cabins, &c.; and by avoiding indolence and in-
activity on the one hand, and over-excitement, watching, &c.,
on the other. The effects of the former are exemplified in the
considerable exceptions that the petty officers in a ship of
war, while the crew suffer severely. "The Channel
shite," says Dr. Milman, "has often buried a hundred men
in a year; and landed a thousand more afflicted with
scurvy, and we among these there has not been a petty
officer. How does the condition of the petty officer differ
from that of the common sailor? The
officer is obliged to live on the ship's provisions. To
him, therefore, that the petty officer is often
burnt, but always they are sheltered from the extreme cold of the
water. He has the advantage of warm cabins, they are more warm,
and have a greater plenty of clean drink, that he is
liable to become wet, or to be frozen, the
common man." (Mey in on Scurvy, p. 4.) But the
supply from land, obtained by attention to the
rules of general health, was most strikingly exhibited in the
careful management of Captain Cook, by which he was
able to return to England, having had but two cases of scurvy on
his voyage. The special management of the
rules of general health with great fidelity, was
completed. He was especially careful to guard against
the too great fatigue of his men, and to secure them as
much as possible from the effects of cold and moisture.
In the first place, he divided them into three watches instead of
two, (except upon some extraordinary occasions,) by
which means they had eight hours rest for ten of duty,
and did not get the broken sleep, which men in their
situations have generally obtained. They had the time to
recruit their strength before they were summoned to return to
their labour, and they were likewise thus left exposed
to the weather, than if they had been at watch and watch.
If the men got wet, they had generally dry clothes
provided to shift themselves. Proper methods were taken
to keep the ships clean, and dry between decks. The
hammocks and bedding, every day that was fair, were
not only ordered upon deck, but each bundle was unfolded,
and spread out, that every part might be exposed to the air.
Besides the ordinary methods of washing and scraping the
decks, captain Cook had some wood put into a proper
loose, kindled, and carried successively to every part below
deck; which not only contributed to dry the ship, but by
heating the air above, and rendering it specifically
lighter than the common air, to make it rise and pass
through the hatchways into the atmosphere. In the tor-
rid zone, he floated his people from the leeward fan, by
an arm of water over his deck; while in his course under the
antarctic circle, he had a coat provided of a substantial
wooden stuff, with the addition of a hood to cover their
heads. The Russian hour, Dr. Milman remarks, seems
to be greatly inclined to simular means for his preservation
from the scurvy: for, though he lives in an extremely cold
climate, eats a good deal of salted meats, has no fresh vegetables
for six months of the year, and breathes during that
time the foul air of an unventilated apartment; yet, cloth-
ing himself in warm flannels, covering himself at night with
warm sheep-skins, providing for his crew with the
usual use of the warm bath, he is seldom afflicted with
this calamity.

Captain Cook also attended to the nutriment of his men.
Hard and salted meats required attention in their relation
and digestion in the stomach, and a plentiful supply of
water was always carefully provided by him. Salt-water,
indeed, may be rendered sweet by distillation, which
diminutio its false parts, and may be made more palat-
able by impregnation with carbonate of soda, or with rob
and acid juices. This method, however, was not known
to Captain Cook. In attending to the diet of his men, he
would not suffer the fat, which is boiled out of salted
and pork, to be given to his men, as a necessity. It did
not escape that sagacious officer's notice, that such greas-
undigestible matters has a great tendency to excite scurvy.

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Thus, then, by an attention to cleanliness and ventilation, by guarding against fatigue, cold, heat, wet, &c. and by providing at all times plenty of fresh water, captain Cook's seamen lived with impunity on their salt provisions. And a similar instance is mentioned by Dr. Trotter, in the case of the Intrepid, a ship of sixty-four guns, with a complement of five hundred men, in lord Rodney's fleet, which did not lose a man, except from wounds, for the space of two years and a half. "This ship was in a very sickly state when captain Molloy took the command of her; but by the complete mode of discipline, and attention to the cleanliness of the crew and ship, which he established, health was preferred in a climate reputed to be unwholesome; and that too, when exposed to the hardships which follow a state of frequent or constant preparation for action." (Trotter on the Scourvy.) Even where the exciting causes exist, therefore, the scurvy may be prevented by extraordinary and continued discipline in the care of the general health.

Something still further, however, has been attempted, in the way of prevention, by diminishing the extent of the chief exciting cause; although it may be questioned, whether much has been effected in this way. The Dutch were supposed to have preferred their seamen from scurvy by the use of four krait with their salt provisions, and this article was recommended to the British navy by Dr. Lind: but it is prepared by a fort of fermentation, which produces the acidity; and this fort of acid, the product of fermentation, does not appear to be a substitute for the acid of fresh vegetables. Dr. Trotter, however, is of opinion, that the virtues of this substance as an antiscorbutic are very trifling, and that it has cost the government in its preparation more than it is worth. Another substance has also been employed in the British fleet, as a substitute for fresh vegetables in preventing scurvy, on the recommendation of Dr. M'Brith, viz. the essence or extract of malt. It was recommended upon the hypothetic notion, that it contained much of the cementing principle, as he called it, or that principle which, when present in animal and vegetable substan ses, prevents the process of putrefaction; and that by retorting this principle to the blood, the diseased, which affe, like scurvy, from a putrid diathesis, (thus heaping hypothesis upon hypothesis,) would be prevented and cured.

The truth, however, is, that there is little or no carbonic acid in this substance; and the favourable accounts received at the Admiralty of its beneficial effects, which induced them to establish the use of essence of malt as a part of naval victualling, are to be ascribed rather to its being a wholesome, nutritious, and digestible substance, confinably of vegetable origin; that is, with any specific antiscorbutic properties. This appears to be the opinion of Dr. Trotter, and Dr. Lind speaks of it only as "a very nourishing liquor, well adapted for scorbutic patients." It does not appear, however, that these articles are sufficient substitutes for fresh vegetable productions; and they certainly do not prove the same powers, with the latter, of curing the scurvy, when it already exists. With the proper acids, which have been generally adopted since the time of captain Cook, they contribute to the support of the general health, and therefore to the prevention of scurvy.

There is another species of vegetable matter, however, which appears in some measure to supply the particular substance, which fresh vegetables afford, and which is used both as a preventive and a cure for the scurvy, namely, the acid of limes, lemons, and other similar fruits, which the art of chemistry has for some time supplied in a concrete state. These substances, we believe, are now considered as among the necessaries for a long voyage, and are probably much more efficient than the four krait, essence of malt, &c.

Cure of Scurvy.—When the preventive measures have been neglected, or ineffectually employed, and the disease has already appeared, it is very difficult to remove it, while the circumstances of diet, &c. remain unchanged. Where these circumstances, however, admit of a change, experience has shown that the cure is very simple, and often very expeditious. A pure, dry, warm air, with the ufe of fresh vegetables, almost of any fort, commonly proves effectual. The initiatory feelings of the sick, indeed, direct them strongly to the ufe of the chief remedy; for there is perhaps no defire fo intense as that which the scorbutive patient feels for the ufe of green vegetables, fruits, and acids; infomuch that the sailors of lord Anson's ships greedily devoured the grapes, which was the first vegetable matter obtained. The vegetables and fruits which contain the greatest proportion of acid, are the most effectual remedies for the symptoms of fcruscoury; whence more and fewer fpecies. But about all times, lemons, oranges, apples, currants, &c. act in a manner as specifics in relieving the disease. All succulent vegetables, and those especially which are of an aromatic nature, are useful, particularly when combined with the acid ones; whence fcurvyc, grafts, horfe-radifh, cresses, purslain, and the tetradyne, are ranked among the antiscorbutics, and numerous plants have been specified by different writers as posseffed of special virtues. On the whole, however, the acid juices appear to be most speedy and effectual remedies for scurvy, especially those which approach to the nature of the citric acid.

The testimonies in favour of the specific curative powers of these acids in fcurvy are fo numerous as to leave no doubt of the fact. Even Dr. Lind, with whole hypotlheses respecting the nature of the disease the fact was not quite compatible, admits, in his postscript, their striking efficacy. "To what has been already faid," he observes, "of the virtues of oranges and lemons in this disease, I have now to add, that in feemingly the moft depreffed cases, the moft quick and fensible relief was obtained from lemon-juice; by which I have relieved many hundred patients, labouring under almost ilterable pain and afliction from this disease, when no other remedy seemed to avail." As the acid is apt to operate violently upon the stomach and bowels of those who are much weakened, Dr. Lind recommends the addition of two or three ounces of brandy, to produce a Carl antiscorbutic, and was in the practice of ordering about four ounces and a half of lime or lemon-juice, and two ounces of sugar, to be put into a pint of Malaga wine, which was sufficient for any weak patient to take in twenty-four hours.

Dr. Trotter testifies the extraordinary cure of these scorbutic symptoms by the ufe of these acids, even though at the same time they produce a very lax or purging flate of the bowels, and some degree of emaciation; while, on the other hand, the ufe of fresh animal food, strong broth, and wine, produces comparatively very little benefit upon scorbutic persons, although debility is the most marked symptom of the disease. This diet and the Peruvian bark will often produce no favourable change upon scorbutic ulcers, and the most powerful stimulant applications will not alter the condition of these sores: yet in less than twenty-four hours after the ufe of lemon-juice, the livid complexion of the sores, with the black clot of blood on their surface, will often disappear, and they will put on a florid and healthy character. The farther effects of the lemon acid are thus described by Dr. Trotter. "The patient in the inveterate flage of the disease seems to gather strength even from the fight
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fight of the fruit, the juices are exhilarated by the table itself; and the juice is swallowed with emotions of the most voluptuous luxury. The gums are gradually hardened, and the teeth fixed in their sockets. The dull and listless looks in a few days put an end to the healthful complexion, which also extends to the whole surface of the body. The absorption of the effused blood in different parts goes on rapidly, and by marking the spots, you may calculate the progress of the absorption, and the cure of the disease. This absorption breaks a degree of stimulus communicated to the lymphatic system as well as the sanguineous, as soon as the blood has received a sufficient quantity of the vivifying principle. From the effects of the juice upon the bile, the colour of the fluids is changed, and a lax state of the bowels is the consequence. But it is to be observed, that this laxity of the intestines may be moderated by giving the fruit in smaller quantities; a speedy cure, however, demands that they should be given ad libitum, and the greater the number of lemons taken in a day, the recovery will be more rapid in proportion. Loccit. p. 142.

While, on the one hand, these fresh vegetables and vegetable acids speedily remove the symptoms of scurvy, experience has fully ascertained, on the other, that the medicines called tonics, such as the mineral acids, balsam of Peru, and the various vegetable bitters, which have also been considered as antitoxics, or antidotes of putrefaction, are incapable of affording any effectual relief. And wine, which has been found a valuable remedy in some low fevers, gives but a momentary stimulus; but it does not retard the disease, nor afford any permanent relief alone. It was clearly proved, too, in Lord Anson’s fleet and elsewhere, that abundance of fresh provisions of animal substances and fish, even with plenty of fresh water, did not tend to arrest the progress of the disease. The use of mercury appears to be injurious under every flag of the fevers.

In speaking of the predisposing causes of scurvy, we have mentioned the effect of the depressing passions in inducing and aggravating the disease; and we have now to mention, on the other hand, the remarkable effects of hope, and the exciting passions, in aiding the cure of the disease. The following striking example of this medicine of the mind is related by Vander Mye, in his account of the disease, when it occurred during the siege of Breda, spreading despair and death around. “On the 2d of May, 1625, when the prince of Orange heard of their distress, and understood that the city was in danger of being delivered up to the enemy by the soldiers, he wrote letters addressed to the men, promising them the most speedy relief. These were accompanied with medicines against the scurvy, said to be of great price, but of still greater efficacy; many more were yet to be sent. The effects of this deceit were truly astonishing! Three small phials of medicine were given to each physician, not enough for the recovery of two patients. It was publicly given out, that three or four drops were sufficient to impart a healing virtue to a gallon of liquor. We now displayed our wonder-working balsams. Nor were even the commanders let into the secret of the chest put among the soldiers. They flocked in crowds about us, every one heaping that part might be reserved for their use. Cheerfulness again appears on every countenance; and an universal faith prevails in the sovereign virtues of the remedy. The herbs now began to spring up above the ground; we of these made decoctions, to which wormwood and camphor were added, that by their prevalent flavour the medicines might appear of no mean efficacy. The fluff contracted limbs were anointed with wax melted in rape-seed, or linseed oil. The invention of new and stratified phials was speedily ordered; and amidst a defect of every necessary and salutary medicine, a fresh supply of drugs was constantly added. The effect of these remedies was truly remarkable; for every wound was speedily perfectly recovered. Such a hastened remission of pain before, we were informed by the captain of the regiment’s office, and at last with a final application of phials of opium and water. Many who declared that they had been treated worse by all former remedies, which had been unsuccessful, recovered in a few days, to their surprise, and to no let us general surprise, by the taking (either by their having brought to them) what we assured them to be their gracious prince’s cure.” This account of the curative influence of the pinnis is fully sanctioned by the statements in Lord Anson’s voyage, already quoted, and by a fact mentioned by Mr. Ives, in his journal. On the 30th of January, 1744, there were nearly seventy persons ill of scurvy in the Mediterranean fleet; yet the joy of approaching the enemy’s fleet, and the hope of beating them, had such an effect, that on the 11th of February following, when the engagement happened, there were not above five men not at their fighting quarters.

Many remedies have been mentioned by different writers, who have treated of scurvy, and many local applications and methods of curing particular urgent symptoms, such as hemorrhages, spongy gums, ulcerations, diarrhoea, stiffness of the tendons, &c. have been detailed; but it is unnecessary to repeat them, since the only effectual mode of alleviating particular symptoms is the radical cure of the constitutional disease. “Fomentations, the warm-bath, &c.” Dr. Trotter observes, “have been often tried for the rigid tendons, and hardness of the muscles, but without effect: stimulant applications have been equally unsuccessful. For the difficult breathing and tightness about the breast, blisters and the whole train of expectorants are insufficient to relieve them. Opium itself, our last and only refuge in other cases of acute pain, affords no refreshing sleep or ease to the scorbutic sufferer. We have heard much of sudorifics opening the pores of the skin and softening the surface; but this is trifling with the complaint. It is only the produce of fresh vegetation, that can administer to him the reviving cordial; and a few lemons will do more to allay his anguish than the whole art of pharmacy.” P. 231.

On the Nature of Scurvy.—Various hypotheses have been framed at different times, according to the prevalent pathological doctrines, to account for the phenomena of this singular and formidable disease; and like most other medical hypotheses, they have hinged chiefly upon two principles, by one of which they are referred to certain morbid conditions of the blood or circulating fluids, and by the other to morbid changes in the property of the living folds. If we take into consideration, however, the whole phenomena of the disease, its causes, and remedies, we shall find considerable difficulty in admitting either of these hypotheses exclusively, and not a little in giving any satisfactory view of the subject, even by allowing the partial truth of both.

All the older writers, being of the humoral school, maintained the doctrine of a morbid state of the fluids, as the proximate cause of scurvy. Boerhaave and his adherents referred the disease to an acrimony of the fluids, which they supposed would be of a different quality, according to the different causes which produced it; thus it would be an alkaline acrimony from salt and putrid provisions and foul water,
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water, and an acid acrimony from bad sorts of bread or vegetable gluten, combined with a sedentary life. (See Boerhaave, Aph. 1153.) Dr. Cullen, too, though he relinquished much of the humoral pathology, was of opinion that scurvy was the effect of "a preternaturally saline, and consequently diffused state of the blood," which was occasioned by a greater advance towards putrefaction, from the absence of the corrective of vegetable matters. (See First Lines, par. 1812—13.) And Sir John Pringle maintained a similar doctrine, that scurvy was the result of "a gradually accumulating putrefaction" in the blood, from the putrefacence of salted food, which he deemed the chief cause of the disease. (See his Obs. on Diff. of the Army, Appendix, p. xci.) In fact, the general opinion, for a long period, deemed scurvy the most characteristic example of a putrid disease. And this putridity of the fluids was inferred from the fetor of the breath, and of the ulcers; from the black colour and loose continence of the blood; from the extensive hemorrages; from the purple blotches on the skin, &c. But this is a gratuitous and erroneous inference: for we have no less authority than that of Dr. Lind, who made numerous experiments on the subject, affecting that blood, drawn from scorbutic patients, even in a putrid state, discovers no sensible taint of either acrimony or putridity, by the taste or the smell; that the serum of such blood is as tasteless as the white of an egg, and without odour; that it corrupts in the air no sooner than the blood of healthy persons; and that thin films of mucus,immerged in this serum, continued sweet and free from taint, as long as in the serum of persons in health. We know, indeed, from actual experiments, that if the smallest quantity of putrid matter be injected into the blood-vessels, it is followed by speedy death. (See a Diff. by Dr. Scobert, on the Putrefaction of the Blood, Philadelphia, 1793.) The ordinary secretions from the blood are not putreform, as has been asserted. Dr. Lind affirms, "the urine in this disease was not found to be more offensive to the smell, nor to corrupt sooner, than that of a peron in health; and their sweat is not fetid, or more disagreeable than when they are in health: the same may be said of their floggs." (Pott's Script., p. 515.) The same experienced physician justly observes, "the offensive smell from the mouth of scorbutic persons, when alive, seems to me to proceed solely from the corrupt state of the gums. For in their dead bodies I never perceived any unusual marks of putrefaction; they were neither more offensive, nor liable to corrupt sooner, than any other carrion." In a word, the notion of a putridity of the circulating blood is not only unsupported by actual evidence, but is refuted by all sober fact and observation; and the experiments of Dr. Lind prove that there is not even a proneness to putridity existing in either fluids or fluids.

Can we account, then, for the phenomena of scurvy upon the other hypotheses, which ascribes the malady to certain morbid conditions of the living folid? This view of the subject was ably advocated by doctor, now Sir Francis Milman, in one of the most elegant medical essays in the English language, published in the year 1782, (Enquiry into the Source of the Symptoms of Scurvy and Putrid Fevers, &c.) and, in fact, it afforded the most rational explanation of most of the symptoms of the disease, according to the physiological and pathological doctrines which modern inquiries have established. It is not at present, therefore, necessary for us to enter into any minute detail of the symptoms, with the view of explaining them upon the principle of a weakened and impaired condition of the nervous system, and of the muscular irritability. This has been accomplished at great length by Dr. Milman, taking this ample enumeration of Boerhaave, in his 115th aphorism, as the text, to which we refer the reader.

This view of the subject appears also to accord better, on the whole, with our knowledge of the pre-difposing and exciting causes of the disease above detailed. The various kinds of diet, under which scurvy occasionally originates, is ill calculated to produce any particular acrimony of the fluids; and the dry pulse and glutinous pudding of the Bohemians on shore could not have the same tendency to putrefaction as the salted animal diet of seamen. Yet all these substances might equally fail, from their indigibility, or from the defect of nutritious matter which they contained, to support the strength and vigour of the moving fibre, and would equally contribute, therefore, to produce that languor of the vital powers, which is so conspicuous in the progress of scurvy. The analogy of scurvy with the ignis facer; admirably described by Lucretius, which appears to have been commonly the result of famine, and often called pellencence, (whence M. Poupart was correct in comparing the epidemic scurvy of Paris with some of the ancient plagues) seems to support the same doctrine. (See Louis Facere.) And all the pre-disposing causes, on the one hand, which are principally debilitating causes, fatigue, indolence, want of sufficient sleep, cold and moisture, and the means of prevention, on the other, which are such as support the general vigour of the constitution, moderate exercise, sufficient sleep, fresh air, warmth, &c. concur in evincing the state of the moving fibre to be the source of the morbid symptoms. The same opinion is also farther supported by the extraordinary influence of mental impressions in producing and in preventing or curing the disease. These impressions cannot suddenly change the chemical condition of the fluids; but their influence upon the living folid, through the medium of the nervous system, is manifest both in health and disease, to a degree that unlearned persons will fearcely credit. (See IMAGINATION, Influence of, and IMITATION.) The discharges of blood from the relaxed and enfeebled orifices of the vessels, the gangrenous and consequent putrefacence tendency of the gums, and other delicate parts, the fainting and even dying on the slightest exertion, the dropical swellings, the labouring breath, the oppression about the heart, &c. &c. appear to be the result of diminished strength in all the muscles, and of enfeebled action in all the vessels, the consequences of a general failure of the vital or nervous power.

Such, then, appears to be the advantage, in point of argument and analogy, which the doctrine of diseased foids pollicyes over that of acrimony and putrefaction in the fluids. Nevertheless this theory is by no means satisfactory: it is in some measure, indeed, incompatible with the most striking and well ascertained fact, that the scurvy is not curable by those means which appear to contribute in general to the strength and activity of the solids, such as fresh animal food, wine, bark, soups, &c.; while it is speedily and certainly removed by the use of vegetable acids, which contain no nutritive quality, and are so far destitute of corroborating power, that they even induce emaciation, while they cure the disease. In truth, we can give no satisfactory theory of this disease: but our pollication of a certain remedy, and our knowledge of the means of prevention, may fairly supersede all hypothese upon the subject. In this, and in all other diseases, experience and observation are the only guides which the judicious physician will follow. The instinctive demands of the sick point out the source of relief, and hunger and thirst lead us to food and drink; and it is enough to have observed, that, by gratifying these demands, the
the disease is cured, I have observed sailors, that by the use of this plant, which is dried, and powdered, with a little oil, applied to the wounds caused by the bit of a horse, or any other cause, a most efficacious cure of the disease has been obtained. This plant is called in Europe, 'Sperma de Dragon.'

When I was on a voyage in the Mediterranean, we had a number of horses, and a very large number of sailors on board. The horses were constantly subject to the disease, and I have observed that by the use of this plant, which is dried, and powdered, with a little oil, applied to the wounds caused by the bit of a horse, or any other cause, a most efficacious cure of the disease has been obtained. This plant is called in Europe, 'Sperma de Dragon.'

Some confusion has arisen in the English denomination of the part in question, which is now generally called a field, in preference to Dillenius's word fauca, but well may all agree, surely, disapprove of the change. The source of the Latin fauca is faustum, a shield, and Linnæus, in his Flora, plus Botanica, appears to have intended using faustum, a little shield, instead of faustellus, a little dish. If he had kept to the former, our English word would indeed have been more strictly correct, but it is fully sufficiently to preserve any necessity of altering what is now generally adopted.


Sec. Cal. Cal. Perianth in favour, of one lobe, very short, tubular; rim almost entire, after flowering, cleft with a lid, persistent. Cal. of one petal, erect. Tuba very short, bent backwards; throat small, compressed. Upper lip concave, trunca: middle lobe concave, emarginate; lower ones flat, rather acute, lying under the middle one.
Lower lip broader, ensaginate. _Stam._ Filaments four, concealed under the upper lip, two of them longer; anthers small. _Pil._ Gynoecium superior, four-cleft; style thread-shaped, resembling the stamens in situation and length; stigma simple, incurved, pointed. _Peric._ none, except the clobed calyx, which is shaped like a helmet, triangular, burling at the lower margin. _Seeds_ four, rounded.

Ob. This genus is easily and sufficiently distinguishable from all others by the fruit alone, for the cloed calyx, containing the seeds, with its crest and lid, somewhat resembles a helmet.

Eff. Ch. Rim of the calyx nearly entire, cloed, and covered with a lid after flowering.

1. _S. orientalis._ Yellow-flowered Skull-cap. Linn. Sp. Pl. 834. Sm. Fl. Græc. Sibth. t. 580, unpublished. (Caflida orientalis, charmedyros folio, flore luteo; Tourn. t. v. 2. 159, with a plate.)—Leaves with deep parallel teeth; downy beneath. Spikes cylindrical, slightly quad-

2. _S. grandiflora._ Large-flowered Skull-cap. Ait. n. 2. Sims in Curt. Mag. t. 635.—Leaves heart-shaped, deeply crenate, downy on both sides, shorter than their flakas. Spikes very short, quadrangular. Corolla hairy, four times longer than the bracteas. —Native of Siberia, and introduced by Mr. Loddiges in 1804. It flowers in July. A hardy perennial, like the laf, of which indeed it may possibly be only a variety. The _spikes_ are shorter, and the _corolla_ is larger in proportion to the _bractea_, lilac-coloured, with a yellow palate. _Leaves_ rounder, lef downy beneath, but soft on both sides. Dr. Sims says it "approaches very nearly to the variety of _S. orientalis_ found in Georgia by Tournefort, and described in his travels."


6. _S. nervosa._ Ribbed Skull-cap. Pursh n. 2.—_Stem_ nearly simple, smooth. Leaves ferrate, ferrated. _Flowers_ in lateral clusters, small, blue, each partial flak bearing two tecteuous _bracteas_.


8. _S. halflolia._ Haft-leaved Skull-cap. Linn. Sp. Pl. 835. (Scutellaria folio non ferrato; Rivin. Monop. Irr. t. 77.)—Leaves quite entire; lower ones hafta; upper arrow-shaped. —Found on the shores of fresh waters, in Sweden and Austria, but not very common. It flowers in June and July. _Root_ creeping. _Stem_ generally simple. _Leaves_ blunter than in the preceding, not at all notched, cleft at the base. _Flowers_ axillary, foliary, in pairs, blue, larger than in the laf species, to which it is very closely allied, and of which both Linnaeus and Scopoli hint that it may be only a variety.

9. _S. minor._ Lesser Skull-cap. Linn. Sp. Pl. 835. Fl. Brit. n. 2. Eng. Bot. t. 524. Curt. Lond. face. 4. t. 43.—Leaves heart-ovate, nearly entire. _Flowers_ axillary. —Rather a scarce native of Britain, and the south of Europe, in a moist gravelly soil; flowering about August. _Root_ perennial, creeping. Whole habit much resembling _S. galericulata_, but the plant is about four times as small. _Stem_ branched at the base. _Leaves_ broader, rugose, nearly entire, sometimes toothed at the base, and as it were slightly hafted. _Flowers_ of a delicate pink colour, rarely blue; _lip_ white, spotted with red.

10. _S. umbilicus._ Dwarf Skull-cap. Brown Prodr. Nov. Holl. v. 1. 507.—Leaves of the same heart-shaped, coarsely crenate; dotted and rather downy beneath. _Flowers_ axillary. —Calyx smoothish, half as long as the corolla. —Found by Mr. Brown at Port Jackson, as well as in the fourth parts of New Holland. We received specimens, in 1793, from Dr. White. This agrees in size, and somewhat in habit, with the last, but the _leaves_ are smaller, more rounded, deeply notched, with curved brilily hairs about their ribs and margins. _Flowers_ solitary, opposite, spreading different ways.

11. _S. mollis._ Soft Skull-cap. Brown ibid.—"Downy, with capitate hairs. Leaves heart-shaped, oblong-ovate, deeply crenate. _Flowers_ axillary; their flakas as long as the foot-talks."—Gathered by Mr. Brown near Port Jackson.


13. _S. parvula._ Minute Skull-cap. Michaux Boreali-

Amer.
The text contains a list of plant descriptions, including their names, characteristics, and habitat information. The page is a detailed account of various plant species, their features, and their distributions. The text is quite extensive and requires careful reading to understand the full content. Without more context, it's challenging to provide a concise summary. The page seems to be from a natural history or botany text, discussing different plant species in detail. The text is quite dense and technical, typical of botanical descriptions.
almost as long as the leaves. Spikes somewhat aggregate, erect, dense, many-flowered, hairy, two or three inches long. Bracteas ovate, entire, longer than the calyx. Flowers all turned one way. Calyx covered with very long dense hairs, spreading in all directions. Corolla downy; its upper lip pale lilac; lower, as well as the tube, greenish-white.


24. **S.albida.** Pale Hairy-capped Skull-cap. Linn. Misc. VI. 248. Willd. n. 2. Sm. Fl. Græc. Sibth. t. 581, unpublished. (S. teucria face; Bauh. Hist. V. 3. 201.) — Leaves heart-shaped, serrated, downy as well as the item. Spikes elongated, unilateral. Bracteas two-ranked, ovate, flaked, nearly equal to the flowers. Corolla downy, its lower lip entire. — Native of the Levant; found by Dr. Sibthorp on Mount Olympus. Very nearly akin to the last, and not in the least resembling orientalis, to which Linnaeus, in his Systema Vegetabilium, by some unaccountable error, compares this species. It is, if possible, more strange that he should at one time have confounded albida with alpina, as appears by his herbarium. S. albida differs from peregrina in having broader, more coarsely serrated leaves, more crowded and numerous flowers, whose corolla is cream-coloured, downy, not clothed with long hairs; the edge of its lower lip even, instead of being entire, undulated, or notched. The calyx, on the contrary, bears much longer hairs than that of peregrina.

25. **S.albida.** Tall Skull-cap. Linn. Sp. Pl. 836. Willd. n. 16. Ait. n. 13. (S. Columata; Allion. Pedem. V. 1. 40. t. 84. f. 2. Willd. n. 14. Casriis; Column. Echpr. V. 1. 187. t. 189. C. orientalis albitetta, urticae folio; Tourn. Cor. 11.) — Leaves heart-shaped, serrated, acute, nearly smooth. Spikes elongated, unilateral. Bracteas ovate, acute, flaked, shorter than the calyx. — Native of Italy, Mount Caucaus, and the Levant. Miller cultivated it in 1731, and one of his own specimens, compared with those of Allion, have enabled us to verify the above synonymy, and to reduce two reputed species, of this difficult and confused genus, into one. The present differs from both the two last, in having leaves twice their fize, besprinkled with only a few minute flattered hairs, so as to appear nearly smooth. But its most essential character consists in the small leaves of the bracteas, whose points do not extend beyond the calyx. The spikes therefore appear almost naked, consisting of numerous purple downy flowers, whose calyx, like the flower-flake and bracteas, is rough with glandular villous hairs.

The last species in Linnæus, Willdenow, and Aiton, S. erecta, require to be expunged, being the very same plant as Teucrum Ardisini, Linn. Mant. 81, and announced as such in Sm. Prodr. Fl. Græc. Sibth. V. 1. 392. Its calyx and habit accord with Teucrum, not with Scutellaria.

Scutellaria, in Gardening, contains plants of the hardy, herbaceous, perennial kind, of which the species cultivated are; the entire-leaved skull-cap (S. integriloba); the Florentine skull-cap (S. peregrina); and the tall skull-cap (S. altissima).

Method of Culture. — These are all raised from seed, which should be sown in autumn or spring, but the former is the better season, in the places where they are to remain, or in a border to be removed afterwards. When the plants are up they should be properly thinned out and kept free from weeds.

They afford variety in the borders, clumps, and other parts of pleasure-grounds, when properly planted in them.

Scutellum, in Botany, a little shield, sometimes used for the fructification of Lichens, instead of Scultella, see that article.

Scutellum, or Erythronium, in the History of Infusoria, is the posterior part of the thorax; it is frequently triangular, and appears to be separated from the thorax by its intervening future, as in moll of the coleoptera.

Scuthinon, in Botany, a name given by the ancient Greeks to a yellow wood, called also thapsus, chryson, and Scythium lignum. It was of a beautiful colour, and was used in dyeing and in colouring the hair yellow, which was the favourite colour of that time.

The same authors have sometimes also called it cyphon, or cuthion: this is only the former word with the initial f taken away, as it was common with them to do in regard to many words; thus they called the similax milax, the simaragus, and fo of many more.

Scutiforme Os, in Anatomy, the chief bone of the knee, called also patella, mala, &c.

Scutiformis, Carditlagos, one of the pieces composing the larynx. See Larynx.

Scuttle, in Agriculture, the name of a shallow balket, or fort of wicker-bowl, much used in the barn and for other purposes. The large ones have handles, but the small ones are without them. They are often also employed for flitable purposes.

Scuttes, in Ship-Building, are square openings cut through the decks, much less than the hatchways, for the purpose of handing small things up from deck to deck. There are also scuttles cut through the ship's side, for the admission of air and light into the cabins, &c. between decks, and some between the ports of smaller vessels, through which the smoke is used to row the vessel along in calm.

Scuttle-Hatch, in a Ship, the little hatch that covers the scuttle.

Scuttlng, in Sea Language, the act of cutting large holes through the bottom or sides of a ship either when she is stranded or overfold, and continues to float on the surface. It is commonly devised for taking out the whole or part of the cargo, provisions, stores, &c. with all possible expedition.

The decks are scuttled sometimes to put pumps down to afflict the chain-pumps on emergency or failure.

Scuttock Hills, in Geography, hills of the United States of America, in the district of Maine; 8 miles N. of New Brifhol.

Scuttock Point, a cape on the coast of Maine. N. lat. 44° 18'. W. long. 67° 58'.

Scutula, in Botany, so named by Loureiro, from the shape of its berry, which resembles a little shield.—Loureiro. Cochinch. 235.—Clas and order, Oelandra Monogynia. Nat. Ord. ……

SCYBALA, σκυβάλα, in Medicine, an appellation given to the excrement of the bowels, when it is hard, dry, and formed into small maffes, or little balls, resembling the excrement of sheep. This form is always given to the bowels by their remora or delay in the intestines, and is sometimes merely the result of ordinary confinement, and is then probably produced in the cellular surface of the colon, or intestines; but in some cases, skubala are lodged higher in the canal, exciting great irritation in the bowels, and even violent purging of thin, slimy, mucus, together with much fruitless straining, or tenesmus; which constitute, in fact, one form of the dysentery, or flux. In these cases, it is obvious that, if astringents are given, with a view of checking the purging, the disease must be aggravated; for the enemy is thus closer locked up in the bowels; and that effectual cathartics must be administered by the mouth, to expel the accumulated excrement. Accordingly the appearance of skubala in the

SCYLANAX, in Ancient Geography, a river of Asia, in Pontus, which ran into the Iris, after this latter river had pursued an easterly course, and watered the town of Amaistra, according to Strabo.
SCY

SCYLDWIT, in our Old Writers, a mullet or fine for any fault.

It comes from the Saxon *seilde*, i.e. *delicium*, and *wit*, i.e. *parus*.

SCYLLITZA, John, *Cerophalates*, in Biography, a Greek historian, known for his abridgment of history from the death of Nicophorus Logothetes, in 811, to the deposition of Nicophorus Botaniates, in 1081. This history, from the year 1067, is the name that of Ceduncus, which has caused a delusion among the learned, which of the two was the plaguary. Scyllitz is thought to have been a native of Lefki Asia, and a prefect of the guards before he attained the dignity of eulopulates. A Latin translation of his history entire, was published at Venice in 1570; and the part concerning which there is no dispute was printed in Greek and Latin, at Paris, in 1647. Moretter.

SCYLLA, in Ancient and Modern Geography, a rock at the entrance of the Straits of Messina, about 200 feet in height, now cape Segio; which is. Scylla was famous in antiquity for the danger which it presented to navigators who approached it. The rock, personified by Homer in his Odyssey, and represented as a devoursing monster, has been destroyed by a late earthquake. Concerning its situation with regard to Charybdis, and other particulars, we refer to Charybdides.

SCYLLA, or *Scylla*, a town of Italy, in Bruttium.—Also, a defeat inflicted in the vicinity of the Thracian Chersonesus.

SCYLLAEA, in Natural History, a genus of the Vermes Mollusca clafs and order, whose generic character is, body compressed, and grooved along the back; the mouth contains a terminal toothless aperture; the tentacula or arms three on each side, and placed beneath. There are only two species.

*Pelagica.* The body of this species is fixed; the four extreme arms are alike; the middle ones papillous. It inhabits the ocean, and is generally found among floating seaweed. Independently of its specific character, it is decribed as having a roundish oblong body; broader behind, and obtuse; the mouth is placed at the end of the smaller extremity; the back is grooved with a crenulate hollow, by which it affixes itself to sea-weed; the extreme arms are smaller and rounded; the middle pair is oblong, foliaceous, bending over and sprinkled within with papillae.

*Compressa.* The body is detached; the first pair of arms is naked and hollow at the tip; the others have branched fibres within. The body is about an inch long, yellowish, with rusty brown dots; the back is flat, dotted with brown at the margins, with a row of blue dots down the middle; the tail is crenulated, with an elevated rounded back, and furnished on each side with small branched fibres; the abdomen is dotted with blue, and rough, with a row of five whitish papillae down the middle of each side; the first pair of arms is the longer, the rest are contiguous, with a denticulate margin.

SCYLLEUR Promontorium, in Ancient Geography, the promontory of Scylla, or of Skeldeo, that part of the Argolid which advances towards the south-east.

SCYMNITZA, a people of Attic Sarmatia, between the Sopotherne and the Amazons, according to Ptolemy.

SCYMNUS, in Ichthyology, a name used by Athenian, Appian, and many other of the old Greek writers, for the fish called *fleutus* by Aristotle. This is a species of the eels, called by Aristedi and others the eels, with the pinna ani placed in the middle, between the anus and tail: the *catulus vulgaris* and *catulus major* of authors.

SCYPHOPHORUS, in Botany, from ἑπάθεις, a large kind of drinking cup, and γυαῖς, bearings, alluding to the dilated cup-shaped stalks, refembling wine-glasses, borne by the leaves. On whose margins the fructifying tubercules are seated. This is the denomination of the 2111 tribe, or section, of the Lichenes, see that article, in the *Prodomus of Acharius*, which are well known to the vulgar, as well as the learned botanists, by the name of Cup-moils, or *Lichenes sydaxidi*. The above name is however stuck in that of Byzantia, in the *Methodos of that author*; though Michaux uses it generally in his *Flora Borzoi-Americana*, v. 2. 328.

SCYPHUS, among the Romans, a very large kind of drinking cup. The scyphus was called the cup of Hercules, as that of Bacchus, liberis patri, was named cantharus.

SCYPPIUM, in Ancient Geography, a town of Acha, Minor, in Ionia, on the confines of the country of the Colesphontians, according to Pausanias.

SCYRA, in our Old Writers, a fine imposed on such as neglected to attend the *fregemot court*, which all tenants were bound to do.

SCYRAS, in Ancient Geography, a river or stream of Laconia, which discharged itself into the gulf of Laconia. Near it was a temple of Apollo, and an altar of Jupiter. Pausanias, lib. iii. Lacon. c. 25.

SCYREGEMOT, or SCYREMO, in Ancient Cylons, a county-court held twice every year by the bishop of the diocece, and the caddorman, or sheriff; in which both the ecclesiastical and temporal laws were given in charge to the county.

In the time of Canutus the fregemot was held thrice every year. Edward the Confessor appointed it to be held twelve times in the year.

SCYRI, in Ancient Geography, a people of India, in the vicinity of Ariana.

SCYRIUM MARXOR, a name given by the ancients sometimes to a white, and sometimes to a yellowish marble, both used in the public buildings of the Romans, but seldom in flattery, not being capable of a high polish.

SCYROS, in Ancient Geography, an island in the Archipelago, situated to the E. of the isle of Euboea, and very near it. The ancients pretend that Achilles spent the first years of his life here, disguised as a female, in the court of Lycomedes. It was in alliance with Troy, as appears from Agamemnon's having made a conquest of it. See SCIRO.

SCYTALA, an island of the Arabic gulf.

SCYTALA, in Mechanics, a term which some writers use for a kind of radius, or spoke, standing out from the axis of a machine, as a handle or lever, to turn it round, and work it by.

SCYTALA Latanics, in Antiquity, a frigate, or device, of the Lacedaemonians, for the secret writings of letters to their correspondents; so that if they should chance to be intercepted, nobody might be able to read them.

To this end they had two wooden rollers, or cylinders, perfectly alike, and equal; one of which was kept in the city, the other by the peron to whom the letter was directed. For the letter, a thin of very thin parchment was wrapped round the roller, and on this the matter was written; which done, it was taken off, and sent away to the party, who, upon putting it in the fame manner upon his roller, found the lines and words, which were before its application to the roller confusedly disjoiined, and altogether unintelligible, in the very same disposition as when they were first written. Plut. in Vit. Lyfand.

This expedient they set a very high value on; though, in the
truth, artless and gross enough: the modern has improved vastly on this method of writing. See Cotton.

It should seem, that besides this variety, used for political and military purposes, private patrons made use of a commoner somewhat similar, to preserve deeds in contracts, but these were exactly like our talers.

SCYTALE, in Zoology, the same given by the Ancients to a species of apes, which was very long and thin, and equally big all along the body, so that the tail was not easily distinguished from the head.

Linnaeus mentions two animals under this title; one, a species of monkey or snake, and the other a species of the Eus; which tree.

SCYTALIA, in Botany, elegantly so named by Gartner, from scytos, a staff, or pole, and alia, a thing, in allusion to the heartly substance and colour of the skin of the dried fruit, as also to the little flesh-like tuberces, with which its outside is beset, resembling a coat of mail. Schreber has followed this author: but the same genus was published two years afterwards by Loureiro, under the name of Dimocarpus, indicating its double or twin fruit, which Willdenow has unawares retained, though in every respect less eligible. Hence the latter appellation is also adopted in the Hortus Kewensis, the plan of this book being, as much as possible, to follow Willdenow. Had we been aware that it would have done so in the present instance, we might perhaps have yielded our better judgment to convenience, and have given the history of the genus under the head of Dimocarpus; but this not being the case, we shall exhibit it here, acknowledging our preference for Scytalia.—Gent. See v. i. 197 t. 42. Schreb. Gen. 252. (Dimocarpus; Loureir. Cocih. 233. Willd. Sp. Pl. v. 2. 354. Ait. Hort. Kew. v. 2. 354. Euphoria; Juff. 247. Lamarck Histo. t. 356.)


Gen. Ch. Cal. Perianth inferior, of one leaf, very small, with five minute teeth. Cor. Petals five, small, reflexed, hairy on the inner surface, sometimes wanting. Stam. Filaments eight, sometimes but fix, awl-shaped, hairy, longer than the petals, dilated at the base; anthers heart-shaped, incumbent. Pd. Germen superior, two-lobed, somewhat flattened; style shorter than the filaments; stigma two, spreading. Peric. Berries two, ovate or globose, with a conicaceous warty coat, pulpy within, each of one cell. Seed solitary, large, elliptical, polished, obliquely cut away at the base, where it is inferted into the slightly elevated bottom of the pericarp.

Obf. Gartner has described as a flucky tunic of the feed, what is really only the dried pulp of the berry.


1. S. Litchi. Linn. or Apetalous Scytalia. (Dimocarpus Litchi; Ait. Hort. Kew. v. 2. 354. Loureir. n. 1. Litchi chinensis; Sonnerat Ind. Or. v. 2. 230 t. 129. Sapsindus edulis; Ait. ed. 1. v. 2. 356.)—Flowers with six filaments, and no petals. Fruit with prominent warts. — Nat. of China, Cochinchina, and Turquin. The celebrated governor Hastings is said to have sent this plant to England in 1756, and it is marked as flowering in the flowe at Kew, in May and June. The younger Linneus, however, appears to have obtained a specimen of the leaves, from the collection of the marquis of Rockingham at Wimbledon, during his stay in England in the spring of 1782. The Litchi is described by Sonnerat as a large tree, with a soft white wood, abounding in pitch. The leaves are alternate, stalked, abruptly pinnate, confiding of three or four pair

of species, tallied, elliptical, oblong, pointed, rosetted at the base, and furnished with a large, round, warty fruit, in the form of a thistle. Pericarion, a light, warty, with very round, echinate, and warty teeth. It is of an agreeable flavour, not so good as the fruits of the countries where it grows. I. Consider it in oven for expiatory. Scythia, which we have noted, England, contained a fine very good pears, at the table of tamarinds.

2. S. Longan. Licon, a Monkey-pod tree. (Dimocarpus Loureir. Ait. Hort. Kew. v. 2. 354. Loureir n. 2.)—Flowers with eight filaments and five petals. Fruit nearly smooth. — Nat. of C. A. Cultivated in the coast of Cochinchina, the East Indie, &c. This is also a large tree, with a few boisterous fruits, half the size of the last, more precociously ripened, and either quite smooth, or slightly leathery, not warty. The leaves are rather more numerous than in the former, shorter, blunter, and more elliptical, and held in our East Ind. p. curcas. In one from the ile de Bourbon, marked Longan, the leaves are oblique, or unequal, at the base, alternate, and taper-pointed. The fruit is quite smooth. We suspect this to be rather some Sapindus, confounded with the true Longan.

Loureiro mentions two more species unknown to us, one of which, his Dimocarpus inferius, seems to be the wild state of the Litchi, in the woods of Cochinchina. He speaks of the wood of all the four as of an excellent quality, heavy and hard, of a brownish-red. The same author relates, that the Litchi, being impatient of cold, as well as of great heat, is mostly cultivated in the southern provinces of China, and the northern ones of Cochinchina. As the fruit will not ripen at Pekin in the ordinary way of cultivation, trees in flower are sent thither by water, so as to yield ripe fruit, for the emperor's use, on their arrival. This is attended with great labour and expense.

SCYTHA, Scythe, among the Athenians, a designation sometimes given to the officers, more usually called hierarchi.

They had the name Scythia, because they were often natives of Scythia who were chosen hierarchi, as being brawny and flabby fellows.

SCYTHARION, in Botany, a name given by the ancient Greek writers to a tree, whose wood was of a fine yellow colour, and was used in those early times to dye things yellow: it was called also Scythium lignum, from its country, and chrysoyloan, or golden wood, from its fine yellow colour. It has been supposed that this was the same with the cotinus coriaria of the Romans; but this is an erroneous conjecture, since the wood of this tree dyed a yellow colour, and that a brownish-red, or a clear and pure red, according as the infusion was made more or less strong. This feytharian, therefore, could not be the same with the cotinus, but it certainly is the same with the thapous of the Greeks.

SCYTHE, in Agriculture, the implement used in mowing, being a crooked blade joined at right angles to a long pole, or handle. It is sometimes written ʃythe, or tythe. See Mowing.

Common scythes are of several different constructions and
Rhymnus, the is and that and a supposed, When and one to near and it had without and the tool, which is commonly furnished and fitted up differently for different purposes, as has been noticed under the heads to which they belong. See Mowing, Reaping, &c.

The fliff Flemith fcythe is in use in some places for cutting bean, and other flrong crops of the corn kind. It has the name of bean peck in some parts of Essex; and though it is thought by some to beat out the seed too much, in the hands of workmen who understand the use of it, very good clean work can be made with it, without any much mischief taking place, and they rid work in this way much faster than by the common tool and method.

In Cheshire, they make use of a strong tool of this fort, called the boddle-fcythe, the blade of which is about twenty inches in length, but curved in a different way to the common fcythe, the edge being nearly in one way of it, in a straight direction from the heel to the point; but the flat part of the blade forms a curvature, which varies about four inches from a straight line. The handle or shaft, to which the blade is fixed, is about three feet six inches long, and has one fcythe-like handle placed about eighteen inches from the top. When the work is performed, one hand is placed upon the top of the shaft or fneyd, and with the handle in the other, the crown of the ruff root is scooped out by the concave part of the blade, in consequence of a smart stroke being given by the tool. The early spring is considered as the most proper season for effecting this fort of busines; and it is advisable to carry off the ruff roots, and form a compost with them; the lod-holes, or cavities made by the tool, being filled level with the surface of the ground with some earthy material, and fown with hay or gras-ffeeds. This tool is yet but little known, except in the above district, where it has been used to considerable extent in many parts, with the most beneficial effects in clearing the lands from rufles; many scores of acres of low meadow and marshy lands having been in this way freed from them, and with the aid of gutters, rendered of more than double their former value.

Short floug fliff fcythes are made use of in moat places, for clearing away and removing all forts of shrubby plants from grounds, such as those of the broom, briar, furze, and several other limiar kinds.

SCYTHIA, in Ancient Geography, is a vast territory, which has been confounded by some geographers with Tartary or Tartary, of which it is only a part (see TARTARY), extended from the Ilter, or Danube, that is, from about the 25th to almost the 16th degree of E. longitude. It was divided into Scythia in Europe, and Scythia in Asia; including, however, the two Sarmatias, or Sarromatias, now the Circassian Tartary, which lay between and separated the two Scythias from each other. Sarmatia was also distinguished in European and Asiatic, divided from the European Scythia by the river Don or Tanais, which falls into the Palus Mazotis, and from the Asiatic by the Iva, now Volga, which empties itself into the Caspian sea. (See SARMATIA.) Accordingly the two Scythias were only parted by the boundaries of Europe and Asia, that is, by the river Tanais, descending, as it is supposed, from the Riphæan mountains into the Palus Mazotis. For, beyond those mountains northward, the Scythians did not advance into any of those remote regions; so that there were the proper confines of the Asiatic Scythia on the west. The northern boundaries reached to the Hyperborean or Frozen sea, called also by the ancients the Scythian sea, the Criotian, Amalian or Almalian, the Dead sea, and by some other names equally expressive of extreme cold and ice. On the east, they are supposed to have extended to the promontory of Tabis, and to have been bounded by the Caflian mountains, which parted Scythia from the kingdom of Sares, now Katai, Chahar, or Northern China; and even this last was by some of the ancients taken for part of Eastern Scythia; so that, on that side, it had no other boundaries, according to Ptolemy, than the unknown tracks beyond it; and on the south it was bounded by the Indian sea, by mount Caucasus, and the Caspian. As to the more northern parts of Scythia, it is, on account of its extreme cold, uninhabitable, except by wolves and other wild beasts; and hence they seem to have been unknown to the ancients beyond the 50th degree north. The territory beyond that degree was denominated Terra incognita. But the southern regions, better known to them, were divided into three parts, viz. Scythia within, and Scythia without, or beyond Imaus, and Sarmatia, which, as we have already said, lay between the former and the European Scythia, and which had been so blended with it, that the only difference between them was the name. Accordingly, Ptolemy bounds the Scythia on this side of Imaus on the west by Asiatic Sarmatia, by mount Imaus on the east, by the Terra incognita on the north, and on the south and east by the Sace, Sogdian, and Margian. The principal mountains in this part Ptolemy reckons to be the Alani to the east; the Rhyminni, from which flowed the Rhymnus into the Rha; the Norofni, from which sprung the Daix, the Afpifi, the Sauri, the Syebi, and the Ainaici. The rivers were the Rhymnus, the Daix, the Jaxartes, the Jaltus, the Polytimetus, and the Oxus. The inhabitants of this part, according to the same geographer, were, towards the north, the Alani, Sufobeni, and Agathyrri; and next to these, the Satiemen, the Maffi, the Syebi; near the Imaus were the Thases; near the eastern sources of the Rha, the Rhobacii, Azani, and Jordii; to the south, and near the river, was the country called Conadipfas regio; and near this, Cornphi, Orgazi, Iota, and Aoni; next to these, the Jaxartes, a considerable nation, on the river of the same name; to the south of the Satiemen were the Mologeni, and next to them the Samnitz; and below the Maffi and the Alani mountains were the Zaretæ and the Zasones; to the east of the Rhymnic mountains were the Tybiaca; and below them the Zaretæ, Tabeiæ, Jaltæ, and Machageni, near mount Norofni; above them were the Orofbes and Norofni; and more to the south, the Cachæfæ Scythe; to the east of the Afipifi, the Afipifi Scythe; and east of them, the Galatæphagi Scythez; and east of the Syebi, the Tapurei, and the Astantial Scythez. The Anaci lay to the south of the Agathyrri, and to the east of the Tapurei. The Afastance extended to mount Imaus; and near the Jaxartes, between the mouths of the two rivers, were the Ariace, the Sagaracuce, and the Rhibi, near the Oxus. The Scythia beyond Imaus, according to the same geographer, was bounded on the north by the mountains, on the east by Serica, on the south by part of India on this side of the Ganges, and on the west by the interior of Scythia and the Sace. The mountains of this part are the Auxacii, Caflii, and Emodi. The inhabitants were, towards the northern part, the Abi; to the south, the Hippophagi Scythez, thofe of the Regio Aucxatis, and the Regio Cafla, the Chatæ-Scythez; and near the Emodi, the Charauni.
Scythia. The towns were Auranica, Ilbodn Scythae, Chorazia, and Nauta; from which Melas alludes to the Scythians much in the same extent and boundaries. The Scythia Pharsica was called by the Greeks Mabilia.

The Aftate Scytha, therefore, comprehended in general Great Tartary, and Ruffia in Asia; and, in particular, the Scythia beyond or without Imaus, comprehended the regions of Bogdans, or Olaracon, and Tunguris. The Scytha within or on this side of Imaus comprehended Turkestian, and Mongul, the Utebek or Zagatai, Kalmuck and Nagayan Tartaris, besides Siberia, the land of the Samoedas, and Nova Zembla. The three last mentioned countries, not being so soon inhabited as the former, were wholly unknown to the ancients; and the former were peopled by the Bactrians, Sugdians, Gandari, Scace, and Massagetae. Sarmatia contained Albans, Iberia, and Colchus, which now constitute the Circassian Tartary and the province of Georgia. (See Circassia and Georgia.) The seas of Scytha, besides the Frozen and Indian ocean, were the Caspian, the Euxine, and the Palus Mecitis. The rivers, besides those already mentioned, or the Rhin or Volga, and the Tanais or Don, were the Ob, Lena, Amur, and Helum, all of which are in Great Tartary, to which we may add the Jaxartes and the Oxus, which discharged themselves into the Caspian sea; in which sea were islands called the Scythian islands. The most noted mountains were the Taurus, Imaus, and Caucasus.

European Scythia, whose confines were at first fixed at the Tanais, reached towards the south-west to the Po and the Alps, by which it was divided from the Celts, or Celto-Galla, and by the Rhine northward. On the south, it was bounded by the Iler or Danube, and the Euxine sea; which boundaries were continually changing, on account of the mutual encroachments of the Celts and Scythians; and as to its northern limits, which have not been accurately ascertained, they have been supposed to reach to the spring-heads of the Borylithes or Dnieper, and the Rha or Volga, and so to that of the Tanais. The ancients divided this country into Scytha Arimafaia, lying eastward, and joining to Afian Scytha, and European Sarmatia on the west; which were contiguous to each other, and stretching for some interval from north to south, without any perceptible line of separation. In Scytha, properly so called, were the Arimapia on the north; the Gete, or Dacians, along the Danube, and the Euxine; and the Neuris between these two. It therefore contained the European Ruffia, and the Iler or Crim Tartary, ethnically, and on the west, Lithuania, Poland, part of Hungary, Transylvania, Walachia, Bulgaria, and Moldavia. This Scythia had no other sea besides the Sarmatian, or Mare Scythicum, now called the Baltic, with the gulfs of Bothnia and Finland, and the White sea joining to the Northern ocean, all unknown to the ancients, if we except the Euxine and Palus Mecitis, which bounded it on the south. Its lakes were those of Ladoga and Onega in Finland, unknown to the ancient Sarmatians. Their chief rivers on the south were the Donetz or little Tanais, Borylithes or Dnieper, Bog, Tyra, or Dniefer, and the Iler or Danube, all which discharged themselves into the Euxine; and on the north, the Great or Little Dvina, which run, the first into the White sea, and the other into the Gulf of Finland, and therefore unknown to the ancients; and on the west, the Vitilia, which flowed into the Scythian sea, and divided Sarmatia from Germany.

The whole extent, therefore, of both Scythias, including the two Sarmatias, reached in longitude from the 20th to the 85th degree, or even beyond, and from the Alps to the promontory of Tuba, and hence of Asia; and by latitude, from Carnia to the Arctic sea, above 67 degrees. Herein it is said, that the Scythians were not of Scythian race, but another kind of people, some of whom were Aryan, others, of course, and others, with the Bald heads, or Argives, a wise and peaceful people, esteemed by all their neighbours: but he speaks of them merely by report, and with dilution; so that these regions were probably unknown, if not unoccupied. The five cities of Scythes, which we have mentioned, were probably built after the time of Herodotus, who writes no notice of any metropolis; though he mentions a considerable branch of Scythians, called Royal Scythians, whom he places along the banks of the Tanais; this river, as he says, dividing them from the Aftate Sarmatians. The original Scythians of Herodotus (l. iv.) were confined, by the Danube and the Palus Mecitis, within a square of 4000 Roman miles. Diodorus Siculus (vol. i. 1. p. 155. ed. Well.) has marked the gradual progress of the name and nation, from the mouth of the Danube to the sea of Japan (says Gibbon, vol. iv.), the whole longitude of Scythe is about 110 degrees, which, in that parallel, are equal to more than 5000 miles. The latitude of these extensive deserts cannot be so easily or so accurately ascertained; but from the 40th degree, which touches the wall of China, we may securely advance above 1000 miles to the northward, till our progress is stopped by the excessively cold of Siberia. In that dreary climate, instead of the animated picture of a Tartar camp, the smoke which issues from the earth, or rather from the snow, betrays the subterraneous dwellings of the Tungusse and the Samoyedes. The want of horses and oxen is imperfectly supplied by the ufe of rein-deer, and of large dogs; and the conquerors of the earth insensibly degenerate into a race of deformed and diminutive savages, who tremble at the sound of arms. Anc. Un. Hist. vol. iv. See Scythians and Tartars.

SCYTHIAN, a word used very often in the old Greek writers on the materia medica, to distinguish the peculiar fort of gum, or other drug, brought from the Scythians.

The Scythian and Indian drugs have been by many supposed different kinds of the same medicine; but this is an error; for it appears very obvious, on comparing the writings of Galen, Aetius, Aegius, and other of the later writers among the Greeks, with those of Dioscorides, Theophrastus, and the other old ones, that the words Scythis and Indian mean the same thing, and that those who old writers have called Indian, these have called Scythis.

The meaning of this is, that those things were called Scythis, which were brought from the country of Indo-scythia, or that part of Scythia which lay at the origin of the river Indus; but it is to be observed, that though the later Greek writers mean this by their term Scythis, yet the word is used in a very different sense by the Arabians, Avicenna, Serapion, and others; and that wherever they mention a drug under the name of Scythian, they mean that it comes from the northern parts of Scythia, on the confines of Europe. These authors having understood of this Scythia what the Greek writers have said of the other, have made no small errors in regard to the history of drugs, having given bdellium, and many other gums, the produce of only the Scythia of the Greek medical writers, to the frozen Scythis, before mentioned.

SCYTHIANS, in Ancient Geography, the inhabitants of Scythia, confided by some geographical authors as the same people with the Tartars, or, as they are more commonly,
monly, though erroneously, called, Tartars. (See Tar-
tars.) With regard to the etymology of the name of
Scythians we have many different conjectures. Pliny
foms to intimate, that this appellation is derived from Sacai, a
people known by a familiar name to the Greeks and Per-
hians. Bryant deduces it from Cuthia. Colonel Vallancey
traces its origin to words denoting navigation: others de-
rive it from the Greek word σκύθες, which expresses the
fierceafes of their countenance and natural temper; and
others again derive it from the Teutonic word *febolen or
fbuten, in which art this nation is said by Her-
dotus, Lucian, and others, to be fo expert, that the
name is given on that account, the word Scythian properly
signifying a great *booter or archer. As the Tartars and
Mufcovites called themselves Mogli, supposed to be an
abbreviation of Magogli, the fons of Magog; that of Scy-
thian might be either given to them by other nations, or
perhaps by the Celtes, whose language did not originally
much differ from the Scythian or Teutonic. Sir William
Jones observes, that neither Scythian nor Tartar is a name
by which the people now under our confideration have ever
distinguifhed themselves.

The Scythians have been confidered by some writers,
with regard to their antiquity and origin, as the fame
people with the Celtes, and as being the descendants of
Gomer, the eldest fon of Japhet. To this notion Her-
dotus, Ptolemy, and Justin have called the Scythians, who
emigrated into Asia, by fame names, and attributed fome
actions and places to them, which, upon closer exa-
famination, are found to have belonged to the Celtes or Gome-
rians, whom they had driven out of their European terri-
tories. Strabo informs us, that the old Greek hisfiorians
gave the name of Scythians and Celto-Scythians to all the
inhabitants of the northern regions, though it is plain that
many of them were properly Celtes or Gomeries. And he
also adds, that fome of thofe people who inhabited
beyond the Caffian fce, which fhoild be the Scythians,
were, by the fame Greek hisfiorians, called Saca, and
others Maffagetae, though the former of thofe names, at
leaff, belonged only to the Celtes. Hence many learned
men have chofen to reckon them as one people, branced
out into that variety of names and charaflers, under which
they are diftinguifhed in hisfory. See Celts.

Jofephus, who affirms the Scythians to be defcended
from Magog, the next brother of Gomer, has been fol-
lowed by many of the fathers, and by many moderns,
becaufe they could find no better authority. In the migra-
tion of thofe ancient tribes into Europe, if Gomer's de-
cendants turned towards the N.W., thofe of Magog may
be reasonably fuppofed to have spread themselves towards
the N.E. into both Scythia, where we find the ancient
Mufcovites or Tartarians; diftinguifhed by the name of
Mogli, corrupted or abbreviated possibly from Magogli,
the fons of Magog. To thofe conjectures it may be
added, that there is fcarceiy a nation under heaven, that
fo fully answers the fierce and dreadful charafler which the
Scriptures give us of Gog and Magog, as that of the
barbarous Scythians; though in fact this charafler was
too applicable to thofe neighbours in thofe early ages.

Sir Ifaac Newton is of opinion, that both the Celtes
and Scythians had spread themselves over Leffer Asia and
Europe, before the year of the flood 2220, that is, about
the latter period of the Israelith judges. How foon
the Scythians began to ftablish a regular government, and
what kind of government it was, it is impoffible even to
conjecture. It appears, however, from the testimony of
Herodotus, that one or two tribes at leaff, that is, the royal
and free Scythians, were under a kind of monarchy, and
that these two dijtinguifhed themselves more than all the
others. Herodotus informs us, that in process of time,
when the Scythians were likely to be invaded by Darius,
his king, dredging the invaders, invited all the Scythian
princes, viz. thefe of the Taurians, Agathyliaus, Ne-
rians, Androphagi, Melanchlemus, Budians, and Sarmat-
ians, to unite in giving him affifiance. All thefe tribes
fem to have been branches of the fame flock, but differing
much in their manners and customs. In confeguence of
this application, the three left named nations joined with
the king of Scythia, but the others refused to fuccour him,
alleging that he was the first aggressor. Hence we may
conclude, that they had emancipated themselves from the
yoke of the royal Scythians fame time before. As to what
the laws of the royal and free Scythian were, we may form
fome judgment from the excellent charafler that is given of
them by ancient hisfiorians. Justin (lib. ii. cap. 2.) gives
the following account of them. The Scythians were a
nation, which, though inured to labour, fierce in war, and
of prodigious strength, could nevertheless fo control their
paffions, that they made no other use of victories than to
increase their fame. Theft among them was reckoned fo
great a crime, and was fo fervely punished, that they could
not, in their numerous flocks wander from place to place without
danger of losing them. Thofe they defteemed their greatest
wealth, living upon their milk, and clothing themselves
with their skins. Instead of houfes, they used to convey
their wives and children about in covered waggons, drawn
either by horses or oxen, and made capacious enough to
carry all their other furniture. Gold, silver, diamonds,
pears, and other costly fones, were as much defpifed by
them, as they were esteemed by other nations, fo that they
could not covet that which was of no ufe. What is still more
wonderful, thofe virtues, which the Greeks in vain endeav-
oured to attain by learning and philosophy, were natural
to them, and they reaped thofe advantages from their igno-
rance of vice, which the others could not derive from their
knowledge of virtue. A nation of this charafler and way
of life could therefore want but few laws to secure their
property; fome others they had with relation to religion,
cultus, and polity, which forbade, under pain of death,
any alteration in either; which excluded their women from
the benefit of marriage, and every man from affilting at
their royal feast, till he had killed an enemy. Some other
of their laws we fhall have occasion to mention in the fequel.
Upon the whole, what appears of them feems wholly cal-
culated to prevent luxury, fraud, and covetousness, and to
cherish that martial spirit, for which they are fo juftly famed
in hisfory.

Some of the Scythian tribes, indeed, bear a quite dif-
ferent charafler, being repreffed by fuch fierce and cruel
depofition, as even to eat the flesh of their enemies. Thofe,
if under the fame government, were at fuch great diftance
from the centre of it, as to be out of the reach of its laws.
As the inclination of the air in thofe remote regions might
probably incline them to cruelty; fo the diftance and bar-
creness of their country might make them lefs heeded, and
probably more incapable of being restrained by the com-
mon regulations of society. However, it must be owned,
with respect to the warlike temper even of the true Scy-
thians, that it was not without a mixture of cruelty, if
they have not been wilfully misrepresented by the Greek
hisfiorians.

If we may reafon from fome fuccesfions we find men-
tioned in hisfory, it feems their crown was hereditary, and
yet
SCYTIANS.

Having reached the spot at which they had been left, two or three of their men, even the men of the guard, came up at their request. They returned to the same tent that they had pitched the night before, their horses being spread about it, the servants of the high priest, and some of his retainers, being within the temple. The temple was the same as that which was mentioned by Herodotus; it had before been burnt, and the king, when he undertook the task, told them that it was to be rebuilt. He himself, however, was the only one who could see it. This temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country. The temple was a circular building, with a high, round, and solid roof, and was surrounded by a wall, which was made of stone. The temple was forty feet in diameter, and was built of stone. The sides were covered with slabs of stone, and the roof was covered with slabs of wood. The roof was supported by four columns, the tops of which were decorated with figures of horses. The temple was not large, but it was very fine. It was built of stone, and the roof was covered with tiles. The temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country.

The temple was first built by the king, who had built it at his own expense, and who had dedicated it to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country. The temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country. The temple was not large, but it was very fine. It was built of stone, and the roof was covered with tiles. The temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country. The temple was not large, but it was very fine. It was built of stone, and the roof was covered with tiles. The temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country.

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The temple was dedicated to the god of war, who was supposed to be the same heathen god, the worship of which was prohibited by the religion of the country.
veil, into which the contracting parties were to mingle some of their own blood, which they drew by a slight incision made in the finger, hand, or some other part of the body. They then dipped into the mixture the point of some warlike weapon, such as a scimitar, arrow, dart, javelin, or battle-ax. The parties then uttered some dire imprecations on the first breaker of the covenant, and, having each of them taken a draught of the liquor, they defined some of the most considerable among the bystanders to pledge them, and to be witnesses of the contract, which was reckoned so sacred, that they thought no punishment severe enough, either in this life or in the next, for those by whom it should be violated.

Their warlike temper and exploits were sufficiently known to the ancients; scarcely is there any nation to be met with in history, so famous for conquering wherever they carried their arms, even as auxiliaries, and themselves remaining still unconquered. Their frugal and simple manner of life, may indeed be supposed to have been a great preservative against such invasions, as other more opulent and luxurious nations were exposed to. But it is plain, this was not always the case, since we find they were once invaded by the king of Persia at the head of a most puissant army, from the power of which nothing but their valour and policy could have delivered them. Upon the whole, such were their strength and courage, whenever they entered into an offensive or defensive war, that, as Thucydidcs himself tells us, no nation, either in Europe or Asia, could equal them either for strength, valour, or conduct; nor could any thing reft their power, when they were unanimous among themselves.

Such care they took to cultivate this martial genius, that even their women were inured to it betimes, inso much that no woman could be admitted into matrimony till she had killed at least one enemy with her own hands. As for their youth, they were not without considerable encouragements to inspire them with martial valour, or rather ferocity, if we may rely upon the information of Herodotus, who tells us that they were wont to drink the blood of the first prisoner they took, and to present the heads of all the men they killed in fight to their monarch; these were either returned or registered, and the warrior enjoyed privileges in proportion to the numbers he had slain. They used to take the skins of the slain, to stretch, dry, and tan them, and then hang them at their horses' bridles, where they served both for trophies and napkins to the owner; he being always most esteemed, who had the greatest number to display. Their pride, or rather barbarity, went so far, that they took off and dress'd the whole skin of the slain, and covered both their quivers and horfes, and sometimes decked their own bodies with them; and used their skulls for drinking cups.

Had they only exercised this kind of savage pride against those who came to invade them, it might indeed admit of some excuse; but it doth not appear that they gave much better quarter to those whole territories they invaded.

In confluence of their living free from ambition and care, and eating plentifully of animal food, they acquired ruddy complections, and became so plump and fanguine, that, to prevent their growing too unwieldily, they not only used a great deal of exercise, but even cauterized their arms, shoulders, backs, and breasts, with a view to draw off superfluous moisture. They were remarkable for their fidelity and friendship, which they esteemed and gloried in above all things. They commonly confirmed their friendship by some such religious ceremony or oath, as we have lately mentioned, but a Scythian seldom diffused his attach-
number of dialects, from which most probably have sprung
the Meso-Greek, Salvanian, Polish, Danish, Swedify, Saxons,
and many others; between which one can but barely dis
cover affinity enough to evince their origin from the same
mother. A great number of words and phrases that are
found not only in these northern languages, but also in the
Latin, Greek, Arabic, and Persian, shew them to have been
so many dialects of the old Celtic. If these few relics of the
Scythian, which we have left in the names of their
kings, tribes, and districts, do not plainly appear to be
of the same extraction, we must remember they have put
through so many different hands, and have too often changed
their drefs, especially among the Greeks, that they may
be easily supposed to have quite lost their ancient form.
We may add, that some of them are perfectly Greek, or
translated from the Scythian into that language. Of this
kind is the name of the Oecus, a Scythian tribe, so called
in Herodotus, from their living upon the eggs of wild
fowl, and derived from the Greek οίκος. The Nomades
were so called from οῖκος, pαύβαρ. Of the same extraction
were the Hyppodes, Androphagi, and some others.
Their chief manufactures seem to have consisted mostly in
building waggon for their families and baggage, which being
covered with the skins of beasts, shews they must have
had some notion of tanning and dressing leather. We may
likewise reasonably suppose, that they fabricated their own
weapons, which were scimitars, javelins, axes, and epecially
bows and arrows, at which they are said to be so expert,
that their very children were trained to shoot at a mark,
even as they rode on horseback; insomuch that it became
a common proverb, "that the Scythians were as dextrous at
their bows as the Greeks were at their lyres." Hence
Cyaxares, king of Media, is reported to have sent his son
to be brought up under them, to learn the use of the bow.
They were so expert in horsemanship, as to have acquired
the epithet of ἐλθετονια, by Herodotus and Lucian.
Their women are affirmed to have been so well trained to riding
and shooting, that they did not fall short of the men in
those exercises. The ancients observe, that they had nei-
ther males nor slaves; and the reason they give is, that the
country was too cold for those creatures. Experience has
since shown the contrary, at least with respect to the latter;
but the true reason seems to be, that the horset, which
they bred in great numbers, could answer all the purposes
of the other two species, and at the same time be more swift
and expeditious.
As for agriculture, it doth not appear that they had any,
Herodotus indeed tells us of one province, whose inhabi-
tants called themselves Olbopolitians, and the Greeks Bo-
rythmians, as they lived on the north side of that river;
and these he likewise called husbandmen, because they
sowed grain, not for food, but for sale. But the rest of
the Scythians wholly neglected it, chusing rather to roam
where they found the best pasture for their cattle, and
containing themselves with the spontaneous products of
the earth, without being at the trouble of manuring it.
And this is in all likelihood the cause we read of so
many deserts, forests, and large uninhabited tracts of land
between tribe and tribe, in the writings of ancient historians
and geographers. How they disposed of the wool of their
flocks we know not, but, by their clothing themselves
with the skins of wild or tame beasts, we may conclude
they did not manufacture it into cloth; and as those skins
were of their own dressing, they wanted only the help of
foreign manufactures. Smiths they must have had, for
making their arms, waggons, and other necessary tools.
As to their arrows, darts, and javelins, if their heads were
made of copper, they were probably call in wood. They
used standards of a particular make, which, when blown
open by the wind, exhibited the figures of serpents and
dragons of several shapes, and these were commonly borne
by men on horseback.
Their chief riches and food consisting in their numerous
herds, they estrallated the care of them to the herdsmen, who
were a lower rank of Scythians, below the tribal men, though
they too had horses and captives in their service.
They used to move from pasture to pasture, with the
persons and families which were unfit to go to the wars. The
called lived upon honey, cheese, and milk, more especially
that of their mares, in which creature, if Herodotus
who was rightly informed, they had a strange way of faring
plenty of it, by blowing wind into the privies; but their
chief and choicest food was the vomit the killed.
What provisions the warlike Scythians made, when they were
absent from their flocks, we cannot guess; it is probable
when they came into an enemy's country, they fed upon
all the cattle they could meet with; and when that failed,
they had recourse to a composition they carried about them,
of which we shall speak presently.
From an allusive or two recorded of their kings, we
conclude, they allowed of polygamy, and were not over
strict in their marriages. Plato seems even to intimate that
they had their women in common, though, if any such cus-
tom prevailed among them, it must have been only among
the more savage part, for the royal and free men had wives;
and some of their kings we read of, who took them from
other nations, and of one of them who married his own
father's widow; but whether the same liberty was allowed
to private men we cannot affirm. The reason the Scythi-
ans gave for abhorring the Bacchanalian feasts of the
Greeks, namely, that it was absurd to suppose, that a god
should drive men to all the violent transport of madness,
seems to shew that drunkenness was not common among
them. And indeed we do not find that they were much
addicted to feasting. Plutarch, in his Banquet of the
Seven Wise Men, says, "that they neither had vines, nor
players on instruments, nor public games." One wine-feast
they kept however once a year in every district, for those
who had fastened themselves by killing one or more of
their enemies. Another we read of, which was used at
funerals. Some others they might have upon other occa-
sions not worth enquiring after; but in general, they were
remarkably abstemious, except in their intoxications for
their favourite women. They talked little, but conciliably
and nervously, especially about their warlike affairs. They
commonly travelled on horseback, or in their domestic vehi-
cles. When they had any rivers to cross, they laid their
horse's saddle and weapons upon a skin filled with cork,
and so well seen, that not a drop of water could get into
it; they then laid themselves down on it, and taking hold
of their horse by the tail, made him swim to the other side.
They carried with them a certain composition, in small
pieces like pills, one of which, upon occasion, would yet
afford sufficient nourishment for several days. Pliny adds,
that they used the like expedient with their hores, by means
of what he calls the Scythian weed, upon the strength of
which they could travel ten or twelve days without eating
or drinking.
When any person died, his nearest relations caused his
embalmed body to be carried in a chariot from house to
house among his friends and acquaintance, who received
and feasted them in their turns, setting part of the ban-
quet before the deceased. This ceremony was continued
forty days, after which the person was buried, and his at-
tendants...
tendent purifed themselves, not by any ablation, but by the
smoke of some hemp-feed peculiar to the country, which
being thrown upon burning stones, emitted a much
more agreeable perfume than the frankincense used in
Greece, and intoxicated the company, who concluded the
ceremony with hideous shrieks. This revered instead of
walking, which the Scythians never practized; not even
the women, who used instead of it to anoint their bodies
and face with a paste, made of cyprelps, cedar, and frankin-
cence, ground upon a rough stone, and soaked in water,
which paits being taken off next day, rendered their skins
clean, shining, and sweet.

Hitherto we have confined our chief attention to the
royal Scythians; but there were other tribes or petty king-
doms that demand some transient notice.

The Samaritans are affirmed by Herodotus to have been
the offspring of the Scythians and Amazons. These war-
like women, or as their Scythian name, Aior Patta, im-
ports, men-players, in their flight from the Grecians, having
landed near the precipices of the Palus Moesitis belonging
to the free Scythians, and having been persuaded to be
married to them, did in their turn prevail upon them to
leave that part of Scythia, where they pretended they could
not conveniently live with them, and to pass into the pro-
vince of Sarmatia on the other side of the Tanais. Hence,
our author says, the Samaritan women retained still the
Amazonian temper and way of life, being more warlike
than the rest of the Scythian females, and the language of
the country became a corrupt Scythian, because the Ama-
zons never could perfectly learn that language, but taught
it their offspring, corrupt as themselves spoke it. Here it
evidently was, that a virgin was unqualified for matrimony,
till she had dispatched an enemy in the field.

The Taurians had this input use custom, that they sacri-
fied to a virgin all that were shipwrecked, and all the
Grecians whom they caught upon their coasts. This
bloody offering was performed by knocking the person
on the head with a club, after many dire imprecaions, and
flinging his carcass down the hill on which their temple
was built, or as others told our author, by burying the
body, and referring only the head to be fluck on a pole.
The Taurians pretended, that the virgin demon whom they
thus worshipped, was Iphigenia, Agamemon’s daughter.
They lived chiefly by war and rapine, and were very cruel
to those who fell into their hands. The Agathyrians are
said to have had their women in common, in order to link
the men more strictly together, and to prevent jealousies,
and other ill effects of matrimony. The Neurian province
being infested with dangerous serpents, they were at length
forced to leave it for that of the Budians. They observed
the customs of Scythia in most particulars, only pretended
to greater skill in magic than they, and were reported to
be transformed into wolves for some part of the year, after
which metamorphoses, they refomed their own shape: an
allegory which is supposed to mean no more than their
wearing of skins with the fur outward during the cold
weather. The Neurians are mentioned also by Pliny, Mela,
and Steph. of Byzantium.

The worth of all were the Androphagi, or men-eaters,
who observed neither laws nor justice, and had nothing in
common with the rest, but their dreeds and occupation of
breeding cattle. The Melancheneans were so called for
afflicting to go always in black; they followed the Scythi-
ian customs, except that they fed upon human flesh,
which the free Scythians did not; nor indeed did any other
tribes use it, at least as common food, but only on some
particular occasions. The Budians were a populous nation,
famed for blue eyes, and red hair: in this province, above
all the rest, did they build them a city, and called it Gel-
on, whose houses and high walls were of timber, and
each side of the walls was three hundred stadia in length;
it had temples and chapels dedicated to the Grecian gods;
and here they celebrated the Bacchanalia triennially. The
people of the province differed from those in the city, in
that the former applied themselves to the rearing of cattle,
and the to tillage and planting gardens, living upon the
products of them, and of their corn fields; in a word, the
Geloniens were so much more civilized in their manners
than the Budians, that they seemed quite another people.
They are supposed to have been of Greek extract, and
to have been in time quite blended with the Budians, who
were of Sarmatian origin, and contiguous to them; and
Herodotus observes, that each preferred their own native
language. The Geloniens learned, among other things,
the custom of painting their bodies from the Sarmatians, whereto
verse in Virgil’s Georgics, xii. v. 115.

“Lique domos Arabum pictosque Geloni.”

This province abounded with otters and beavers, which
afforded skins for wearing, and cañfur for medicine.

The last two nations or tribes of the Scythians worth
our notice, were the Nomades, inhabiting the country on
the north-west of the Caspian Sea, and the Massagetes
on the west. For an account of the Amazons, we refer to
that article. The Nomades differed so little from the royal
Scythians, except in this appellation, that it is needless to
say more concerning them, than that they led a wandering life,
living no longer in one place than they found plenty of
pasture for their cattle; which being consumed, they re-
moved to fresh grounds; and, when called to the wars,
left their families and flocks, with their herds, till their
return. Pliny places them on the left side of the
Caspian Sea, and says the river Panticapes parted them
from the Georgis. Strabo adds, that they lived in waggons
instead of horses. (See Nomades.) For an account of the
Massagetas, see Massagetæ.

The following table exhibits the names and succession
of Scythian kings:

| 4. Sagillus, or Protothya. | 15. Ariphithes. |
| 11. Scholypethes, or perhaps rather Scythopetès. | |

Madyes was a warlike prince, and it was under his con-
duct that the Scythians, having driven the Cimmerians, or
northern Celts, out of Europe, and pursued them into Asia,
invaded the country of the Medes, and held the greater part
of Upper Asia in subjection for twenty-eight years. As
Scytha did not afford a sufficient supply of food for its
numerous inhabitants, they disfurnished the superfluous multitudes
towards the more fertile south; and having rapidly
passed into Asia, their victorious army was led into Egypt.
Here they made some incursions into the land of the Phi-
lities; and in this expedition they are said to have taken
the city of Bethule from the tribe of Manasseh, on this
side of Jordan, and to have called it, after their own name,
Scythopolis,
SCY

SCYTHICUM LIGNUM, in Botany, a name given by the ancients to a tree called *scytherium* by the later writers of the Greeks.

SCYTHOPOLIS, in Ancient Geography, a town of Syria, in a province called Decapolis.

SCYTHRANUS PERTUS, a port of Africa, in Marzaria, between Antipyrus and the Cataractum Promontorium, according to Ptolemy.

SCYTHROPS, in Ornithology, a genus of birds of the order Pioe. The generic character is, bill large, convex, sharp-edged, channelled at the sides, hooked at the point; nostrils naked, rounded at the base of the bill; the tongue is cartilagenous, split at the point; the feet are formed for climbing. This genus, of which only a single species is known, is nearly allied to the Ramphastus, from which it principally differs in the greater strength and stoutness of the bill, and in having the tongue entire at the sides, and bud at the tip.

Species.

**Pittacus.** This bird has obtained different trivial names. From the circumstance that it is found in New Holland; where, by the way, it is sometimes seen in small flocks, but more frequently in pairs, generally at trees, and uttering, during flight, a loud screaming noise, not unlike the crowing of a cock; it is called by some the Australian Channel-bird; by others, the New Holland Channel-bird; and by some, Pittacus Hornbill. By Dr. Shaw, it is specifically described as the lead-coloured channel-bill, with the tail-feathers barred with black and white. It is about the size of a crow, and measures in total length about seventeen inches, of which the bill measures four inches. The general

SEA

proportions of the head are what render it so much the more likely that it should be considered as of the family of the Ostrich, and as such it has been placed in the order of the Struthion in all the class-books. The tail is long and forked, and about parts of the body are of a purplish-brown colour; the bill tip is black, and other parts of the bill are a pale yellow. The egg is white, and has a black spot at the large end. The greatest length is about four feet, and the head and neck of a span. Dr. Shaw has described a figure of the bird, but we shall conclude, with respect to the measure, it is ascertainable from the head of it.

SCZEBRZESZIN, a town of Austrian Poland, in Galicia; 5 miles W. of Zamosc.

SCZELZEDROHORST, a town of Prussia; 60 miles S.E. of Breslau.

SCZUCZYN, a town of Poland; 35 miles S.W. of Sambor.

SDUR, a town of Arabia, in the province of Hira; 20 miles S.E. of Basra.

SE, or S.E., a county of China, of the second rank, in Honan, N. lat. 36° 35', E. long. 114° 14'.

S.E., or S.E., a sea, in Botany, is frequently used for that vast tract of water encompassing the whole earth, more properly called Ocean, which see.

For the cause of the saltiffs of the sea, see SALT.

Sea is more properly used for a particular part or division of the ocean, distinguished from the countries it washes, or from other circumstances.

Thus we say the Irjish sea, the Mediterranean sea, the Baltic, sea, the Red sea, &c., which sea respectively.

Till the time of the emperor Justinian, the sea was common and open to all men; whereas it is that the Roman laws grant an action against a perfon who shall prevent or molest another in the free navigation or fishing therein.

The emperor Louis, in his fifty-sixth year, first allowed such as were in possession of the lands, the sole privilege of fishing before their respective territories, exclusive of all others; he even gave a particular commission to certain persons to divide the Thracian Bosphorus among them.

From that time, the sovereigns of princes have been endeavouring to appropriate the sea, and to withdraw it from the public use. The republic of Venice pretends to be far nautical in her gulf, that there is a formal marriage every year between that signory and the Adriatic.

To confirm this right, those who contend for it have alleged the example of Uladinus, king of Naples, and the emperor Frederic III., and of some of the kings of Hungary, who requested the Venetians to permit them to pass through that sea with their vessels. That the empire belongs to the republic to a certain distance from the coast, in the places of which it can keep possession; and which it is of importance to hold in regard to its own safety, appears, says Vattel, to be incontestable; but he very much doubts, whether any power is at present disposed to acknowledge its sovereignity over the whole Adriatic sea.

In these last ages, the English have particularly claimed the empire of the sea in the Channel, and even that of all the seas encompassing the three kingdoms of England, Scotland, and Ireland.
Ireland, and that as far as the shores of the neighbouring states. In consequence of which pretension it is, that children born in these feas are declared natural Englishmen, as much as if born on English ground. The justice of this pretension is strenuously argued between Grotius and Selden, in the Mare liberum, and Mare clausum.

The use of the open sea consists in navigation and fishing; along its coasts it is likewise of use for the procuring of several things found near the shore, such as shell-fish, amber, pearls, &c. for making of fish, and, in short, for the establishment of places of retreat and security for vessels. The open sea is in its own nature not to be exclusively possessed, as no one is able to settle there so as to hinder others from passing. But a nation powerful at sea may forbid others to navigate it and to fish in it, declaring that it appropriates its dominions to itself, and that it will destroy the vessels that shall dare to appear in it, without its permission. Vattel, a highly approved writer on this subject, investigates its right to do this. It is evident, in the first place, that nobody has a right to appropriate to himself the use of the open sea; for he who navigates or fishes in it does no injury to any one, and the sea, in both these respects, is sufficient for all mankind. Nor does Nature give to any man a right of appropriating to himself things that may be innocently used, and that are inexhaustible, and sufficient for all; since, every one being able to find in its flete of communion what was sufficient to supply their wants, they might remain themselves sole masters of them, and to exclude all others, would be to deprive them, without reason, of the benefits of nature. Although the law of nature approves the rights of dominion and property, which put an end to the primitive manner of living in common, this reason could not take place with regard to things in themselves inexhaustible, which cannot therefore be justly appropriated.

If the free and common use of a thing of this nature was prejudicial or dangerous to a nation, the care of its own safety authorized it to submit, if possible, that thing to its dominion in order to permit the use of it, with such precautions as prudence should direct. But this is not the case with the open sea, in which people may fail and fish without the least prejudice to any person, and without putting any other people in danger. No nation then has a right to lay claim to the open sea, or to attribute the use of it to itself to the exclusion of others. The kings of Portugal have formerly arrogated to themselves the empire of the seas of Guinea and the East Indies; but the other maritime powers gave themselves little trouble about such a pretension. The right of navigating and fishing in the open sea being then a right common to all men, the nation which attempts to exclude another from that advantage does it an injury, and gives a sufficient cause for war: nature authorizing a nation to repel an injury; that is, to make use of force against any one who would deprive it of its rights. Besides, a nation which without a title would arrogate to itself an exclusive right to the sea, and support it by force, does an injury to all nations whose common right it violates; and all are at liberty to unite against it, in order to reprefh such an attempt. However, as each has the liberty of renouncing its rights, a nation may acquire exclusive rights of navigation and fishing by treaties, in which other nations renounced, in its favour, the right they derive from nature. They are obliged to observe their treaties, and the nation they have favored has a right to maintain by force the possession of its advantages. Thus, the House of Austria has renounced, in favour of England and Holland, the right of fishing vessels from the Netherlands to the East Indies. Many examples of like treaties may be found in Grotius, "De Jure Belli et Pacis," lib. ii. cap. iii. § 15. The rights of navigation, fishing, and others that may be exercised on the sea, are imperceptible; they cannot be lost for want of use; consequently, when a nation finds that itself alone has from time immemorial been in possession of a navigation or fishery in certain seas, it cannot, on this foundation, attribute to itself an exclusive right to them. But it may happen, that a want of use may be attended with the nature of a content, or a tacit pact, and thus become a title in favour of one nation against another. When a nation in the possession of the navigation and fishery in certain latitudes, pretends an exclusive right, and forbids any other interfering in it; if they obey that prohibition with sufficient marks of acquiescence, they tacitly renounce their right in favour of the other, and establish a right which the other may afterwards lawfully maintain against them, especially when it is confirmed by long use.

Nevertheless, the sea near the coasts may become property; so that the nation to which the coasts belong may appropriate to itself an advantage which it is considered as having taken possession of, and made a profit of it, in the same manner as it may pollefs the domain of the land which it inhabits. But if, so far from taking possession of it, it has once acknowledged the common right of other nations to come and fish there, it can no longer exclude them from it; it has left that fishery in its primitive freedom, at least, with respect to those who have been in possession of it. The English not having taken the advantage from the beginning of the herring fishery on their coast, it is become common to them with other nations.

A nation may likewise appropriate things, where the free and common use of them would be prejudicial and dangerous. This is a second reason for which powers extend their dominions over the sea along their coast, as far as they are able to protect their right. It concerns their safety and the welfare of the state, that the whole world be not permitted to come to near their possession, especially with men of war, as to hinder the approach of trading nations, and disturb navigation. These contiguous parts of the sea, thus subject to a state, are comprehended in its territory; nor can any one navigate them in spite of that nation. But it cannot refuse access to vessels not fabpleted, for innocent uses, without violating its duty; every proprietor being obliged to grant a passage to strangers, even by land, when it may be done without damage or danger.

It is not easy to determine to what distance a nation may extend its rights over the sea by which it is surrounded. Bodin pretends that, according to the common right of all maritime nations, the prince's dominion extends even thirty leagues from the coast. But this exact determination can only be founded in a general consent of nations, which it would be difficult to prove; each state may, in this respect, ordain what it shall think best, in relation to what concerns its citizens themselves, or their affairs with the sovereign; but between nation and nation, all that can be reasonably said is, that, in general, the dominion of the state over the neighbouring sea extends as far as is necessary for its safety, and it can render it respected; since, on the one hand, it can only appropriate to itself a thing that is common, as the sea, so far as it has need of it, for some lawful end; and, as to the other, it would be a vain and ridiculous pretension to claim a right that it was no ways able to cause to be respected. The fleets of England have given room to its kings to attribute to themselves the empire of the seas which surrounded that island, even as far as the opposite coasts. (See Selden's "Mare Clausum.") Selden relates a solemn act, by which it appears that this empire, in the time of Edward I., was acknow-
acknowledged by the greatest part of the maritime nations of Europe; and the republic of the United Provinces acknowledged it, in the same manner, by the treaty of Breda, in the year 1665, at least so far as related to the honours of the flag. But faithfully to establish a right of such extent, it is necessary to shew very clearly the express, or tacit, consent of all the powers concerned. The French have never agreed to this pretension of England, and in the same treaty of Breda just mentioned, Louis XIV. would not even suffer the Channel to be called the English Channel, or the British sea.

The banks of the sea belong incontestably to the nation that poises the country of which it is a part. The ports and harbours are manifestly a dependency, and even a part of the country, and consequently are the property of the nation. The same observation is applicable to the bays and straits. With regard to straits in particular, that serve for a communication between two seas, the navigation of which is common to all, or to many nations, he who poises the strait cannot refuse others a passage through it, provided that passage be innocent, and attended with no danger to the flote. Nothing but the care of his own safety can authorize the master of the strait to make use of certain precautions, and to require the formalities commonly established by the custom of nations. He has a right to levy small duties on the vessels that pass, on account of the inconvenience they give him, by obliging him to be on his guard; by the security he affords them in protecting them from their enemies, and keeping of pirates at a distance; and the expense he incurs by maintaining light-houses, sea-marks, and other things necessary to the safety of the mariners. As to the right of wrecks, see Wreck.

If the sea is entirely enclosed by the land of a nation, with only a communication with the ocean by a channel, or of that nation may take possession, it appears that such a sea is no less capable of being occupied and becoming property than the land; and it ought to follow the fate of the country that surrounds it. The Mediterranean was formerly included within the lands of the Romans; and these people, by rendering themselves masters of the strait that joins it to the ocean, might subject it to their empire, and add it to their domain. They did not by these means injure the rights of other nations; a particular sea being manifoldly designed by nature for the use of the countries and the people who surround it. Besides, in defending the entrance of the Mediterranean from all suspected vessels, the Romans secured at once the immense extent of their coast; and this reason was sufficient to authorize their possession of it. And as it has an absolute communication with none but their flote, they were at liberty to permit or prohibit the entrance into it, in the same manner as into any of their towns and provinces.

When a nation takes possession of certain parts of the sea, it enjoys the empire, as well as the domain. Those parts of the sea are within the jurisdiction of the territory of the nation; the sovereign commands there, he makes laws, and may punish those who violate them; in a word, he has the same rights there as at land, and in general all those given him by the law of the state.

It ought to be observed, however, that a nation may possess as property the domain of a state at land or sea without having the sovereignty; it may happen also that it may have the empire of a place where the property of the domain with respect to use belongs to some other nation. The English have never pretended to have a property in all the seas over which they have claimed the empire. Wattel's Law of Nations, b. 1. ch. 23.

The term sea is variously applied by sailors, to a single wave, to the agitation produced by a multitude of waves in a tempest, or to their particular progress or direction. Thus they say, a heavy sea broke over our quarter, or, we shipped a heavy sea; there is a great sea in the offing; the sea lets to the southward. He means a ship is liable to break the sea, when her course is exposed to the quarter or direction of the force of the seas. A long sea implies an interval and frequent motion of long and extensive waves; on the contrary, a flat sea is when they run irregularly, broken and interrupted, as frequently as hopp'd over a vessel's side or quarter.

SEA, General Motion of the. Mr. Dalib of Paris, in a work published about a century ago, has been at great pains to prove that the sea has a general motion, independent of winds and tides, and of more consequence in navigation than is usually supposed. He affirms that this motion is from east to west, inclining toward the north, when the sun has passed the equinoctial northward, and that during the time the sun is in the northern signa; but the contrary way, after the sun has passed the south equinoctial southward; adding, that when this general motion is changed, the diurnal flux is changed also; whence it happens, that in several places the tide comes in during one part of the year, and goes out during the other, as on the coasts of Norway, in the Indies, at Goa, Cochinchina, &c., where, while the sun is in the summer signa, the sea runs to the shore; when in the winter signa, from it. On the most southern coasts of Torguin and China, for the summer months, the diurnal course runs from the north with the ocean; but the sun having re-passed the line toward the south, the course declines also southward. Phil. Trans. N° 135.

SEA, Bays of the, Fundus mari, a term used by geographers, and other writers, to express the bottom of the sea in general.

Mr. Boyle has published a treatise on this subject, in which he has given an account of its irregularities and various depths, founded on the observations communicated to him by mariners.

The ingenious count Marigli has, since his time, given us a much fuller account of this part of the globe, mostly from his own experiments in many places, particularly along the coasts of Provence and Languedoc. The entire bason of the sea is of such immense extent, and covered in many places with such an unfathomable depth of water, that it is not to be expected that it can be traced in every part; but as the whole may be guessed at, from some part of it, and as its general figure is of no consequence in a search of this kind, the observations of this curious author are of great value, in forming a judgment of the whole.

The materials which compose the bottom of the sea, may vary rationally be supposed, in some degree, to influence the taste of its waters; and Marigli has made many experiments to prove, that fossil coal, and other bituminous substances which are found in plenty at the bottom of the sea, may communicate in great part its bitterness to it. See Saltiness.

We are not, however, to judge hastily, that there are not so many beds of these at the bottom of the sea, as would be necessary for such a purpose, or to judge too hastily against the existence of any other substances there, because we do not find proofs of them by the plummet, which in sounding brings up other substances, and not these; for the true bottom of the sea is very often covered and obscured from us by another accidental bottom, formed of various substances mingled together, and often covering it to a considerable depth.

The entire gulf of Lyons, situated between Cape Quiez and
in Rouflon, and Cape Croisit in Provence, forms a bank above the surface of the water at the shore, of the exact and perfect figure of an arch; and within this there is formed another such arch, making the bottom of the sea in that place for a very great way from shore, which is of different depths in various places, but usually between fifty and seventy fathoms. See Sea-Shore.

It is a general rule among sailors, and is found to hold true in a great many instances, that the more the shores of any place are steep and high, forming perpendicular cliffs, the more deep the sea is below; and that, on the contrary, level shores denote shallow seas. Thus the deepest part of the Mediterranean is generally allowed to be under the height of Malta. The observation of the strata of earth, and other fossils, on and near the shores, may serve to form a very good judgment as to the materials which are found in its bottom.

The veins of salt and of bitumen doublets run on the fame, and in the same order in which we see them at land; and the strata of rocks, that serve to support the earth of hills and elevated places on shore, serve also, in the same continued chain, to support the immense quantity of water in the bason of the sea. It is probable also, that the veins of metals, and of other mineral substances, which are found in the neighbouring earth, are in the same manner continued into the depths of the sea. The particles of metals in this case, are probably carried off into deep water, and funk among the softer matter of the bottom, but some of the lighter minerals seem to have given colour to those beautiful crufits, which are found upon many sea substances, and which lose their lustre in the drying. The subterranean rivers, and currents of water, make great changes in what would be the natural surface of the bottom of the sea, where they arise, each having a peculiar bason of its own. We are informed by numerous instances of subterranean currents, and as we see them break out in rivers on the surface of the earth in some parts, so in others we may be well assured that they break up the bottom of the sea, and empty their fresh waters into the salt mafs.

In this cafe, the rushing up continually of such a body of water makes a roundish cavity, and its running some one way, lengthens and carries on that cavity, till by degrees it is lost, as the fresh water by degrees becomes blended with the salt. Thus every river that arises in the bottom of the sea, alters the form of its surface, and makes a bason for itself, in which it runs a considerable way. Many seas near the shore, and when the water is tolerably clear, we see the traces of these currents to the naked eye from the surface, and the water taken up from them is found more or less fresh.

The coral fisheries have given us occasion to observe, that there are many, and those very large caverns, or hollows in the bottom of the sea, especially when it is rocky; and that the like caverns are sometimes found in the perpendicular rocks, which form the steep sides of those fishery. These caverns are often of great depths, as well as extent, and have sometimes wide mouths, equal to their largest diameter in any part, but sometimes they have only narrow entrances into large and spacious hollows. It is the common opinion of the people about the place, that these caverns are prepared by nature for the circulation of the sea-water; but that operation, however necessary, may be performed as well without, as with these caverns, and they seem in reality to be only accidental.

We daily meet with immense hollows and caverns, naturally made in rocky mountains; and as this part of the bottom of the sea is almost all rock, and its sides of the same nature, it is no wonder that the same accidents should happen, and like hollows be found, though with no particular intent of Providence in their use. Nay, there is this further reason to expect them in the rocks buried under the sea than in those in hills, that the latter are in a flat of rock and quiet, whereas the former are in continual reach of water, which will infinate itself into every crack or crevice nature has left in them, and may be easily fupposed to have burrowed its way in a small hole made by nature, till it has formed of it a very large one.

From such observations he infers, that the bason of the sea was at the creation, or at its second formation after the universal deluge, covered with or composed of the fame substances, as the surface of the rock of the earth is, that is of rocks, clay, and sand, and other such substanaces. Over these there is an artificial bottom formed of muddy tartareous incrustations, dead weeds, broken shells, and other bodies of the same kind, cemented together into a firm mafs or crust; and in those places where this crust has never been formed, or where it has been broken, the bottom of the sea is of the same nature with the strata of the earth.

The bottom of the sea is covered with a variety of matters, such as could not be imagined by those who have examined into it, especially in deep water, where the surface only is disturbed by tides and storms, the lower part, and consequently its bed at the bottom, remaining for ages perhaps undisturbed. The soundings, when the plummet first touches ground on approaching the shores, give some ideas of this. The bottom of the plummet is hollowed, and in that hollow there is placed a lump of tallow; this being the bottom of the lead, is what first touches the ground, and the soft nature of this fat receives into it some part of those substances which it meets with at the bottom; this matter, thus brought up, is sometimes pure sand, sometimes a fort of sand made of the fragment of shells, beat to a fort of powder; sometimes it is made of a like powder of the several forts of corals; and sometimes it is composed of fragments of rocks; but beside these appearances, which are natural enough, and are what might very well be expected, it brings up substances which are of the most beautiful colours.

Things of as fine a scarlet, vermilion, purple, &c. as the finest paint could make them, and as yellow as a solution of gamboge, are common; and sometimes, though not so frequently, the matter brought up is blue, green, or of a pure snowy whiteness. These coloured matters sometimes seem to have made up the whole bottom or mafs of the surface, but more usually they have been formed upon other things, as upon the mud, or upon larger pieces of shells, corals, and the like, in the manner of tartareous crusts, and those in some degree resembling the crustaceous coats of some of the sea plants. The colours of these substances are not merely superficial and transient, but many of them are so real and permanent, that they may be received into white wax melted, and poured upon them, or kept in fusion about them; and when thus examined, they seem as if a proper care might make them of great value, as paints of the finer kinds, where little is to be used.

The same coloured matters that thus coat the substances, found at the bottom of the sea in these places, are also sometimes found extended over the surface of marine substances of the harder kind, which are found in deep water. They are always, in this case, in a fort of liquid form, being lodged within, or embodied among a fort of jelly or glue of a transparent substance, which in these cases perfectly coats over the whole. In this state it gives the naturalist, who is present at the fishing up of his treasures, a transient prospect of
of a very elegant kind, but this variega white is alone at
it. A piece of coral, or other hard substance, is thrown
over, and rises to the surf ace of the water, or
delicate green, blue, or purple; but when taken out of
water it is found that this piece is actually of a mass
of glass or jelly which covers the coral; and when it is
washed, the color remains with it, and the coral
flings off its own native tint. I add it to no purpose to attempt
the preserving of it, by buffeting this glass to dry upon the
water, for the colour flies away by degrees, as the moisture
crystallizes, and the coral, &c. whatever it be, is only so
much the less beautiful, than it naturally would have been,
as it is covered with a dry yellowish dirty looking
matter. These are the cavities in the hard rock, therefore, which can only be seen by those who venture out
in order to take them up.

The small quantities of these elegant colours, which we
thus find spread over the surfaces of marine bodies, as we
approach deep water, may give a rational idea of what
we should find, were we able to examine the bottom of the sea
in its deep and natural state reclines. It is easy to con- 
ceive, that in these places we should find great quantities of
the most beautiful tubuliferae. M. Marfigh, Hill Thyt. de la
Mer.

Dr. Dossi, an Italian work, containing an essay to-words a natural history of the Adriatic sea, printed at
Venice in 1750, has received many curious observations on this
subject, which confirm the above account of Marfigh; 
having carefully examined the rock and productions of the
various countries that surround the Adriatic sea, and com- pared them with those which he took up from the bottom
of the sea, he found that there is very little difference
between the former and the latter. At the bottom of
the water there are mountains, plains, valleys, and caverns,
similar to those upon land. The soil consists of different
shells, placed one upon another, and for the most part parallel
and corresponding to those of the rocks, islands, and near- 
bordering continents. They contain it now of different forms,
minerals, metals, various purified bodies, pumice-stone
and lavas formed by volcanoes.

The adjacent countries, as well as the bottom of the
Adriatic sea, consist of a mass of a whitish marble, of
an uniform grain, and of almost an equal hardness; and this
marble, in many places under both the earth and sea, is
intercepted by several other kinds of marble, and covered by
a great variety of bodies, such as gravel, sand, and earth
more or less fat. To this variety of soils, he ascribes the
varieties observed with respect to the nature and quantity of
plants and animals found at the bottom of the sea.

One of the objects which most excited his attention, was a
crull, which he discovered under the water, composed of
crustaceous and tectaceous bodies, and beds of polyopes
of different kinds, confusedly blended with earth, sand,
and gravel; the different marine bodies, which form this
crull, are found at the depth of a foot or more, entirely petrified
and reduced into marble; these, he supposes, are naturally
placed under the sea when it covers them, and not by means
of volcanoes and earthquakes, as some have conjectured.

On this account, he imagines, that the bottom of the sea
is constantly rising higher and higher, with which other
obvious causes concurred; and from this rising of the
bottom of the sea, that of the level of the water naturally
follows; in proof of which this writer recites a great number

SEA, Dead. Dr. Perry made several experiments on the
water of the Dead sea, in order to find what particles it
contained. Upon making some scrapings of galls in it, it

SEA.
tioned, being fainter and stronger in different places, might be owing to this cause; and that certain circumstances of weather, &c. might invite them to the surface, on which, in a calm, they might sport themselves and glow, or in storms, being forced up, make the same appearance.

Mr. Folier, in his account of a voyage round the world with captain Cook, in the years 1772, 1773, 1774, and 1775, describing this phenomenon as a kind of blaze of the sea, and having attentively examined some of the illuminated water, expresses his conviction, that the appearance was occasioned by innumerable minute animals of a round shape, moving through the water in all directions. One of these luminous sparsks, which stuck to his finger while he was stirring his water with his hand, was examined by the common magnifier of Mr. Ramfden's improved microscope, and was found to be globular, transparent like a gelatious subsistence, and somewhat brownish; by means of the greatest magnifier, the orifice of a little tube was discovered, which entered the body of the animal; within which were four or five insectile bags connected with the tube. He imagines that these animals may be the young fry of some species of medusa, or blubber, and considers them as possessed of the power of shining, or of withholding their light at pleasure.

M. Dagelet, a French astronomer, falling into the bay of Antongil, in the island of Madagascar, observed a prodigious quantity of fry, which covered the sea above a mile in length, and which he at first took for banks of sand, on account of their colour; they exhibited a disagreeable odour, and the sea had appeared with uncommon splendour some days before. On another occasion, having perceived the sea to be remarkably luminous in the road of the Cape of Good Hope, during a perfect calm, he remarked that the oars of the canoes produced a whith and pearly kind of lustré; when he took in his hand the shining water, he discerned in it, for some minutes, globules of light as large as the heads of pins; upon pressing these, they seemed to be a soft and thin pulp, and some days after the sea was covered, near the coasts, with whole banks of these little fish in num-

merable multitudes.

M. Dagelet, in his return from the Terra Australis in 1774, brought with him several kinds of worms, which shine in water when it is set in motion; and Mr. Rigaud affirms, that the luminous surface of the sea, from the port of Breit to the Antilles, contains an immense quantity of small, round, shining polypuses.

M. le Roi, after giving much attention to this phenomenon, concludes that it is not occasioned by any shining insects, especially as, after carefully examining with a microscope some of the luminous points, he found them to have no appearance of any animal; and he also found, that the mixture of a little spirit of wine with water just drawn from the sea, would give the appearance of a great number of little sparsks, which would continue visible longer than those in the ocean; the same effect was produced by all the acids, and various other liqours. M. le Roi is far from affainting that there are no luminous insects in the sea; for he allows that the abbe Nollet and M. Vianelli had found them; but he is satisfied that the sea is luminous chiefly on some other account, though he does not so much as offer a conjecture with respect to the true cause.

Other writers, equally dissatisfied with the hypothesis of luminous insects, for explaining the phenomenon, which is the subject of this article, have ascribed it to some subsistence of the phosphoric kind, arising from putrefaction. The observations of F. Bourzes, above referred to, render it very probable, that the luminoiusnes of the sea arises from slimy and other putrefact matter with which it abounds, though he does not mention the tendency to putrefaction, as a circumstance of any consequence to the appearance.

The correspondent of Dr. Franklin, part of whose letter has been already recited, observes, that several gentlemen have been of opinion, that the separated particles of putrid, animal, and other bodies, floating on the surface of the sea, might cause this appearance, for putrid fish, &c. will cause it; and the sea animals which have died, and other bodies putrefied in it since the creation, might afford a sufficient quantity of these particles to cover a considerable portion of the surface of the sea; which particles being differently dispersed, might account for the different degrees of light in this appearance; but he adds, this account seems liable to an obvious objection, viz. that as putrid fish, &c. make a luminous appearance without being moved or disturbed, it might be expected that the supped putrid particles on the surface of the sea should always appear luminous, when there is not a greater light; and, consequently, that the whole surface of the sea covered with these particles should always, in dark nights, appear luminous, without being disturbed, which, he says, is contrary to fact. Franklin's Experiments and Observations, p. 274, &c.

This difficulty is, in a great measure, removed by the experiments of Mr. Canton, recited in the Philosophical Transactions, vol. lix. p. 446, &c. which have the advantage of being easily made, and leave no room for doubt, that the luminousnes of the sea is principally owing to putrefaction.

Having put a fresh whiting into a gallon of sea-water, neither the whiting, nor the water when agitated, gave any light; Fahrenheit's thermometer, placed in the cellar where the pan was placed, standing at 54°; the following evening, that part of the fish which was even with the surface of the water was luminous, but the water itself was dark; however, on drawing through it the end of a flick, the water appeared luminous behind the flick all the way, but gave light only where it was disturbed: when all the water was stirred, the whole became luminous, and appeared like milk, yielding a considerable degree of light to the sides of the pan, which it continued to do for some time after it was at rest. The water was most luminous when the fish had been in it about twenty-eight hours, but would give no light by being stirred after it had been in it three days. He then put a gallon of fresh water into one pan, and an equal quantity of sea-water into another, and into each pan he put a fresh herring, of about three ounces; the next night the whole surface of the sea-water was luminous without being stirred, but much more so when put in motion; and the upper part of the herring, which was considerably below the surface of the water, was also very bright; while at the same time, the fresh water, and the fish that was in it, were quite dark.

There were several very bright luminous spots on different parts of the surface of the sea-water, and the whole, when viewed by the light of a candle, seemed covered with a greasy film. The third night the light of the sea-water, while at rest, was very little, if at all, less than before; but when stirred, its light was so great as to discover the time by a watch, and the fish in it appeared as a dark subsistence. After this its light was evidently decreasing, but was not quite gone before the seventh night; the fresh water, and the fish in it, were perfectly dark during the whole time. The thermometer was generally above 60°. Having made artificial sea-water, determined by an hydrometer to be of the same specific gravity with the sea-water, by adding four ounces avoidupois of salt to seven pints of water, wine measure, he put into a gallon of this water a small herring; and another into a gallon of water, in which two pounds of salt had been dif-
folved. The next evening, the whole surface of the artificial sea-water was luminous without being stirred, but gave much more light when it was disturbed, and exhibited the same appearances with the real sea-water in the preceding experiment; while the other water, which was almost as flat as it could be made, never gave any light. The herring which was taken out of it the seventh night, and weighed from its fall, was found firm and sweet; but the other herring was very flat and putrid, much more so than that which had been kept as long in fresh water. If a herring, in warm weather, be put into ten gallons of artificial sea-water, a head of one, the water, Mr. Cantor fuses, will still become luminous, but its light will not be so strong.

These experiments confirm an observation of Sir John Pringle, that the quantity of light contained in sea-water is less putrefaction; but there is little probability of fact which promotes putrefaction in the mud, is less than that which is found in sea-water, it is probable, Mr. Cantor observes, that if the tides were less salt, it would be more luminous. See PUTFRECTION.

Mr. Cantor observed, as Mr. Ait. Martin Swed. Ab. hand. vol. xxxii. p. 215. had done, that several kinds of river-fish could not be made to give light, in the same circumstances in which any sea-fish became luminous. He says, however, that a piece of carp made the water very luminous, though the outside, or fatty part of it, did not shine at all. See this subject farther discussed under the article Exhibition of Light from Living Animals.

SEA. Perils of the, in Marine Injunmce, denote, in a large sense, all the accidents or misfortunes to which persons engaged in maritime adventures are exposed; but it has been found convenient to distinguish the losses to which ships and goods at sea are liable, by the "immediate causes" to which they may be ascribed. Accordingly the perils of the sea mean only such accidents or misfortunes as proceed from mere sea damage, that is, such as arise from frcs of weather, winds, and waves, from lightning and temnels, from rocks and sands, &c. A loss by the perils of the sea are therefore happen, by the ship's foundering at sea, in which case it must generally be total; or, 2dly, by the ship's being driven on shore by the winds and waves, or voluntary, where she is run aore either to prevent a worse fate, or for some fraudulent purpose: this stranding may be followed by shipwreck, which occasions a total loss, and if the ship be got off in a condition to prosecute her voyage, the damage foundered and the expenses incurred will incur only a partial loss of the nature of a general average; or, 3dly, by the ship's striking against a sunken rock, or something else under water, which may occasion the springing of a leak, or absolute shipwreck. If a ship be not heard of within a reasonable time, she shall be presumed to have foundered at sea. In some countries there is a limitation of time for this presumption: thus in Spain, if a ship has not been heard of for six years from her departure on a voyage to or from the Indies, she is deemed lost; but in France, after a year from the ship's failing, in common voyages, and two years in distant voyages, the injured may abandon and demand payment, without other proof of loss. In England there is no such limitation of time. When an interval, thought to be reasonable by those who are conversant in maritime affairs, has elapsed, a liberal underwriter will pay his loss; and if there be any ground for doubt, he may either demand security from the injured to refund the money, or refuse the ship should afterwards arrive safe, or he may trust to his remedy by action, for recovering it back. If a ship be driven by frcs of weather on an enemy's coast, and be there captured, this is a loss by capture and not by perils of the sea, for which the injured may recover upon a policy against capture only; and yet it has been held, that capture is a loss by the perils of the sea, as much as if it were occasioned by shipwreck or tempest. If a ship be thrown overboard, on account of a scarcity of water, occasioned by the captain's misjudging his course; this is not a loss by the perils of the sea. The case is the same, if the ship be for want of food, occasioned by the extraordinary length of the voyage. And if a ship be destroyed by worms, the loss is not attributable to perils of the sea. As to the case of throwing slaves overboard in order to lighten a ship and preserve it in a storm, the practice has been generally repudiated by seamen. Every thing on board, however precious, as he humanly and rationally observes, should be thrown into the sea sooner than the manikal slave. [Rev. 19:16] The law of nations, moreover, under pretense of saving the ship, shall throw men into the sea, whether they be freemen or slaves, and whether it be done by or without, or guilty of any such unwarrantable act, in order to save his own life, has a right to take away the life of any other human being, who does not attack him.

If, by some extraordinary accident, as the violence of the winds or waves, it becomes necessary to ship a cable, or a cable be broke, and an anchor lost, or a sail or yard be carried away, this is a loss by the perils of the sea within the policy. Also, if animals be injured, their death, occasioned by temnels, by the shot of an enemy, by jettison in a storm, or by any other extraordinary accident, is a loss within the policy; but it is other wise if their death be owing to diseafs. The injury occasioned by one ship's running foul of another at sea, is a loss within the policy, unless it be imputable to the misconduct of the master or mariners of the ship injured. In such case, however, this misconduct would, as seafarers conclude, amount to bartray, and the injured would be liable for the loss; but an action would lie against the master of either ship, to whom the misconduct is imputable, for the loss which he has occasioned. A loss occasioned by an accidental fire, not imputable to the fault of the master or mariners, is a loss within the policy; and in many places the injured is held to be liable, even when the fire happens by the fault of the master or mariners; but in France the injured is not held answerable in such case, unless, by the policy, he be liable for bartray. For every loss occasioned by capture, whether lawful or unlawful, and whether by friends or enemies, the injured is liable. Marshall on Insurance, vol. ii. See Recapture, Risk, and Salvage.

SEA-Adder, in Ichthyology, an English name for a sea-fish of the acus kind, called by Willughby the new luminosiformis. See ACUS and SYNGNATHUS.

It is a small fish of a cylindrical shape, without scales, and of a greenish-brown colour, with some admixture of a reddish-yellow.

Their fin is long and hollow, and the mouth opens upwards at its end; the eyes are small, and their iris red; the gills are four on each side, but are covered by a membrane, and the whole body divided into rings like the common earth-worm; it is usually about three or four inches long, and of the thickness of a goule-quill; it has but one fin, which is situated on the back. The anus is much nearer the head than the tail, and under the inut there is always a fleshy tubercle.

The fin is common on the coast of Cornwall. Willughby.

SEA-Army. See Navy Army.
SEA

SEA-Astronoe. See ASTROLABE.

SEA-Banks. (See Bank.) Maliciously destroying sea-banks, by which lands may be overflowed, is made felony without benefit of clergy by 6 Geo. II. c. 25, and Geo. II. c. 32.

SEA-Bat, in Ichthyology. See CHETODON Vespertilio.

SEA-Bear, in Zoology, the Phoca Ursina of Linnaeus, called also by some writers the sea-cat, and by Pennant the uprine seal, inhabits together with the sea-lion and manati, from June to September, the isles that are scattered in the seas between Kamtchatka and America, in order to copulate, and bring forth their young in full security. In September they quit their lation in a very unacated state; some returning to the Asiatic, and others to the American shores, but, like the sea-otters, they are confined to those seas between latitude 50° and 56°. These animals are also common about New Zealand, Staten Island, New Georgia, and the Falkland Islands.

The urine seals, during the three months of summer, a very indolent life; they are confined for several weeks to the same spot, sleep the greatest part of their time, eat nothing, and are totally inactive, the employment of the females in suckling their young excepted. They live in families, each male having from eight to fifty females, which he guards with jealousy; and though they lie by thousands on the shore, each family, consisting sometimes of one hundred and twenty, keeps itself separate from the rest.

The old animals, which are deserted by the females, live apart, and are exceedingly sullen and quarrelsome, very fierce, and so attached to their old haunts, that they would die sooner than quit them; in defending these, discord is sometimes spread through the whole shore. The other males are also very irascible, and the caucuses of their disputes are generally such as these; an attempt to seduce any of their females, the intrusion of one upon the lation of another, and interference in their mutual quarrels. Their battles are severe and bloody, and when they terminate, the combatants throw themselves into the sea, to wash away the blood.

The males are very fond of their young, of which the female generally brings but one at a time, and never more than two: but they are very tyrannical towards the females, which, on the other hand, are very fawning and submissive.

The sea-bears swim very swiftly, at the rate of seven miles an hour; when wounded will seize on the boat, bear it away with impetuosity, and sometimes sink it. They can continue a long time under water. When they want to climb the rocks, they fall down with the fore-paws, and draw themselves up. They are very tenacious of life, and will live for a fortnight after receiving such wounds as would immediately destroy any other animal.

The males of this species are much larger than the females; their bodies are of a conical form, thick before, and tapering to the tail; the length of a large one is eight feet, the greatest circumference five feet, and near the tail twenty inches; the weight Scolops; the nose projects like that of a pug dog, but the head ripes suddenly; the nostrils are oval, divided by a septum; the lips thick, and in the infide red and ferrated; the whiskers long and white; the teeth, which are thirty-five in number, lack into each other when the mouth is closed; the tongue bifold; the eyes are large and prominent, and capable of being covered at pleasure with a fleshy membrane; the ears are small and sharp-pointed; the length of the fore-legs is twenty-four inches; the feet are formed with toes, but covered with a naked skin, to as entirely to appear a shapeless mass; the hind-legs are twenty-two inches long, and fixed to the body behind, but capable of being brought forward, and the feet are divided into five toes; the tail is only two inches long; the hair is long and rough, under which is a soft down of a bay colour; the general colour of these animals is black, but the hairs of the old ones are tisp with grey. The females are cincereous. The skins of the young, cut out of the bellies of their dams, are useful for clothing.

The fat and flesh of the old males are very naineous, but the flesh of the females resembles lamb, and the young ones reared as good as sucking-pigs. Pennant's Hist. Quad. vol. ii. p. 526, &c. See Phoca Ursina.

SEA-Bijker. See BISKEET.

SEA-Bent, in Naval Language, a vessel that bears the sea firmly, without labouring heavily, or straining her masts or rigging.

SEA-Branches, a term used by the farmers to express the overflowing of their low lands near the sea by the fresh water.

SEA-fall, moderately used, is a great improvement to all lands, but too much of it kills all sorts of vegetables, except such as nature has intended to live among it. See SALT.

The sea breaking in upon lands thus, injures them greatly. The owner is to stop the breach by which it entered with all possible diligence, and then trenches and drains must be cut through all parts of the land to carry the salt-water into some one low place, from which it may be emptied by means of an engine; or if it be small in quantity, it may be laded out by hand over the bank; or if yet less, the sun and winds may dry it away; but in either case, the place where it was suffered to rest must be covered with a large quantity of fresh earth, to take off from the too great fatness of the other; and the whole land should be ploughed for three or four years, to let in the rains and air to frethen it.

SEA-Bream, in Ichthyology, the English name for the fish called by the generality of authors the pagus and phagrus. According to the new system of Arcted, it is a species of the sparsi, and is distinguished by the name of the red sparus, with the skin carried into a finus at the roots of the back fins, and the pinna ani. See sparus.

SEA-Buckthorn, in Botany. See Hippophae.

SEA-Brief, in Marine Insurance. See SEA-Letter.

SEA-Cabbage, in Gardening, the common name of an useful garden plant. See Brassica and Crambe. See also SEA-Kale.

SEA-Calf, Phoca vitulina in the Linnaean system of Zoology, is the common seal, with large black eyes, large whiskers, oblong nostrils, flat head and nose, tongue forked at the end, two canine teeth in each jaw, fix cutting teeth in the upper jaw, four in the lower, no external ears, body covered with thick short hair, short tail, and toes furnished with strong sharp claws; its usual length is from five to six feet; the colour various; dulfky, brindled, or spotted with white or yellow. This species inhabits most quarters of the globe, but is found in greatest number towards the north and south; they swim near the Arctic circle, and the lower part of South America, in both oceans near the southern end of Terra del Fuego, and among the floating ice as low as lat. 60° 21' S.

They are also found in the Caspian sea, in the lake Aral, and lakes Baikal and Orau, which are fresh waters, but there are less, and more fat than those of the salt-water. Seals bring forth two young at a time in autumn, which are for a short time white and woolly, and fuckle them till they are fix or seven weeks old in rocks or caverns, when they take to sea; as they cannot remain long under water, they
they frequently rise to take breath, and erect their

in New Holland, they leap on rocks or sand banks: if pursued, they plunge into the sea, and when at a distance from the land, with their long feet, and make a plunging movement, which they can repeat alow, and if they are overtaken, will defend themselves with their teeth and feet; they are then killed by a gun shot bow on the nose, otherwise they will in a very few minutes.

These animals swim with great strength and speed, and in their own element sport without fear about ships and boats, which, says Mr. Pennant, may have given rise to the belief of sea-nymphs and syrens. They are the chief food: they feed on all sorts of fish; are like good food, and eat by voyageurs: they are killed for the sake of the oil made from their fat, of which a large bowl will yield eight gallons; their bladders are useful in making washeats, covers for trunks, and other convivial casks; and they are the wealth of the Greenlanders, supplying them with every necessary of life.

We have a draught of one animal in the Phil.-topical Transactions, N° 469, by Dr. Parison, who observes, that Aldrovandus, Johnson, Rorderus, and Gofner, have made several mistakes in the figures of this creature, so as to convey no just idea of it.

Upon dissecting one of these animals, the stomach, intestines, bladder, kidneys, ureter, diaphragm, lungs, great blood-vessels, and pudenda, were all covered of the cow; the ears of the whales were very heavy and clear; the spleen was two feet long, four inches broad, and very thick; the liver consisted of six lobes, each hanging as long and as slack as the spleen, with a very small gall-bladder. The back was long and flabby in its texture in general, having a large clavicles ovale, and very great columna carnose. In the lower stomach were about four pounds weight of flinty pebbles, all sharp and angular, as if the animal chose them of that form for eating the food. The uterus was of the usual kind, each of the cornua being thicker than the body or duct leading to them: the ovaria were very large, being granulated on the surface with the ova, under a very thin membrane; and the opening into the tubes leading to the cornua is a great hole.

The authors who have treated on this animal, are Aristotle, Pliny, Aldrovandus, Roderus, Gofner, Wolfgangius, and Johnston.

This animal is viviparous, and suckles its young by the mammary, like quadrupeds; and its flesh is curious and muscular. That dissected by Dr. Parson was seven feet and half long, though very young, having scarcely any teeth, and having four lobes regularly placed about the navel, which in time became papillae. (See Piscis, Vitalinars.) See a description of other species of seal, with figures, by Dr. Parson in Phil. Trans. vol. xlvii. p. 109, &c. and Pennant's Hist. Quad. vol. ii. p. 518, &c.

Sea-Chart. See Chart.

Sea-Charts, in Agriculture, a muddy sort of clayey matter found on the shores and borders of the sea, which is blackish or bluish appearance, and often of a very stiff tenacious quality, not easily mixing with earthy soils. It mottly lies underneath the fandy ouzy matters that are collected in such situations. See Sea-Sand.

In Lancashire they make use of a fat sort of seal-clay, which is dug out close to the shore on the left and right shores of land, when in the flat of fallow for wheat, in the proportion of about 200 single horse cart-loads to the acre, and believe it to answer better than the common sea-clay, or even sandy mud. It may probably be of a marly nature.

Sea-Coy. See Coast.
whale, it has no voice, and, like that animal, has an horizontal broad tail, without even the rudiments of hind feet. It inhabits the seas about Bering's, and the other Aleutian islands, between Kamtschatka and America.

In calm weather these animals swim in great depths near the mouths of rivers; when hurt, they swim out to the sea, but soon return again. They live in families near one another, each consisting of a male, female, a half-grown young one, and a very small one; the females obligate the young to swim before them, while the other old ones surround, and, as it were, guard them on all sides. The affection between the male and female is very great, for if she is attacked, he will defend her to the utmost, and if she is killed, will follow her carcase to the very shore, and swim for some days near the place where it was landed.

They copulate in the spring, in the same manner as the human kind, especially in calm weather; towards the evening; the female swims gently about, the male pursues, till tired with wantoning, the flings herself on her back, and admits his embrace; the ureine and urine seizes copulate after the same manner on shore. Steller says, they go with young above a year, and bring forth one at a time, which they suckle by two teats, placed between the breasts. They are very variegated and glutinous, and feed not only on the loci that grow in the sea, but such as are flung on the edges of the shore; and when they are filled, they fall asleep on their backs. Their back and sides are generally above water, and as their skin is infested with a species of lefore peculiar to themselves, numbers of gulls are continually perching on their backs to pick out the infects.

They continue in the Komschatkan and American seas the whole summer, but in winter are very lean. They are taken by harpoons fastened to a strong cord, but after they are struck, it requires the united force of thirty men to draw them on shore. When one is struck, its companions repair to its help, some will endeavour to overturn the boat, by getting under it; others will press down the rope, in order to break it; and others strike at the harpoons with their tails, with a view of getting it out, in which artifice they sometimes succeed. Their noise is like the snorting of a horse, which is occasioned by hard breathing. They are of an enormous size, some being twenty-eight feet long, and eight thousand pounds in weight; the head is small, oblong, and almost square; the nostrils filled with short bristles, the lips double, and the mouth, near the junction of the jaws, full of white tubular bristles, which serve to prevent the food from running out with the water; the lips are also furnished with bristles, which serve instead of teeth to cut the roots of the sea plants; in the mouth there are no teeth, only two flat white bones, one above and another below in each jaw, with undulated surfaces, which answer the purpose of grinders. The eyes are small; instead of ears there are two small orifices; the tongue is pointed and small, the neck is thick, and the head always hangs down. Near the shoulders the circumference of the body is twelve feet, about the belly twenty, near the tail four feet eight inches; the head is thirty-one inches, and the neck nearly seven feet; which dimensions render the animal extremely deformed. Near the shoulders are two feet or fins, two feet two inches long, without fingers or nails; the tail is thick, long, and horizontal, ending in a flat black fin, slightly forked. The skin is thick and black, and full of inequalities, and so hard as scarcely to be cut with an ax, without hair; beneath the skin is a thick blubber, which tastes like oil of almonds. The flesh is coarser than beef, and will not soon putrefy. The young ones take like veal; the skin is used for shoes, and for covering the sides of boats. Pennant's Hist. Quad. vol. ii. p. 536. &c.

The sea-ow, or sea-cow of the gulf of St. Lawrence weighs from fifteen hundred to two thousand pounds, and produces from one to two barrels of oil, which is boiled out of a fat substance that lies between the skin and the flesh; it carries its young about nine months, and seldom bears forth more than one at a time. The skin is cut into slices of two or three inches wide, and exported to America for carriage- traces, and to England for glue. The teeth afford an inferior fort of ivory, which very soon turns yellow. Philos. Trans. vol. lxxv. part 2. p. 249, &c.

The sea-ow is also a name given by Edwards to the cut-water of Catesby and Pennant, and to the black skimmer of Latham. See Rynchus Niger.

Sea-Cow, in Ornithology, a name given by the common people of many counties of England to the pewit; which see.

Sea-Cow, in the Vernum Zoophyta, a name given by Ellis to the Sertularia Cypressea; which see.

Sea-Saffidi, in Botany. See Pancratium.

Sea-Decil, in Ichthyology, an English name for the rana piscatrix, or lobius piscatorius of Linnæus; a very remarkable species of fish, of a middle nature between the cartilaginous and bony fishes. See Lophius Piscatorius.

The bronchial holes are three on each side, which are situated deep in the mouth, and open into marupia or faculi on the side of the head, the fides of which are the branchioleges, having several long slender cartilaginous bones, running longitudinally for their support, analogous to the branchiagal or fides of other fishes; and these facks, Dr. Parfons conjectures, may answer two ends, first, to form the membrane branchioleges; and, secondly, to make a convenient receptacle for the young till they are able to shift for themselves. If this be the case, it was not to be answered, the branchie might have been terminated near their origin in the mouth, as in other fishes. If this fish does not bring forth its young perfect, Dr. Parfons thinks there can be no use aigned for these facks; but if they are viviparous, then the young may probably be harboured in them, being capable of crawling into them, as we may see by the pectoral webs on the under side; besides, as these fishes crawl on the bottoms of deel places, watching and aluring their prey, the young must be protected by the parent, till they are able to provide for themselves, which may probably be when they grow too large to enter into these marupiae.

This fish has either no no덤s, or else they are hid within the head, and has a fort of membranous rim running all round the commissures of its fides and belly. Its flesh, when boiled, tastes like that of the frog. Wilughby's Hist. Pisc. p. 85. Phil. Trans. vol. xlvii. p. 126, &c.

Sea-Dragon, or Draco marinus, a species of Trachinus; which see.

Sea-Dragon, among Marinors, is such things as hang over the flap in the sea, as shifting, coats, and even the boat, &c. when towed.

Sea-Eagle, Agula marina, in Ichthyology, a species of the raia, with a smooth body and a long tereated spine on a finny tail. See Raia Agula.

Sea-Eel. See Eel and Murena.

Sea-Egg, or Sea-apple, the name of the roundish centronia, with crooked or feiculated spines. See Centronia and Echinus.

Sea-Fins and Sea-feathers. See Gorgonia and Spongia.

Sea-Faring, denotes the condition of a mariner.

Sea-Fight. See Engagement and SIGNAL.

Sea-Fir, a species of Seriolar:; which see.

Sea-Fox, in Ichthyology, an English name for a fifth of the ficals kind, called also the sea-ape; both names being given
The old Greek writers have called it _pelagia_, and the
later _aegea_, _marina_, and _hypo marina_, where the names
fish, and _sape_. See Senv and Squalls _Vulgaris_.

See also _Attitude_ and _Gage_.

Sea-Fowl, at Sea. When two threes are aboard one another,
they swim on a wave or blow, the feathers fly, they are aboard
with a feather together.

See _Gos._, in _Gos._, the _Ant. Eruption_. See _Deck_.

Sea-Goose, in _Betta_. See _Coccoloba_.

Sea-Goose, in _Betta_, an English tame given to the
fish eaten by the generality of writers. See _tamer_,
and the _gelder_.

Artedi, who has made a genus of the pelman, excludes the
common _gallina_, or _gallina azurea_, from it, but he admits
this fish as a genuine species of it.

Another tells us of three kinds of gallina, the black,
the yellow, and the white. This seems to have been very
plentifully the black _gallina_ of that author. Solenian, in the
figure of this fish, has given three feet on the back, but it
really has only two. See _Galina Nera_.

Sea-Hare, a species of _Stellata_; this fer.

Sea-Hare, in the _High._ of _Lyras_, the name of the
lenus_; a species of the _Amphor_, and also of the _Phylus_
which fer.

Sea-Hin, in _Ornithology_, a name given by some to the
larin, a web-footed bird, common on our coasts, and
called the _guinnaea_, or _kildaw_. See _Columbus Tribe_.

Sea-Holly, in _Botany_. See _Eryngium_.

Sea-Horse, in _Ichthyology_, the English name of the _hippo-
campus_; a species of the _neos_, according to the older writers,
and one of the _fungus_ of Artedi. See _Syngnathus_.

The many idle tales reported of this salt amphibian
creature, such as his method of bleeding himself when
dtempered, his vomiting fire when enraged, and the like,
have made people, in almost all ages, desirous of feeding the
Romans were fond of exhibiting it in their flos of
wild beasts, and the deferta Phyn gave it of it from thene,
was all the world knew of the creature for many ages.
That author's account, however, of its feeding on grases on
the banks of the Nils, no way agrees with the teeth we find its
mouth furnished with.

The skeletons of these animals, as rare as they are with us
at present, in their recent states are not found so frequently,
in part least, buried under ground, and that at great depths.
The bones of the head are different from those of any other
cnown animal, and when found in some parts of France, had
always puzzled the wits of the naturalists there, who had in
various times compared them with those of oxens, horses, &c., but at
length none of the heads of these animals being sent over to
France, cleared up the whole difficulty. The two jaws of
this weighed forty-five pounds, and were two feet long, a foot
deep, and a foot and half wide.

It is easy to conceive from this, that the accounts we have
of the size of the animal are not fabulous, these bones cor-
responding very well with them. Mem. Acad. Par. 1724.

Sea-Horse is also a name sometimes, but improperly, given
to the river horse, or _hippopotamus_.

Sea-Horse is also a name given to that species of seal called
walrus.

Sea Kale, in _Gardening_, the common name of a highly
nutritious and palatable culinary vegetable. It is an early
every plant, the young shoots of which are used somewhat
in the manner of asparagus, and may, if laid, be grown,
by the method of cultivation which is given hereafter, to a size
and of a delicacy of flavour greatly superior to that which
is commonly brought to the table. See _Kale_.

In addition to what has been offered under that name, it
may be observed that the plant grows naturally the blood
a tea family, or one which is of a honey gravity, quite
by the leaves of the tea. In the cultivation of the garden, the
proper method which is lately laid down, is, that of preparing
the ground to it by trenching it and a half deep, about the edge of the year or at the
beginning of it: when the tea is deeply, and at a
ight quality, it is to be transplanted by artificial means, such as the applanator of a tunnel, or portion of free white land,
and very rotten vegetable earth; if the ground be wet in the winter leaves, it should be partly drained, that the
water may drain in from the bottom of the cultivated
mound, as the strength of the plant depends upon the
roots and rhizoids of the bottom loam. After which the
ground is to be divided into beds, four feet in width, with
always of eighteen inches between them, then, at the dis-
tance of every two feet each way, five or six feet are to be
formed into a circle of about four inches diameter, to the depth of
two miles. This beds should be performed in a
rather regular and exact manner, as the plants are afterwards
to be covered by means of pots for blanching them,
and the health and beauty of the crops equally depend upon
their standing at regular distances. If the beds which were
low were found and perfect, they will come up and the
materials in the last spring or beginning summer month;
which as soon as they have made three or four leaves, all
but three of the strongest and best plants should be taken
away from each circle; planting out those which are pulled
up, which, when done by a careful hand, may be performed
to as for them to have the whole of their tap-root is a
spare bed for extra forcing, or the repairs of accidents. The
turnip fly and wire worm are to be carefully guarded against,
the latter by picking them by the hand from out of the
ground, and the former by the use of lime laid round the
young plants in a circle. When the summer months prove
dry the beds should be plentifully watered. As soon as
the leaves decay in the autumn they should be cleared away,
and the beds be covered with light earth and sand to the
thickness of an inch; the compost thus having laid some
fume in a heap, and been turned several times, to be as
free from weeds, and the sort of infects as well as grubs.
Upon the sandy loam dressing, about six inches in depth of
light loose litter to be applied, which completes the work
of the first year.

In the spring of the second, when the plants are begin-
ing to push, the stable litter is to be raked off, a little of
the most rotten being dug into the alluvies, and another inch
depth of loam and sand applied. Cutting this year is to be
restrained from, notwithstanding some of the plants may
rise strong, and the beds managed exactly as before during
this winter season.

In the third year, a little before the plants begin to fur,
the covering laid on for the winter is to be raked off, and an
inch in depth of pure dry sand or fine gravel now laid on.
Then each circle of plants is to be covered with one of the
blanching-pots already aluded to, pressing it firmly into the
ground, so as to exclude all light and air, as the color and
flavour of the shoots are greatly injured by exposure to
either of them. When the beds are twenty feet long,
and four wide, they will hold twenty-four blanching-pots;
with three plants under each, making five and twenty plants in a bed. They are to be examined from time to time, the
young items being cut, when about three inches above the
ground, care being taken not to injure any of the remain-


ing buds below, some of which will immediately begin to swell. In this way a succession of gatherings may be continued for the space of six weeks, after which period the plants are to be uncovered, and their leaves suffered to grow, that they may acquire and return nutriment to the root for the next year's buds. When seeds are not wanted, the flowers should be pinched off by the finger and thumb, as long as they appear. Where the expense of blanching-pots is objected to, the beds must be covered with a large portion of loose gravel and mats; but the saving is trifling, when the time and trouble of removing and replacing the gravel, for the cutting of the crop and securing the plant, are considered. By this mode of management, sea-kale is said to have been cut which measured ten, eleven, and even twelve inches in circumference, and that each blanching-pot on the average afforded a dish of it twice in the feaon.

The blanching-pots for this use are somewhat of the fame shape and size as the large bell-glafls commonly employed in market gardens for raising tender vegetable crops, but made of the same materials as the common earthenware, having a handle at the top. They may be about a foot and a half in diameter at the rim where they apply to the ground.

Forcing Sea-Kale.—It is supposed that no vegetable can be so easily and cheaply forced as this, or require so little trouble; as the dung is in the finest state possible for spring hot-beds, after the common crop has been cut and gathered. The principal circumstance necessary in this business, is that of being very attentive and particular in guarding against too great a heat. The temperature under the blanching-pots should constantly be kept as near fifty-five degrees of Fahrenheit's scale as possible, and on no account higher than fixty at any time. In this intention, in either of the two concluding months of the year, as the sea-kale may be wanted more early or late, a suitable quantity of fresh flable dung should be collected and prepared, to cover both the beds and the alleys from two to three feet in height; as in the quantity to be laid on, a great deal must always be left to the judgment of the gardener, as well as to the state of the feaon as to mildness or severity.

It should invariably be well penned down between the blanching-pots, heat-flicks being placed at proper intervals, by the occasional examination of which the heat below will be readily known. When the dung has remained in this situation four or five days, the pots should be examined to see the state of the shoots. It not uneventually happens that worms spring above the surface, and spoil the delicacy of flavour in the young shoots. In order to prevent this, it is best to cover it with dry sea-coal ashes, which have been fitted either very small or very large. Salt has also the power of destroying them in an effectual manner, without injuring the sea-kale.

The crop, it is said, will be ready to cut and gather in three weeks or a month from the first application of the heat; but as much danger and mischief are the consequence when this is violent, it is advised to begin soon enough, and to force slowly, rather than in too quick a manner. It is likewise necessary to cut the leaves off a fortnight or three weeks before they decay, in those plants which are intended to be forced at a very early period.

It is also suggested that the blanching-pots used in forcing should be made in two pieces, the uppermost of which should fit like a cap upon the lower; as the crop might then be examined at all times without disturbing the hot dung. See Transactions of the Horticultural Society of London, vol. i. p. 13.,

Sea-Lark, in Ornithology. See Saxicarius Hircicus, and Emberiza Muscicola.
SEA

Sea-lions, *Phocoena phocoena*, a not to the Mo-1

Sea-lions, in the History of India, the English name of a species of seals.

**SEA-MARK.**

Sea-Mark, a point and conspicuous place distinguished at sea. See LAND-MARK, BEACON, and BUOY.

**SEA-MARK**

See Coralline and Conparya.

**SEA-MEIOE, in the History of India, the English name of the aphrodisiac.

**SEA-MUD, in Agriculture, that sort of muddy deposition, which is often taking place on the shores and coasts of the sea, and which occasionally forms a constituent part of the body of the land in such neighbourhoods. It is so called, because it is of a mucky, muddy quality, but in the other it is partly taken of a clayey, productive nature, either by that which is of a loam, chalk, or clay, or by so dull, or brown, or mud. The sea-mud is by much the ruddiest, and thickest as it is the blackest and all black, and the best calculated for application in this way, where it can be procure

It is sometimes employed in preference to marl, though that subtilice may be reserved to itself, and the proportion of about three parts to the quantity of marl, being laid on the lower ground in autumn, that is to be broken up in the following spring months. It is mostly got by digging it up only one foot depth and the surface. After being spread out, and well broken down and reduced, it is turned down into the soil by the plough. It is useful for oats, barley, potatoes, and wheat crops, producing a large return. It is also very durable as a subtilice of this nature, lasting longer even than marl, and being never liable to injure grasslands. The sort of rich sea-mud is mostly met with on the hanks or shores near the mouths of large rivers which empty themselves into the sea, but in other places its fertilizing properties are often lost to be depended upon.

The muddy matter which is combined with sandy materials on the sea-coasts in some districts, is also found of great utility as a manure.

**SEA-Nettle.** See NETTLE.

**SEA-Oak.** See WHEAT, and FEEDS.

**SEA-OFFICER.** See OFFICER.

**SEA-Union, in Botany.** See SCILLA.

**SEA-OUTER.** See OUTER.

**SEA-Outs, in Agriculture, a rich sort of mud or deposition, raised from the sea-shores in different parts of the kingdom, and which has been found in many cafes of much use as a manure. It might probably be found good, and in large quantities, in many situations on the sea-coasts, where it has not yet been thought of by the farmer. As there can, however, be no doubt of its possesing a highly enriching property, it should be diligently provided in all places where it can be had. It is stated, in the Norfolk Agricultural Survey, that Mr. Peckham, at Colchester, uses much sea-outy mud scraped up by the beach from the bottom of Yarmouth Haven. He lays on forty loads per acre, and has thus manured seventy acres; the improvement is very great. It was found material that it is a calcareous outy-mud; and that on scalds or burning-places, and sand or gravel, it forms a cold bottom, and is an effectual cure. Fifty loads per acre of sea-out are often used on the upland loams of Warham and other parts of the country for what is termed *crabs*, *sulphus*, and *sulphur*. It is stated by the writer examining it, to be obviously the ruins of a forest of large trees, the roots and roots covering, in such a state of decay, that with a spade be dug into the centre of many, and might have done of all, with as much facility as into a mass of butter. Where the fluming are not found on digging, a black mass of vegetable fibre, apparently combining of decayed branches, leaves, leaves, flags, &c. is turned up: to what depth this vegetable stratum extends, has not been ascertained, but at some years.

**SEA-ROOR.** See ROOR.

**SEA-ROOR, in Agriculture, a rich sort of mud or deposition, raised from the sea-shores in different parts of the kingdom, and which has been found in many cafes of much use as a manure. It might probably be found good, and in large quantities, in many situations on the sea-coasts, where it has not yet been thought of by the farmer. As there can, however, be no doubt of its possesing a highly enriching property, it should be diligently provided in all places where it can be had. It is stated, in the Norfolk Agricultural Survey, that Mr. Peckham, at Colchester, uses much sea-outy mud scraped up by the beach from the bottom of Yarmouth Haven. He lays on forty loads per acre, and has thus manured seventy acres; the improvement is very great. It was found material that it is a calcareous outy-mud; and that on scalds or burning-places, and sand or gravel, it forms a cold bottom, and is an effectual cure. Fifty loads per acre of sea-out are often used on the upland loams of Warham and other parts of the country for what is termed *crabs*, *sulphus*, and *sulphur*. It is stated by the writer examining it, to be obviously the ruins of a forest of large trees, the roots and roots covering, in such a state of decay, that with a spade be dug into the centre of many, and might have done of all, with as much facility as into a mass of butter. Where the fluming are not found on digging, a black mass of vegetable fibre, apparently combining of decayed branches, leaves, leaves, flags, &c. is turned up: to what depth this vegetable stratum extends, has not been ascertained, but at some years.
creeks on the very edge of the sea at low water, there is a very fine loamy sea-oule at two or three feet depth: the extent of this once fertile region, which every common tide now covers, can scarcely be left, in one place only, than from five to six hundred acres. There is not an appearance of any tree lying at present from the flump, as if blown down; but after falving the branches, there is a forest cut down in half, the flints cleared and hurried away, leaving the branches to rot; but this is mere conjecture. It is remarkable that there is not, as he is informed, any mention of this ruined forest in the old historians of the county; nor does tradition offer the least conjecture or report on the subject. Trees, roots, and flumps, are very common in bogs, wherever found; but here is not the trace of any thing like a bog, the earth is solid, and all a fine oule, or sea-clayey mud. It is added that Mr. Reighton viewed these relics with the eye of a farmer; for experiment, he sent his carts down for fome, and spread ten loads per acre of it, for turnips: it answered perfectly, and on comparison equalled his yard-dung, and also rape-cake. In another experiment, he measured two acres for wheat, with a compoit, confiding of nine loads of this weed, (or oule,) and three chaldrons of lime mixed; one acre with yard-muck; one acre with tallow-chandlers’ graves, sixteen bushels, and the reft of the piece with rape-cake; the graves were, in effect, far beyond all the rest; between which the difference was not very perceptible. The expense only 1s. per load; but if a barge was floated to the spot, and anchored when the tide was in, for loading at low water, it might be procured at a much cheaper rate. And it is suggetted, that this ingenious cultivator has opened a real mine to fuch farmers as shall have the fagacity to dig it in; it appears astonishing, but he thinks, that none of them should long ago have made the fame experiment, and consequently have profited by fo beneficial a vicinfty.

Without doubt, by proper examination, other situations might be found to afford fubstances that might prove useful as manures.

Sea-oule, in Ichthyology, a name given by many to that fish which we more ufually call the lump-fish, the lumpus of Willughby, &c. and the cyclopetrus of Arsted. See Cy clopetrus lumpus.

Sea-pee, in Botany. See PISM.

Sea-Pearch, in Ichthyology. See PERCA.

Sea-Pen. See Sea-PEN.

Sea-Pheasant, in Ornithology, the name of a bird of the duck kind, but differing from all the other species in the shape of its tail, which has two long feathers standing out beyond the rest; and terminating in a point. It is called more generally the cracker. See DUCK.

Sea-Pie. See Pica marina, and Hematopus ostralegus.

Sea-Pigeon-pee, in Botany. See SOPHORA.

Sea-Pike, in Ichthyology. See ESox bolese.

Sea-Pink, in Botany. See CERASTIUM.

Sea-Plants, a denomination comprehending thofe marine productions which are formed by insects, and which properly belong to the animal kingdom; however, they fo much reftemble vegetables in their form, that they have been long taken for plants called by this name, and called under the vegetable kingdom.

Count Marigli, who was at indefatigable pains to collect the various sea-plants of feveral places, divides all thefe productions, which he referred to the rank of vegetables, into three classes. The first class contains the soft or herbaceous ones; such are the algae, called sea-wrecks, the fuwices or sea-oats, the sea-maffes or conferves, and the different species of sponges: the second class comprehends thofe that are ligneous, or of a woody hardnefs, which were called lithophya by the ancients, as if their hardnefs approached to that of flones; thofe, Marigli says, confist of two subftances, a cortical and an internal; the cortical part, while in the fea, is foft, but in drying becomes as hard as chalk, and in cutting; but after falving, it fhews; the internal fubftance fows more of the nature of horn than of wood; when burnt it throws out a fpume, or froth, like that which horns or feathers of animals yield in the fire, and their smell in burning is of the fame kind; the branches of thofe are very pliable, bending in the manner of whalebone, and giving the fame reftance to a knife in cutting. The third class comprehends thofe plants which are of the hardnefs of flone, and which fhould properly be called the lithophya: thofe are the feveral species of coral, madrepora, and the like.

Marigli endeavours to explain the differences of thofe feral fubftances, and to account for the manner of their receiving nourifhment, agreeably to the fystem which prevailed in his time, and which appropriated them to the fads of vegetables. Marigli, Hift. Phyf. de la Mer. Mem. de l’Acad. Par. 1710.

By later experiments and obfervations, it has been sufficiently demonftrated by M. Peyssonnel, Bernard de Juffieu, Donati, &c. that thofe marine fubftances which Marigli thought to be plants, are the work and habitation of animals. See on this fubjeét the articles CORAL, and CORALLINES.

Dr. Lifter apprehends, that thofe fubftances, which in his time were thought to be sea-plants, ferve to render a great deal of the fea-water freh, and give it in mifts to the clouds, whence it again falls on the earth; this is easily proved by experiment, thus, if a quantity of fea-water be put into a long glass body, and into it there be put a large and vigorous sea-plant, fuch as the common fhipreck, and the head placed on the glafs, and a receiver fitted for it without cutting the joints, there will daily diflip into the receiver, without giving any fire below, a clear and fweet water, freh and potable, and without any difagreeable or unwhofeome quality. The quantity is but illmalt that is obtained in this way, but it is evident, that in the fame manner a very immene quantity of the fea-water is every hour made freh, and railed up into the air from the infinite number of plants that grow in it. Dr. Lifter even thinks that the tropic winds, which blow conftantly one way, may be owing to this fort of caufe. Philof. Tranf. N° 156. See TROPIC winds.

Sea-Peaches, in Botany. See ATRIPLEX.

Sea-Quadrant. See BACK-flufh, and QUADRANT.

Sea-Room, denotes a fufficient distance from the coaft, as well as from any rock and shallows, by which a ship may drive or foud without danger of fhipwreck.

Sea-Salt. See SALT.

Sea-Sand. See SAND, and Common SALT.

Sea-Sand, in Agriculture, that fort of sand which is thrown up in the creeks and other places on the coafts of the sea, and which is often very ufeful as manure. The fheafand, which is thrown up in creeks and other places, is very rich and proper for this purpofe. In the western parts of England, which lie upon the fcoafts, very great advantage is made of it. The fragments of fca-shells, which are always in great abundance in this fand, add to its virtues; it being always the more elfeemed by farmers, the more of these fragments there are among it. The fand of this fort, which is used as a manure in different parts of the kingdom, is of three kinds: that about Plymouth, and fome other of the southern coafts, is of a blue-grey colour, like ashes, which is probably owing to the fheils of mufcles, and other fifth.
of that or the like colour, being look'd and mixed with its great quantity. We land near the Land's End, the sand is very white; and about the islands of Scilly it is very white, with small patches of red. On the coasts of the North Sea the sand is yellow with brown, or red sand, and it is a great quantity of its most of little sand; it is not to be easily computed at. That part of the sand is said to be well suited, which is of a reddish colour in the water in value to the sand, and the water in the sea. This kind of sand is in the sand taken up from under the water, or from sand-banks, which are covered by every tide. And it is remarked, that the small-grained sand is the most utilized in its operations, and it is therefore sold for the tenant who is only to take three or four crops; but that the earthy, or large-grained sand, is much better for the land; the good it does lasts many years. Where sand is dredged out of the sea, it is usually much dearer than where it is taken from sand-banks.

In the northern parts of Lancashire, and in Cornwall, the more light parts of sand in the vicinity of the sea-shores, are in many cases much improved by the application of sea-sand upon them. The practice is to lay it on in a pretty thick layer, so that it may be well incorporated with the soil, by the plough, before the wheat is sown. In the way the crops are often afforded, and the effects of the dressing last several years. It is likewise found very beneficial when applied thinly over the surface of grass-lands or pastures, being at all times more and more extensively made use of than has hitherto been the case. See Sand, Shelly.

This sort of sand is considered as a vast treasure by the farmers in some parts of the county of Cornwall, as has been already hinted at, especially on the sea-coast in the vicinity of the sea. It is supposed to be a substance that feeds the corn, as well as pule-crops and roots, and which is highly useful on pasturage-land; it being material to the value of the corn whether they are near to or remote from it. It is, however, procured from great distances in some cases. Its goodness greatly depends, however, upon the quantity of calcareous and animal matter which it contains, in addition to the mechanical effects which it affords; with some kinds of it, fomy, earthy, ligeous, vegetable and animal matter, are combined, in which case it is denominated bog or boggan, and thought of great value for potatoe crops. The large-sized coral sand is supposed the most lasting in its effects; but the smaller grained and shelly forts are extensively used in some places.

When this sort of sand is applied alone, either on tillage or grass-land, it is called clean sanding; but it is more usually laid on in mixture with earth and dung in the way of a manure. It is employed in all the proportions from three hundred to thirty sacks of sixteen gallons each, to the customary acre of that district. Its utility depends much on the nature of the lands, being much improved on the moory and the thinner forts of soil, than on the deep marly kinds.

It is computed that more than 54,000 cart-loads of it are taken from the harbour of Padstow alone, and that the expense of land-carrige for this article only, for the whole district, is more than 30,000l. a year.

In some of the northern parts of the county of Lancashire, sea-sand was formerly much more reckoned to on tillage and other land, as has been seen above, but it has lately been little employed. They apply it from 80 to 300 or 400 single horse cart-loads to the customary acre, every ten or twelve years, mostly for the wheat crop. The dry sea-sand was formerly made of, but very little is used, mostly, of that described above, in the north, and is said to be much better. It is a great sort of sand to be brought here for land, and various crops then the customary acre, in land, and the same is done in the same manner and various crops. It is very useful for farming purposes, and small tracts made with it by the Rev. Mr. Looe, however, are of little utility. He had two fields on this principle, or rather planted, with the quantity of sea-sand, converted to the customary acre, in land, and the same is done in the same manner, to the same purpose in every part of them. It is, however, remarked, in the report of the Surveyor of the North Riding of York, that many cases in the vicinity of the sea, where the land is well made, as a measure with excellent effects, and that for the districts of Chelwood, and the coast where the wet adhesive clay want draining and breaking, and in most parts of which it might be easily procured, it would be equally useful. It is supposed to be there disregarded in consequence of its great plenty, and being capable of being provided with at pleasure. See Sand, Shelly.

Sea-Scorpion, See Scorpio.

Sea-Serpent, See Sea Snake.

Sea-Shells, in Agriculture, such as are formed and dug from the creeks and bays on the sea-coast. They are constantly very beneficial in improving land in all situations where they are met with in sufficient quantity. But the great use of marine shells is more shown in the following passage in the Statutory account of the parish of Kirkmae-brick, in Galloway. The principal manure used there for improving land is sea-shells, of which there is an almost inexhaustible quantity, not only within the high-water mark on this side of Wigton bay, but also in the dry land, several hundred yards from the shore. These shells are sold at five per cent, twenty-five of which are sufficient for an acre; and prove a cheap and excellent manure, preferable to either lime or marle. Many thousand tons of these shells are annually carried (by vessels constantly employed in the busines) all round the coast, and sometimes even to the Isle of Man. These shells have been used with great advantage in the improvement of barren land, innumerable, that many hundreds of acres in this parish, originally not worth more than 2r. per acre, have been made worth from 10s. to 15s. per acre. Yet this, like every other advantage that is easily attained, is not duly prized; for upwards of one thousand acres in this parish, though capable of cultivation, lie in a state of nature, covered with heath, and almost good for nothing. A little calculation might serve to shew landlords, that in nothing could they lay out their money to so much advantage. As for a tenant, where he has only a lease for nineteen years, and perhaps his encouragement not great otherwise, it cannot be expected he should do much in the cultivation of barren land. The tenant, however, might well lay these sea-shells on land already cultivated. This hint should be duly attended to by the cultivators of such lands, in situations where such manures can be readily provided. It is observed, that in Loch-Tartar there is an immense number of oyster-shells, almost unmixed with any sand, when the thin strata above them is removed: the extent of this allomining mass of shells is unknown, but it is probable it can never be exhausted. A vast tract of improvable moorish land in the neighbourhood, may, some time or other, shew that Providence did not place this fund of manure in vain to rear it. For such moorish heathy ground, these sea-shells are the fittest ma-
and treasures, but their use ought not to be confined to it. In order to make the carriage lighter, and the effect the quicker, perhaps it would be worth while to burn them itself, as it is sometimes done to marle. The kiln might be made with one or two eyes, running into it about half way at the bottom, with some flaps or flues rudely arched over them, the kiln then filled with shells, and fed with fire for a day or two, as might be found necessary. Lime is burned in this way in the space of two or three days, and shells already in a mouldering state, would take much less of both time and fuel. The operation would not be hindered by the tides, as these shells are found also under the surface beyond the sea-mark. Strata of these oyster-shells are also to be found at the head of Loch Caolies port; but there (so flow is the progress of the improvement!) they have not yet begun to use them as manure; probably the time is not distant when these sea-shells will become an article of commerce, and be carried at least along all the shores of Kintyre.

And it is stated by the author of the Agricultural Report of Norfolk, that in East Winch and Wallis Blinks, and scattered for ten miles to Wallington, there is a remarkable bed of oyster-shells in sea-mud; the farmers use them at the rate of ten loads an acre for turfrips, which are a very good dressing; they are of particular efficacy on land worn out by corn. Mr. Forster several years ago laid twenty loads an acre on some worn-out land, and they had an amazing effect in producing grass, when laid down in beds, giving a deep luxuriant hue like good dung: the benefit very great at the present time. They are found within two feet of the surface, and as deep as they have dug, water having stopped them at sixteen or eighteen feet deep. They are used again and again on the same land, and with the same effect. At East Winch, Mr. Crowe has acres together of this most valuable manure. They fall to powder on being stirred. All sea materials of this nature should conflagrantly be well attended to, and collected when wanted to be employed as manure by the farmer. Where they are in a solid state, they only require to be in some measure broken down into a coarse powder. See Sand and Shells.

It may be noticed, that in the first mentioned district, the price of the shells is now higher than it was formerly.

SEA-SICHENS is said to be prevented by drinking sea-water mixed with wine.

SEA-SIDES-GRAPE, in Botany. See Coccobola.

SEA-SPLINTER, or Polyphy, a name given by Ellis to the Sertularia secchennastra.

SEA-SUN-CRUCER, American. See American, &c.

SEA-SCALLOWS, in Ornithology, the name of the ferna birwada, common on our coasts. See STERNA.

SEA-TAMARIK, a name given by Ellis to the Sertularia tamarike.

SEA-TANGLE, in Agriculture. This is another name by which the sea-weed which is usually made use of as a manure is known in some districts, especially those of the north, where it is sometimes collected, and applied, either in its simple state, or when made up into compost with some sort of earthy substance. See SEA-Weed.

SEA-TURTLE DVE. See SEA-Turtle Dove.

SEA-WALL, in Rural Economy, that fort of wall or defence which is thrown up and provided against the sea on the different coasts of the kingdom. It is formed of various kinds of materials, according to the nature of the situation and circumstances, such as those of earth, rocks, shells, strong gravel, and many other matters, to as to constitute a fort of embankment. See Embankment and Embanking.

Walls or banks of this nature should constantly have a good degree of slope backwards, whatever the nature of the materials may be which are employed in their construction, as this form always affords great safety and protection to them. The bases or foundations of them should likewise be securely laid, and well guarded and protected by every possible convenient means which their situations and circumstances will admit of; and the internal parts have a sufficient weight of earthy or other matter thrown up and laid against them, in order to counteract the weight of the water during the time of the tides. In Essex, Mr. B. Dudley is said to have endeavored to give a new direction to a shifting bank of shelly, as a guard to a sea-wall, which had been newly repaired and was much exposed, and by that means to convert it into this fort of defence and security, which he accomplished in the following manner; a flag-stone hedge was made in the ounce, in order to retain the stall land, which being found to have taken effect, a second was formed. The shelly bank, it is said, shifted, though slowly, according to his intention, and that he laid the rational expectation of fully availing himself of it to strengthen his wall, at little more expense than that of thinking. It is urged, that opportunities of this nature frequently present themselves, but are wholly neglected and turned to no account.

It might not be an object unworthy of attention, it is supposed, to have a general commissional of fewers, &c. for the repairs and preservation of sea-walls along the coast, which protect lands the most capable of improvement from the destructive inundations of the sea-water, which leave such fatal well-known effects behind, that the ground is not worth the tillage for some years after being overflowed, and, besides, the expense and trouble that may have been laid out upon it are mostly for ever lost. As the matter now stands, it is common for the owners of the land to manage their own walls according to their own discretion, by which means the neglect or inattention of an individual may cause, not only ruin to himself, but many of his more careful neighbors, and spread a general distress around him. This is the fate of the cause in the above county, and in others it is probably much the same, where they border on the sea.

SEA-WARES, in Agriculture, a term frequently applied to the weed thrown up by the sea in many situations, and which is collected and made use of as a manure, and for other purposes. It is the quercus marina, and has often the names of sea-wreck, sea-tangle, &c. See SEA-Weed.

SEA-WATER, that briny bitterish fluid which constitutes the sea. See Water, &c.

SEA-WATERS, in Agriculture, that which is brought by the sea, and much impregnated by saline matters. It is suggested in the Argyleshire Agricultural Survey, that as it is known that salt is beneficial as a manure, sea-water, which is found to contain it in the proportion of about a bushel to a ton, may also be recommended in the same view. And that, from its promoting putrefaction, it may be applied to peat-earth, dung-heaps, and composts, with much advantage in many situations. This fort of water, where it flagnates for any length of time on land, is, however, found to be very injurious. See SALT-Water.

SEA-WEEKS, in Botany, The Submerged Alga of some scientific writers, are such cryptogamic plants as grow under water, in the sea, fixed by their base, originally, to some rock, flume, or shell, but often found floating without any attachment. Their seeds are, in many instances, known, but the economy of their fructification has not yet been satisfactorily explained, notwithstanding the labours of Rau-mer, Gmelin, Gautier, Corens de Serra, Velley, Turner, and others. See CONIFERA, FUCUS, ULVA, &c.

SEA-Weed, in Agriculture, the wreck or weed thrown up by the water on the sea-coasts, and sometimes cut from their sides.
It is the plant known by the name of quercus marina. And it is a material much used as a manure in the districts, as those of Kent, and the northern counties, as well as in the islands of Jersey and Guernsey. It is found to be tender and easily reduced by remaining some time in heaps, and taking on the process of fermentation. It is thoroughly impregnated with lime matters, and of course proves a beneficial application for land.

It has been found, in the practice of Mr. Rudd in Yorkshire, to a better and more complete union with keimp, ashes, than from the alum-works, and lime, the whole being mixed up with earth. But in many places it is made use of in its simple state, after having undergone a degree of fermentation, or after being incorporated with yard-dung. In the Agricultural Survey of Argyleshire it is stated, that along all the coasts it is much used as a manure, though not always valued as much as it ought. Its effects are not so lasting as that of dung, nor is it so great when laid on in winter as in April or May, when it is riper, and more impregnated with faits. What comes afloat during summer after the ground is frozen, the more careful farmers gather into heaps, or spread on lay-grounds. In either way it turns to little account. Much of the heaps melt away, and much of what is spread dries and shrivels to nothing. If mixed with earth, mofs, fern, weeds, etc., in a compost, it would produce a quick and strong fermentation, and all its juices would be preferred. This is the way to make the most of this great gift of Providence, and the farmer and cottager both should thus increase their store of manure wherever it can be done.

It is likewise noticed, that in the above islands, where this weed has been long employed, it is cut twice in the year, the first cutting in February or March being applied as a manure on the pasture grounds, nurseries, and those towns with barley. It is used in the proportion of two cart-loads, weighing two thousand pounds each, with six cart's of stable dung to a 1000 feet square. The second cutting, which is performed in July, is laid to dry on the sea-shore, and afterwards made use of as fuel; the ashes of which are found an admirable manure, especially on turf land. It is spread over the surface of the land in the winter season, or early in the spring, in the proportion of about half a bushel to the perch. It is said to have a great effect in giving a full ear to the grain, and to prevent its being laid.

But it has not yet been ascertained upon what sorts of land the weed in its simple state has the most effect. It is found to afford great vigour of growth to plants in all kinds. It has generally been supposed to have little effect beyond the immediate crop; but when duly blended and incorporated with other proper earthy or other materials, it has been found to be more lasting in its effects, and to be more proper in this application. See Manure.

The plants of this fort, however, which are made use of as manure on the sea-coasts of this country and Ireland, consist of many distinct species of fuel, algae, and conifer, according as they prevail in different parts. Sir Humphrey Davy found by different processes, in the common fucus, which is commonly the most abundant of any on our sea-coasts, in one mode one-eighth of gelatinous substance similar to mucilage, and in treating it another way, nearly four-fifths of its weight of water, but no ammonia; the ashes contained sea-salt, carbonate of soda, and carbonaceous matter. The gelous matter was small, and chiefly carbonate acid, galeous oxide of carbon, and a little hydro-carbonate.

This manure is laid to be transient in its effects on land, not lasting more than a single crop, which may be readily accounted for from the large proportion of water, or the elements of water, which it contains. It decays, on exposure to the atmosphere, without any heat being produced, taken to melt down as it were, and drive away. A large heap has been known to be wholly reduced in a little while, matter in less than two years. The fresh part of a farm being set down in a mar with itself with a hot fire, became much shrivelled, and the sides of the pitted very dewy, the air being found to have lost oxygen, and to contain carbons and gas.

The suffering of this sort of weed to ferment before it is used, is thought wholly necessary, as there is a fibrous matter rendered soluble in the process, and a portion of the manure is left. The practice of the best farmers in the western parts of this country, is to put it that of which it can be laid, and that the results of this method are exactly in conformity to the theory of its operation. "The carbonic acid formed by its imperfect fermentation may be partly dissolved by the water let free in the same process, and thus become capable of absorption by the roots of plants." That the effects of this weed as a manure must chiefly depend upon this carbonic acid, and the soluble mucilage it contains; and it has been found that "some fuels which had fermented as to have lost about half its weight, afforded less than one-twelfth of mucilaginous matter, from which it may be fairly concluded that some of this substance is destroyed in fermentation."

There is unquestionably a great lost sustained in this and perhaps other ways, where earthy matters are not used with it.

**SEA-Wilows**. a name given by Ellis to the *Gueorgia* anceps.

**SEA-Worms**. See Worms.

**SEA-Worthy**. See Worms.

**SEA-Worthy**. In Marine Insurance, a term applied to a ship, denoting that she is "tight, staunch, and strong, properly manned, and provided with all stores;" so as to be in all respects fit for the intended voyage. In every insurance, either on ship or goods, there is an implied warranty that such is the state of the ship, so that the insurer may gain the premium for indemnifying the insured against certain contingencies; for if the ship is incapable of performing the voyage, there is no possibility that the insured should gain the premium; and in that case, the contract, on his part, would be without consideration, and consequently void. The insurer undertakes to indemnify the insured against "the extraordinary and unforeseen perils" of the sea; and it would be absurd to suppose that any man would insure against those perils, but in the confidence that the ship is in a condition to encounter the "ordinary perils," to which every ship must be exposed in the usual course of the voyage proposed. In France every ship is surveyed, before the commencement of her voyage, by officers appointed for that purpose, who make their report; but the report upon such survey was not sufficient proof of seaworthiness, and it still rested with the insurers to shew the contrary. A ship should be presumed not to have been seaworthy, unless it be made to appear that her disability arose from sea-damage, or other misfortune. It is a wholesome rule, all circumstances considered, says Jesuys Marshall, that the insured shall be held to pretty strict and cogent proof of the ship's being seaworthy, fit for performing the voyage insured, with the proposed cargo on board, and in all respects fit for the trade in which she is intended to be employed. It is also a wholesome rule, that this proof shall not only be cogent and strong to shew the ship's sufficiency at the time when she sailed, but also that the insured shall bring forward all the evidence which he has upon this subject, particularly what relates to the state she was in when the loss happened,
or when she was condemned as unfit to proceed on the voyage. If any thing should be withheld, which the injured might have produced, it will always throw great suspicion on the cause. If, on the other hand, it appears from the facts of the case, that the loss may fairly be attributed to sea-damage, or any other unforeseen misfortune, but yet the insurers mean to allege that the ship at her departure was not sea-worthy, the onus probandi will lie on them. This seems to be the simplest rule; and the simplest rules are always the best, particularly in matters of commerce. If it be clearly ascertained that the ship, at the time of her departure, was not in a condition to perform the voyage insured, neither the innocence nor ignorance of the insured, nor any precautions he may have taken to make her seaworthy, will avail him against the breach of his implied warranty. If the ship be not seaworthy, the policy will be void, though both the insured and the captain believed her to be seaworthy; and though the insurers knew the plat she was in as well as the owners. Where the goods insured have sustained a damage in the voyage, from the insufficiency of the ship, the question, whether the owner or master of the ship liable to make good the loss, depends on the question whether the ship was in a condition to perform her voyage at the time of her departure, or became defective from fires of weather and the perils of the sea. But it is sufficient if the ship be seaworthy at the time of her failing. She may cease to be so in twenty-four hours after her departure, and yet the underwriters will continue liable. The question, however, in such cases, will always be, whether her disability arose from any defect existing before her departure, or from a cause which occasioned it afterwards. But if a ship, within a day or two after her departure, become leaky and found at sea, or be obliged to put back, without any visible or adequate cause to produce such an effect, the natural presumption is, that she was not seaworthy when she failed; and it will then be incumbent on the insured to show the plat she was in at that time.

It is unnecessary to make any representation of the condition of the ship to the insurer, previous to the effecting of the policy; for it is a rule that no representation need be made of matters relating to the risk which are covered by a warranty. But a ship, to be seaworthy, must not only be tight, staunch, and strong, and provided with all necessary stores for the voyage proposed; it is, as has been already observed, a condition or warranty, implied in the contract, that the ship shall be properly manned, by persons of competent skill and ability to navigate her. And therefore, if she be suffered to fail in a river, or other place of difficult navigation, without a pilot properly qualified, the underwriters will be discharged; for this is a breach of the above condition. Marshall's Treatise on Insurance, vol. ii. See SIR and WARc.

SEA-WRACK, the name by which the sea-weed, collected and prepared for manure, is known in some places. See SEA-Weed and WRECK.

It is said to be fed upon by sheep and black cattle, in some places; eating it from the rocks on which it grows, in its fleshy flake, during the ebbing of the tides. As a manure, it is often used fresh with earth and sand in a fort of compost, without any lofs.

SEA-Yoke. See YOR.

SEA, Head. See HEAD SEA.

SEA, High. See HIGH.

SEA, Lie under the. See LING.

SEA, Pacific. See PACIFIC.
the structure of the germ and intuition of the embryo.

SEA

ST. AGAN, in G. Grapt., a town of Persia, in the province of Irag: 3 miles E.N.E. of Harabad.

ST. AGARIM, a name sometimes given to a troubled red wood. S. Raymond.

STE, in J. Noyes., a manner of capacity containing six cabs. S. Cain and Measure.

SEA-HORSE, an island, an island in Hudson's bay. N. lat. 84°. W. long. 89° 50'.

SEA-HORSE, a cape on the east of a peninsula in Hudson's bay. N. lat. 74°. W. long. 82° 10'.

SEAKONNET ROCKS, rocks on the coast of Rhode Island, in the strait of Narragansett bay.

SEAL, a print, a piece of metal, or other matter, usually either round or oval, on which are engraved the arms, device, &c. of some prince, state, community, magistrate, or private person, often with a legend or inscription; the impression of which in wax serves to make acts, instruments, &c. authentic.

The king's great seal is that by which all patents, commissions, warrants, &c. coming from the king are sealed: this consists of two impressions, one being the seal itself, with the effigy of the king flamped upon it; the other has an impression of the king's arms in the figure of a target, for matters of smaller moment, as certificates, &c. that are usually sealed: S. pede seali.

The keeping of this seal is in the hands of the lord high chancellor, who is hence also denominated lord keeper.

The office of lord chancellor, or lord keeper, whose authority by 3 Eliz. c. 18. is declared to be exactly the same, is with us at this day created by the mere delivery of the king's great seal into his custody, without writ or patent.

The king's privy-seal is a seal usually first set to grants that are to pass the great seal. See PATENTS.

The use of seals is very ancient, an instance of which occurs in Daniel, chap. vii. 17. But seals are still older than this; for Jezabel, in 1 Kings. chap. xxi. seals the orders for Naboth's death with the king's ring. See also Jerem. xxxii. 16.

In effect, as the ancient seals were all engraven on the collet, stones, &c. of rings, and as the original use of rings, it is inferred, was only to be in readiness for the sealing of acts, instruments, &c. seals should seem to be as ancient as rings themselves.

These sealing rings, called annuli signatarum, signillares, cipographi or cipographae, is fast by ancient authors, were first invented by the Lacedemonians, who, not content to flout their churls, armories, &c. with keys, added seals to them; and to this end, at first they made use of worm-eaten wood, the impressions of which they stuck on wax, or soft earth; but they at length found the art of engraving figures, or rings, the impressions of which they took in the same manner. This, however, must be granted, that even in Moses's time, the art of engraving, not only on metals, but also on precious stones, was known.

Indeed, it does not appear that the ring had any other use among the primitive Jews besides ornament; but at length it was used to seal instruments, contracts, diplomas, letters, &c. instances of which we have in the first book of Kings, xvi. & Esther, viii. 10. Xenophon, Hellen. lib. i. Qunt. Cist. lib. vi. Just. lib. xiii. cap. iii. where we learn, the keeping of the emperor's seal was become a particular office. Lucan adds, that Alexander gave his seal to Perdicas, thereby appointing him his successor.

They observe, that in his time there were no seals used any where but in the Roman empire. At Rome, it seems, they were because of old-time custom, intended that a testament should roll with the testament, and the seals of seven witnesses; but it is certain appears that the Romans had no such thing as holy seals: nor that their seals and contracts were sealed, as is the custom in the times of the emperors.

In France the quality of this was, instead of signing their municipal acts, &c. by their seals, they signed from a box of their charters, which were not fixed at all; the rest of which was, that in those days very few people were able to write; hardly any body, indeed, could read and write but clerks:—the custom continued when learning made its way among them; though this reason for doing it had ceased.

In England, the first sealed charter we have extant is that of Edward the Confessor, upon the landing of Wulfran the Abbot; yet we read of seals in the MS. history of King Offa.

And Sir Edward Coke relies on the influence of King Edw. in the making use of a seal about a hundred years before the Conquest; though some have doubted the authenticity of this charter, because it is certain that sealing was not then in common use.

Before the time of William the Conqueror, the English did not seal with wax, but only made a golden cross in the parchment, and sometimes an impression on a piece of lead, which hung to the grant with a filken string, and was termed an abundant authorizing of the grant itself, without either signing or witness.

This practice of affixing the form of the cross proceeded from their inability to write; which is honestly avowed by Caedwalla, a Saxon king, at the end of one of his charters:—"propr. manu pro ignorantia litterarum signum facta, crucis expressi et subscripsi." The fame circumstance is related concerning the emperor Julian in the Eafi, and Theodone, king of the Goths, in Italy.

The colour of the wax with which William's grants were sealed, was usually green, to signify that the act continued for ever fresh; and of force. The usual impression on all laymen's seals, till the year 1218, was a man on horseback, with a sword in his hand; afterwards, they began to engrave their coats of arms on their seals; only the archbishops and bishops, by a decree of cardinals Ottone, who was legate here in 1237, were to bear in their seals their title, office, dignity, and even their proper names.

Du Ctehe observes, that none below the dignity of a knight had any right to a pendant seal, called authentica.

The emperors long sealed all their acts of importance with a golden seal; and the golden bull of Charles IV. for the election of an emperor, takes its name from the gold seal hanging to it, which is called bull.

The pope has two kinds of seals, the first used in apostolical briefs, and private letters, &c. called the fibermann's ring. This is a very large ring, on which is inscribed St. Peter drawing his net full of fishes.

The other is used in bulls, representing St. Peter's head on the right, of St. Paul on the left, with a cross between the two; on the reverse are sometimes the pope's name and arms.

The impressions of the first seal are taken in red wax; but those of the second, always in lead.

Theod. Hopper, a German lawyer, has furnished the world with a learned and curious work on the subject of seals, printed in 1642, at Nuremberg, in quarto, under the year.
SEA

title, "de Sigillorum prisco & novo Jure, Tractatus Practicus," &c. We have another work of the like kind by Heiniccius, in folio, printed at Frankfort and Leippic in 1709, under the title, "de Veteribus Germanorum alienum Nationem Sigillis, eorumque Usu & Praelationis, Syntagma Historicorum."

SAI is also used for the wax or lead, and the impression thereon, fixed to the thing sealed.

The manufacturers' seal, frequently applied to their stuffs, &c. is to be of lead. That of knights, by the French law, is to be of hard wax; that of agents, of soft wax.

Some seals are stamped on the paper or parchment itself, others hung by silk strings.

The French seal their edicts with green wax; arrets with yellow wax; expedients for Dauphiné with red wax. And the letters of the French academy are sealed with blue wax. See Wax.

Seal, Hermetrical. See Hermetical.

Seal, Lady's, in Botany, a species of Bryony.

Seal, Solomon's, or lily of the valley. See Convallaria.

Seal, in Zoology. See Phoca, and also Sea-Bear, and Sea-Calf.

Seal, Hair of, in Agriculture, is a substance made use of as a manure, in the way of top-dressing, in combination with rabbits' dung and lime, but which can seldom be provided in any sufficiently large quantity, nor is it found very beneficial for the purpose. See Manure.

Seal, in Geography, a small island near the coast of Donegal, Ireland, called in Arrow-smith's map Flasheedy; it is near the entrance of Strabaghy bay, and about four miles south of Malin Head.

Seal Island, an island near the S.W. coast of Nova Scotia. N. lat. 43° 25'. W. long. 66°.—Also, an island in the Atlantic, near the coast of Maine. N. lat. 43° 50'. W. long. 65° 40'.—Also, a small island W. of King George the Third's Sound, on the S. coast of New Holland; 3 miles N.W. of Baldhead.

Seal Islands, a cluster of small islands in the Atlantic, near the coast of Maine. N. lat. 44° 45'. W. long. 67° 46'.—Also, a cluster of small islands near the east coast of Labrador. N. lat. 53° 15'. W. long. 55° 10'.

Seal Key, a small island in the Spanish Main, near the Mosquito shore. N. lat. 12° 54'. W. long. 82° 40'.—See also Lobos.

Seal River, a river of North America, which runs into Hudson's bay.

Sealcote, a town of Hindooftan, in the country of Lahore; 50 miles N.N.E. of Lahore. N. lat. 31° 44'. E. long. 73° 50'.

Sealer, an officer in chancery, appointed by the lord chancellor, or keeper of the great seal, to seal the writs and instruments there made in his presence.

Sealing, in Architecture, the fixing of a piece of wood or iron in a wall, with plaster, mortar, cement, lead, or other solid binding.

For staples, hinges, and joints, plaster is very proper.

Sealing-Wax. See Wax.

Seam, or Same, in Rural Economy, a term applied to tallow, grease, hog's lard, before it is rendered and formed into lard, &c. in some places.

Seam, a term applied to a horse-load of three hundred weight. In Cornwall, a team of four weighs two hundred weight. The team also differs very much in the weight of different articles of other kinds. It likewise varies in different districts of the kingdom.

Seam, Monk's. See Monk.

Seam, Round, of a sail, is so called, because round like the common flem.

Seamen. See Mariners and Navy.

Seamer, in Geography, a river of England, in the county of York, which runs into the Ure.

Seamer's Lake, a lake in America, in the state of Vermont. N. lat. 44° 53'. W. long. 71° 55'.

Seamle, a town of Hindooftan, in the circar of Schaurnpourij; 36 miles S. of Schaurnpourij.

Sea Otter Sound, a bay on the W. coast of North America. N. lat. 55° 40'. W. long. 133° 45'.

Sea-Pye's Keys, a cluster of small islands in the gulf of Mexico. N. lat. 29° 56'. W. long. 89° 5'.

Seal, in Rural Economy, a term applied to dry or rotten wood, in opposition to that which is green.

Seara, in Geography, a town of Brazil, in the government of Marahoa. S. lat. 3° 30'. W. long. 39° 30'.

Searc. See Suer.

Search-Warrant, in Law, a kind of general warrant signed by justices of peace, for searching all suspected places for stolen goods; and there is a precedent in Dalton, requiring the confable to search all such suspected places, as he and the party complaining shall think convenient, but such practice is condemned by lord Halse, Mr. Hawkins, and the local authorities. However, in cases of a complaint, and oath made of goods stolen, and that the party suspects that the goods are in fuch house, and shews the cause of such suspicion, the justice may grant a warrant to search in those suspected places mentioned in his warrant, and to attach the goods, and the party in whose custody they are found, and bring them before him or some other justice, to give an account how he came by them, and to abide such order as to law shall appertain; which warrant should be directed to the constable, or other public officer, who may enter a suspected house and make search.

Searcher, an officer in the customs, whose business it is to search and examine ships outward bound, if they have any prohibited or uncustomed goods on board, &c. 12 Car. II. There are also searchers of leather, &c. See Alnager.

Searcher, in Artillery, an iron socket with branches, from four to eight in number, a little bent outwards with small points at their ends; to this socket is fixed a wooden handle, from eight to twelve feet long, of about an inch and a quarter diameter. This searcher is introduced into the gun, after it has been fired and turned round, in order to discover...
cover the cavities within; and after their distances are marked on the outside with chalk, they make use of another barbed instrument which has only one point, about which a mixture of wax and talcum is put, to take the impression of the holes; and if there are any a number of such deep, or of any considerable length, the gun is rejected as unsafe for the government. The gun is thus proved and searched twice.

SEARCHING, in Rural Economy, an implement used for boring in search for coals &c. See Borer.

SEARCHING, the operation of boring or sinking into the bowels of the earth, for the discovery of the different materials which it contains. For the detection of marbles, coals, or other similar substances, the use of the barren must be carefully avoided. But where difficulties are in performing it in this way, from the obstruction of stones, &c., a narrow shaft, such as a well, may, Mr. Marshall thinks, be carried down, without much expense, to the depths at which it can be wrought with advantage. See Borer and Marble.

SEARCHING of Neutral Ships, in Political Economy, a practice authorized by the law of nations, in order to prevent the exportation of contraband goods, or such commodities as are particularly useful in war, and the importation of which to an enemy is prohibited. Accordingly Vattel, and other writers of the same description, maintain that there is a right of searching. Some powerful nations have indeed at different times refused to submit to this. But what a neutral ship refusing to be searched, would from that proceeding alone be condemned as lawful prize. But to avoid inconveniences, there is, and every other irregularity, the manner of the search is settled in the treaties of navigation and commerce. According to the present custom, credit is to be given in certain cases and bills of lading, produced by the master of the ship, unless any fraud appear in them, or there be good reasons for suspecting their validity.

SEARCHING for the Stone, called also Founding, denotes, in Surgery, the operation of introducing a metallic instrument, named a found, through the urethra into the bladder, with a view of ascertaining whether a stone is really lodged there or not. In this manner, the surgeon actually makes the instrument strike against any calculus which may be present; and the collision produces such an impression on the fingers of the surgeon, and on the ears of every bystander, as leaves no doubt respecting the matter of the case. Sounding is in fact the only infallible way of learning that the bladder contains a stone. The symptoms of the complaint resemble those of several other diseases, and may deceive us (see Lithotomy); but when we both hear and feel the collision of the instrument against the calculus, we obtain that kind of information which does not admit of error.

The most advantageous posture for sounding is that, in which the patient reclines back upon a sofa, or couch. A chair of large size, with a back that can be made to fall backwards to a convenient distance, is sometimes used, and may be seen in most of our hospitals.

As the stone is generally situated at the lowest part of the bladder, the extremity of a found is usually not so curved as that of a catheter, in order that it may more easily touch anything situated immediately behind and below the neck of the bladder. The found is only a particular kind of probe, and as its chief use is to convey information through the medium of the organ of touch, its handle should be smooth and highly polished, so that as many points of its surface as possible may come into contact with the fingers.

The found is introduced exactly in the same manner as the silver catheter, either with the concavity or convexity of the instrument towards the abdomen. When the last method is preferred, as is the case when the patient is recumbent in the presence of the surgeon, it is to be kept in mind that the found is not to turn the concavity of the instrument towards the patient, previous to its passage through the membranous and prostate portions of the urethra. This is the case which the French surgeons have called "l'operation du banc." When the extremity of the found is in the bladder, it is to be pushed downward for the purpose of ascertaining whether the stone lies beneath its convexity, or as commonly the case where one is present. If the extraneous body should not be felt in this manner, the back of the instrument may be turned first to one side of the cavity of the bladder, then to the other. Should the calculus not be touched by these movements of the found, the instrument may be drawn forward, for the purpose of learning whether the stone is more anteriorly situated. Frequently the stone cannot be felt till the whole of the urine has been expelled, and the bladder has become contracted. Sometimes, the found may be made to lie the finger, by introducing the finger into the rectum, and thus bringing the extraneous body upward. In this way, the calculus may often be plainly felt by the finger.

We shall conclude this short article, with carefully cautioning surgeons never to perform lithotomy, unless they can distinctly feel the stone with the found, or touch, immediately before the operation.

SEAR-CLOTH, or Creecloth. The word fearcloth is supposed to be a corruption of cerecloth, and to be derived originally from the Greek σαρανθα, a world.

In Surgery, it denotes a form of external remedy, somewhat harder than an unguent, yet softer than an emplastro, though it is frequently used both for the one and the other.

The fearcloth is always supposed to have wax in its composition, which distinguishes it, and even denominates it. In effect, when a liniment or unguent has enough wax in it, it does not differ from a fearcloth.

Fearcloths are a kind of substances to friction, and are sometimes used for other purposes; the bell arc compound of resolvent drugs, as fenum, myrrh, and as, incorporated with wax and galls, as albanum, gum ammoniac, and fagapenum; the whole tempered with wine.

SEARSBURG, in Geography, a township of America, in Bennington county, Vermont; 12 miles E. of Bennington.

SEASE, Season, or Season, in a Shop. See Sease.

SEASONING, in Ship-Building, a term applied to a ship kept standing a certain time after she is completely timbered and dubbed out for planking, which should never be less than six months.

Seasoned timber or plank is such as has been cut down and converted, or felled out in one season at least, particularly when thoroughly dry, and not liable to shrink.

Seasoning of Timber. See Timber.

SEASONINGS, in the West Indies, a kind of ashen dillenmper, which foreigners are much subject to at their first coming.

SEASONS, in Cemography, certain portions or quarters of the year, distinguished by the signs which the sun then enters, or by the meridian altitudes of the sun; consequent on which, are different temperatures of the air, different works in tillage, &c.

The word is formed from the French saisons, which Menage derives from the Latin stas, whereas the Italians have formed stagioni; Nicot derives it from stasio, tempus stasines, following time.
The year is divided into four seasons, spring, summer, autumn, and winter; the beginnings and endings of each of which, see under its proper article.

It is to be observed, the seasons anciently began differently from what they now do; witness the old veris:

"Dat Clemens hymen; dat Petrus ver cathedratus; 
Æfniu a Urbanus; aautumnat Bartholomew."

SEAT, in Astronomy. See Scheat.

SEAT, in the Moneys, is the posture or situation of a horseman upon the saddle.

To seat a horse upon his branches or hip, see Put.

SEAT, in Ship-Building, the scarp or part trimmed out for a chock, &c. to lay to.

SEAT-Transom, that transom which is fayed and bolted to the stern-timbers, next above the deck-transom, at the height of the port-fills.

SEATING, that part of a floor which fays on the deadwood; and of a transom which fays against the poop.

SEATNESS, in Geography, a cape on the S.W. coast of Shetland. N. lat. 59° 46'. W. long. 1° 56'.

SEATON, a small sea-port town in the hundred of Colyton, county of Devon, England, is situated at the distance of three miles S. from Colyton, and 156 S.W. from London. This place is called Suetetone in Domesday book, and was undoubtedly the Moridunum of the Iter of Antoninus. Ridson fays it is "memorable for the Danish princes landing there in the year 937, as also for the attempt of the inhabitants of Colyton to make a haven there, which they had feomnly named Collyton haven, and procured a collection under the great feal of England for the levyng of money to eft the fame, of which work there remained no monument, only a remembrance of fuch a place among strangers that know not where it fands."

At presente Seaton is chiefly noted as a well frequented tea-bathing village. The church is an ancient building of free-stone, dedicated to St. Gregory, and contains a very elegant monument in memory of W. Walrond, esq. and his lady. According to the parliamentary returns of 1811, the parish of Seaton comprifed 323 houses, and 1524 inhabitants. The History of Devonshire, by the Rev. Richard Polwhele, three vols. folio, 1797. The Chorographical Description or Survey of the County of Devon, by Tritram Ridson, 8vo. 1714, 2d edit. with additions, 8vo. 1811.

SEATON, or Port Seaton, a small sea-port of Scotland, in the county of Haddington, in the Frith of Forth; 5 miles W.N.W. of Haddington. N. lat. 55° 58'. W. long. 3° 59'.

SEATON Nook, a cape of England, on the E. coast of the county of Durham, at the mouth of the Tees; 5 miles S.S.E. of Hartlepool.

SEATON Shakes, a fuiue which opens into the German fea, on the coast of the county of Northumberland.—Allo, a town of England, called "Seaton Delaval," in Northumberland, deriving its name from an artificial harbour constructed by Sir Ralph Delaval, in the 17th century; 10 miles N.E. of Newcastle. N. lat. 55° 6'.

SEATON, a river of England, which rifes near Leathward, and runs into the English Channel, three miles E. of Looe, in Cornwall.

SEAVES, in Rural Economy, a term used to signify rufhes, especially the loft rufhes.

SEAVY Ground, such ground as is covered or over-run with rufhes.

SEAVUM, in Geography, a town of Hindeoofan, in Lahore; 18 miles W. of Rahoon.

SEA-WOLVES ISLAND, an island in the gulf of St. Laurence, near the W. coast of Cape Breton. N. lat. 46° 21'. W. long. 61'.

SEBA, Albert, in Biography, a native of East Friesland, was by profession a druggist at Amsterdam, and a member of the Academy Naturalis Curiatorium. He published a descriptive catalogue, in Latin and French, of the vast collection of objects in natural history which he had brought together, in four vols. folio, illustrated with a great number of engravings. He likewise communicated several papers to the Ephem. Nat. Curiof.

SEBACA, in Geography. See Marindt.

SEBACEOUS GLANDS, in Anatomy, small glandular bodies in the skin, secreting the unctuous matter which covers the surface of the body. They are particularly manifest about the aiz of the nofe, and in the folds of the external ear. See Integuments, Ear, and Nose.

SEBACIC Acid, in Chemistry, is an acid produced from the decomposition of animal fat, particularly hog's-lard. The acid fumes which are evolved during the burning of fat at a heat short of inflammation, was formerly considered as a peculiar acid, which was called the acid of fat, and afterwards the febacic acid. From the experiments of Thenard it has since been proved not to be a peculiar acid, but the acetic acid digested with some other product of the decomposition. During these refearches, however, he found that by the dilution of tallow, he obtained an acid having peculiar properties, which he still called the febacic acid. "The following is the procefs he recommends. Dilift hog's-lard from a retort, by a heat which will decompose the fat; carbonic acid and carburetted hydrogen first come over, and a yellow fluid containing acetic acid, but fyll no febacic acid. This receiver muft now be removed, and a new one adapted; the heat being continued, an oily matter comes over of the confommee of butter. It is in this fubfance that the febacic acid is found. It is separated by firld boiling it in water, and evaporating the liquid till the febacic acid falls down in cryftals. This depofition is increased as the liquid cools. He alfo recommends, instead of getting the cryftals by evaporation, to add acetate of lead to the water in which the oily matter has been boiled; a falty precipitate is formed, which is the feton of lead, and which is to be well wafted and dried. When to this fubfance sulphuric acid is added, and heat applied, a fatty liquid floats on the top, which is to be collected; this being difloved in hot water, forms cryftals of pure febacic acid, which are deponited on cooling. The lard affords but a very small proportion of the acid. Rofe informs us that it requires a pound of lard to produce forty grains of acid.

Sebamic acid, thus obtained, is in the form of a cryftalline mass, of a white colour. It has no smell, but its tafe is agreeably four, and fightly bitter; like most other acids it changes fome vegetable blues to a red colour.

When heated, it melts like fat into a tranparent fluid, but on cooling it re-allumes its whitefens and its cryftalline form. It is fald to be volatile by heat, still retaining its properties, but a strong heat decomposes it.

It is sparingly foluble in cold water, and boiling water diffolves about one-fourth its weight; it affords cryftals on cooling, which are in the form of prifms. Alcohol diffolves it in considerable quantity. It is alfo foluble in oils. From the laft, and fome other properties, it bears a fharp refeonblance to the benzoic acid. This laft analogy has been pointed out by Berzelius. He found alfo that the farts formed by this acid have a fharp refeonblance to the benzoaet.

Thefe facts go far to fhew fo fharp an analogy between the two
two sides, as almost to establish their identity. See Ben- 
net, and

SEBACOOK, or SEBANA, in Geography, a pond or 
lake of America, in the state of Maine, equal in extent to 
two large two-masted ships, and covered with ice, from the 
N. W. by Sec. 4, T. 3, R. 11 W., in latitude 12°, 20' 
N., and longitude 70° 50' W., being a distance of 35 miles 
from N.W. to S.E.; 18 miles N.W. of Portland.

SEBAA, in Sasan, 1 a name adopted by Mr. Brown, 
from Dr. L. de l'Eclat's, a memory of Albert 
Seba, an apothecary of Amsterdam, who prepared a 
sketchy description, with plates of his own making, in four 
four folio volumes, which came out between the years 1734 and 
1765. The author indeed died in 1746, so that his three 
letters were published posthumously. Many Cape 
plants were here engraved, and several of them one of the perfect 
genus. Yet Seba does not deserve to rank as a scientific 
botanist; nor did Linnaeus, who knew him, and by whose 
recommendation he employed Artedi to arrange his figures, 
ever think him worthy to be commemorated in a genus. 
If, however, we compare him with numbers who have been 
so much more conspicuous, we will not appear to so much 
dishonour; for as a collector he stands rather high. Brown 
Prodr. Nov. Holl. v. 1. 451.—Claus and order, Tetrandria 

Gen. Ch. Cal. Perianth inferior, of one leaf, deeply 
divided into four ovate, acute, keeled, slightly spreading, 
segments, folding over each other at the base. 
Cor. of one petal, withering, salver-shaped; tube swelling, 
the length of the calyx, contracted at the upper part; limb 
in four deep, elliptical, spreading segments. Stam. 
Filaments four, thread-shaped, inserted into the tube, projecting 
out of its mouth; anthers erect, shorter than the limb, 
oblong, budling longitudinally, subsequently recurved and 
callosus at the tip. Peti. German superior, roundish, filling 
the tube; style thread-shaped, erect, the length of the 
filaments; stigma two, oblong. Peric. Capsule roundish, 
with a furrow at each side, comprised, of two cells and 
two valves, the length of the calyx; partitions from the 
inscribed margins of the valves, inserted into the edges of the large 
central receptacle, from which they finally separate. Seeds 
umerous, minute.

Obi. The flowers in some species are five-cleft.

Eff. Ch. Calyx deeply four-cleft, keeled. Corolla salver-
shaped, with an inflated tube. Anthers budling 
longitudinally; finally recurved and callosus at the point. 
Capsule with two furrows, two cells and many seeds; 
the partition from the inscribed margins of the valves. Stigmas two.

Mr. Brown has separated the present genus from Exacum, whose genuine species, according to him, are E. fijjile and 
pedunculatum of Linn. Sp. Pl. with which the albus and 
cardioatum of the Supplementum are, in the last-mentioned 
work, confounded. (See Exacum.) Perhaps also, as 
Mr. Brown conceives, E. punctatum of the last work may 
made a third, and a nonderivitum Ded India one in his 
pollination a fourth, species. He considers as essential to Exacum 
a leafless, deeply divided calyx; anthers without a callosus tip, 
bursting by a pore, or short slit, and continuing straight 
afters the flowers fade; style declining; an undivided stigma; 
and receptacle of the seeds connected with a partition 
originating from the middle of each valve.

1. S. albus. Whitish Sebaa. (Exacum albus; Linn. 
Suppl. 123. Wildd. Sp. Pl. v. 1. 674, but not E. pedun-
culatum, Sp. Pl. 163. Centauream subrotundata folio, 
floraibus comitis; Burm. Afr. 207. t. 74. f. 41; excluding 
the reference to Plukenet.)—Flowers in the upper forks of 
the stem fijjile.—Gathered by Thunberg, Sparrmann, and 
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others at the Cape of Good Hope. The root is small, 
sclerotic, or five, at times, much broadened, 
reportedly in a. 1750, 1781, with four 4, 5, cari 
bead; supra, is slightly 
and slender, about 11. in length, the pedicels, 
2 centim. — In a second place, we add, that 
in the same island, but on the opposite side of the 
short, the flowers were large. We are 
remarkable publication. CH. 1. Such 
third, 
636. 4. (Exacum 
Willd. 
Vol. 
S. albus, 
Burm. 
Plukenet.

2. S. suavea. Yellow Sebaa. (Exacum suavea; Linn. 
Centauream suavea, floribus numerosis, xerophaac; Pl. h. Almag. 
t. 275. f. 3.)—All the flowers small. Gathered by 
Sparrmann, at the Cape of Good Hope. About half the 
size of the last in every part. Flowers yellow, 
borne each on a slender quadrangular stalk, even from the uppermost, 
as well as the lower, forks of the stem. Linn. 
636. 4. is evidently 
recalls Plukenet's figure, though he had originally, in Sp. 
Pl. cited that synonymously under his E. fijjile, 
a widely different plant. It is remarkable that he 
describes the calyx in the Supplement 23 of five leaves, whereas it 
has only four, as it ought, the corolla being five-cleft.

3. S. cordata. Heart-shaped Sebaa. (Exacum 
But not E. fijjile, Sp. Pl. 163. Gentianas exacondes; Linn. 
Sp. Pl. 332. Centauream perfoliatam, forum calyce mem-
branaceum ventriculos; Burm. Afr. 208. t. 74. f. 5. 
C. perfoliatum xerophaacum, floribus exiguis listercitibus, 
albus magnis quadrilateralibus crustis; Pluk. 
Almag. 94. t. 275. f. 4. "C. capnle minus, capsula 
quatuor alibi donata; Sp. Pl. v. 1. t. 22. f. 7.)— 
Flowers five-cleft. Segments of the calyx with a 
dilated, half-heart-shaped, veiny keel. Leaves heart-shaped.— 
Native of the Cape of Good Hope. The size and habit agree 
with the first species, but the flowers are larger, apparently 
yellow, with a longer tube, and five-cleft limb. Calyx 
distinguished by the dilated veiny keels of its segments, which 
are five, not (as Plukenet and Seba say,) four only. 
All the flowers have partial stalks, though shorter in the upper 
ones than the lower. The whole history of these three 
species, in the Supplement, was written by Linnaus 
himself, not by his son, who only described the fourth, Exacum 
pentatum.

ovoatam; Labill. Nov. Holl. v. 1. 38. f. 52.)— 
Flowers five-cleft. Segments of the calyx simply keeled. Leaves 
ovoatam.—Gathered by M. Labillardiere at Cape Van Diemen, 
and by Mr. Brown at Port Jackson, New South Wales. 
Taller and more slender than the foregoing, being about a 
span high. Such of the upper flowers, as grow from the 
forks of the stem, are nearly tellal, like those of S. albus. 
Segments of the calyx lanceolate, with a simple, not dilated, 
crenated with a small, short, five-cleft limb; nothing 
is recorded of its colour.

SEBAGENA, in Ancient Geography, a town of Cappa-
docia, in the prefecture of Cilicia. Proleny.

SEBAIA, in Geography, a town of Arabia, in the pro-
vince of Hedjes; 33 miles S. of Medina.
SEBAKET BADROH, i.e. the lake of king Baldwin, a narrow lake of Egypt, near the Mediterranean, about fifteen miles long; 2 miles E. of Catech.

SEBALA, a town of Arabia, in the province of Hadsjas; 27 miles S. of Medina.

SEBAMA, or SEBAR, in Ancient Geography, a town of Palmas, on the other side of the Jordan, in the tribe of Reuben, according to the book of Joshua.

SEBANZARRO, in Geography, a town of Abyllinia; 80 miles E.N.E. of Axum.

SEBAR, or CEBAR, in the Materia Medica, a name by which the Arabians call the *liquum abie*, or *aloe-wood*, a perfumed aromatic drug.

SEBARIMA, in Geography, one of the mouths of the river Oroonoco.

SEBASTACOOK, a river of America, in the state of Maine, which rises in lakes nearly N. from its mouth, and after receiving, in the windings, many tributary streams, joins the Kennebec at Taconsett Fall, where Fort Halifax was erected, in 1754; the fall is 18 miles from Fort Western, which was constructed in 1752. Its numerous streams abound with small fish.

SEBASTE', a miserable deserted village of Syria, the depopulated remains of Samaria, which acquired its new name in honour of Augustus Caesar; 34 miles N.N.E. of Jerusalem. See SAMARIA.

SEBASTE, in Ancient Geography, an island and town of Cilicia Propria, on the other side of the promontory of Corycus. Strabo says that this town was called Eleusa, and that Archelaus made it the place of his residence, when Augustus gave him Cilicia Trachea.—Alfo, a town of Afa Minor, in Phrygia.

SEBASTIAN, in Biography, king of Portugal, was the pollihumous son of the infant John, by Joanna, daughter of the emperor Charles V. He succeeded to the crown at three years of age, on the death of his grandfather, John III., in the year 1537. By his education he acquired an extravagant admiration for valourous exploit, and an enthusiastic zeal against all the foes of the Christian religion. Under the influence of this passion, he, at the age of twenty, undertook a sudden expedition to Africa, in which, however, he performed nothing of any importance; but availing himself of the application for aid of Muley Hamet, king of Fez and Morocco, who had been dispossessed of his crown by his uncle Muley Mochof, he resolved to renew the attempt against the Moorish monarch with all the force he could bring together.

In vain was he dissuaded from the enterprise; he was inaccessible to all admonitions. Having flippred his country of its military strength, and the flower of the nobility, he fell in the summer of 1578, and proceeded to Arzillia. There he was met by a much more numerous army, with Muley Mochof in person, who was fo debilitated by sickness that he was carried in a litter. In the battle that ensued, the onset of the Portuguese army was so furious that nothing could withstand them, and Muley, in rallying his men, was so much exhausted that he died in the attempt. Sebastian, who was not less dexterous in the use of arms than brave, fought till two horses were killed under him, and most of his attendants were slain by his side. At length, however, he disappeared, nor was it ever known, with any degree of certainty, what became of him, though a body, supposed to be his, was received as such from the Moors, and interred at Belem. But in a slaughter so dreadful, that not more than fifty of the Portuguese army are said to have escaped, it is no wonder that a single body, and probably flippred, should not be recognized. Such, however, was the attachment of the nation to a prince, whose romantic valour had revived in their minds the heroic times of Portugal, that they refused to give credit to his death, and long entertained the full expectation of seeing him return from his supposed concealment. Of this opinion many importers availed themselves, who allowed him character, and obtained a portion of respect due to their favourite sovereign; for more than a century it was believed that he would be again seated on his throne.

SEBASTIAN, St., in Geography, a town of Spain, and the most important of the district of Guipuscoa, situated on the coast of ancient Cantabria, now Biscay, between two arms of the sea, which form a peninsula of it, and at the mouth of the little river Urumea, or Gurumera, which was the Menaceum of the ancients. On the sea-side there is an eminence which serves as a dike. This town, flanked with bastions and half-moons, appears defended by a castle or citadel of little importance, placed upon an almost circular and tolerably high mountain, which is bare, without trees, almost smooth, and ascended by a spired road. St. Sebastian has a small harbour inclosed by two moleS, that leave a very confined space for the passage of ships, which are afterwards protected from the winds, on arriving at the bottom of an eminence of rocks which covers this harbour, where there is a large square tower; it holds at most five and twenty or thirty vessels. The town is very airy; it contains twenty streets, several of which are straight, long, and broad, and all paved with large smooth stones. There are from six hundred and fifty to seven hundred houses in it, and many of them are pleasant enough. It is the residence of the governor of the province, who had the title of captain-general until the beginning of the present century. It has a governor, a king's lieutenant, a major, an aide-major, a small garrison, and a naval academy; two parishes, and a third in the suburbs, which are very populous; two convents of monks, three convents of nuns, and an hospital. There are in this town and its suburbs five manufactories of hides and leather, some tanning-yards established in the faubourg St. Martin, a manufactuary of anchors for the royal navy in the faubourg of St. Catalina, and rope-walks, where cables are made.

Saint Sebastian has always carried on a considerable trade. In 1728, the Philippine company was formed by Philip V., with which that of the Caraccas was afterwards united. This company was very servile, as it procured for Spain a lucrative branch of trade, which was in the hands of the Dutch. In consequence, however, of mal-administration, and the loss of 1,500,000 piastres, which it sustained at the commencement of the war between England and America, this company sunk and was suppressed. However, a trade with the province of Caraccas was continued by private merchants from this port, and the cocoa, tobacco, and leather which are from thence imported, form no inconsiderable branch of trade with the interior and the other parts of Spain, and a still more important one with foreign countries. Hence its harbour is very much frequented by English, Dutch, French, and other ships. It receives the produce of foreign industry, and returns, in exchange, iron anchors, cables, leather, wool, and sometimes cotton. This trade attracts a considerable population to the town, which is estimated at 13,000 inhabitants.

The port of St. Sebastian, though free, is not what is called *abitato*. This word means a privilege to fend merchandise directly to America.

The environs of St. Sebastian are pleasant, though the soil is sandy; we enjoy at the same time a view of the sea and of the Pyrenees. Those who love the country, take pleasure in visiting the pleasant valley of Layola. We go...
SEBASTIAN, del Opo. See La Plata.

SEBASTIAN, St., or St. Sebastian, a town of the island of Tenerife, situated between mountains, about half a mile distant from the sea.

SEBASTIAN, St., or St. Sebastian, a town of Portugal, in Algarve; 6 miles N.W. of Loule.

SEBASTIAN, St., a town of Mexico, in the province of Chihuahua, on the Mazarra; 35 miles N.W. of Chihuahua. N. lat. 23° 34'. W. long. 106° 37'.—Alto, a small island in the Atlantic ocean, near the coast of Brazil. S. lat. 23° 45'.—Alte, a town of South America, in the province of St. Vincent, 10 miles W. of Los Reyes. Alto, a bay of the Indian sea, on the coast of Africa. S. lat. 32° 22'.—Alto, an island of Mexico, in Nayarit, with a town near the E. coast. N. lat. 11° 48'. W. long. 87° 5'.—Alto, a river of Mexico, which runs into the Pacific ocean, N. lat. 25° 20'.—Alto, a town on the E. coast of Guatamala, one of the Canary islands. N. lat. 25° 41'. E. long. 17° 12'.—Alto, a town of Terra Firma, on the E. side of the gulf of Darien.

SEBASTIAN, Cape St., the eastern point of the gulf of Darien, on the coast of the Spah Main, 10 leagues from the western point of Cape Tiburon. The city which formerly stood here has been abandoned, on account of its unhealthy situation. Alto, a cape on the coast of California. N. lat. 43° W. long. 107°. Alto, a cape on the N. coast of Madagascar. S. lat. 17° 20'. E. long. 54° 44'. Alto, a cape on the E. coast of Africa. S. lat. 22° E. long. 35° 20'. Alto, a cape of Spain, on the E. coast of Catalonia. N. lat. 51° 52'. E. long. 5° 0'.

SEBASTIAN, St. Louis, a town on the Mississippi, in the State of Missouri. N. lat. 39° 40'. E. long. 93° 31'.

SEBASTIAN, New, St., town of South Carolina. N. lat. 33° 40'. E. long. 81° 0'.

SEBASTIAN, Fort, St., at the mouth of the Mississippi, in the State of Louisiana. N. lat. 30° 40'. E. long. 90° 10'.

SEBASTIAN, New, St., town of South Carolina. N. lat. 33° 40'. E. long. 81° 0'.

SEBASTIAN, Castle, St., on the coast of South Carolina. N. lat. 33° 40'. E. long. 81° 0'.

SEBASTIAN, St., in the town of South Carolina. N. lat. 33° 40'. E. long. 81° 0'.

SEBASTIEN, St., See St. Sebastian.

SEBASTIAN, del Opo, See La Plata.

SEBASTIEN, St., a town of Portugal, in Algarve; 6 miles N.W. of Loule.

SEBASTIO, or Dionysius, in Ancient Geography, the name of one of the principal towns of that part of the Colchide which was to the right of the Phasis. Alto, a town of Asia Minor, in the Cappadocian Pontus, on the road from Pavia to Sebastia.

SEBASTOPOLIS, or Diumenias, in Ancient Geography, the name of one of the principal towns of that part of the Colchide which was to the right of the Phasis. Alto, a town of Asia Minor, in the Cappadocian Pontus, on the road from Pavia to Sebastia.

SEBASTOPOLE, in Geography. See SEBEATOPOLE.

SEBAT, in Chronology, the fifth month of the civil year of the Hebrews, and the eleventh of the ecclesiastical year, answering to part of our January and part of February.

SEBATS, in Chronology, a genius of fables, formed by the union of the Sibylline and the problematical sages. For an account of these, see the different fables: for instance, for lebt of him, see LIMUS; and so on for any other.

SEBBA Rous, or Seven Capes, in Geography, a cape or headland on the coast of Algiers, the vicinity of which is occupied by persons of a brutal and ferocious description, who live in caves scooped out of the rocks. Their people, called "Kabyles," rush in crowds to the coast when any vessel in distress, or in the course of sailing, approaches it, and vociferate their horrid wishes, that God would deliver it into their hands; and probably the name of "Boujore," or "Catamites," was first given by the Italian navigators to these capes, on account of the savage disposition of their inhabitants. N. lat. 37° 8'. E. long. 6° 32'.

SEBAH, a town of Africa, in the country of Fezzan, T 2 60 miles.
60 miles N. of Mourzouk. Here the large remains of an ancient castle, built upon a hill, and of other venerable ruins, that, in point of extent, are compared to those of Lebida, impress on the mind of the traveller the melancholy idea of departed greatness; while, on the other hand, the humble dwellings of the modern inhabitants, and the rich vegetation of their neighbouring fields, present to his eye an ample store of all that is requisite for the fulness of man. Dates, barley, Indian corn, pumpkins, cucumbers, fig-trees, pomegranates, and apricots, and for meaner purposes, the white thorn and Spanish bean, are described as but a part of the numerous vegetables that reward the industry of the people. The animals in which they most abound are the common fowl, and the brown long-haired and broad-tailed sheep. At the distance of two days' journey from Sebbah is "Goddoua," a town of similar produce; and in two days more the traveller arrives at Mourzouk.

SEBEDA, in Ancient Geography, a port of Lycaia, according to the Periplus of Arrian.

SEBEL, an Albanian name for the disorder of the eye usually called a pannus.

SEBEN, in Geography, a town of the bithropic of Brixen, on the site of an ancient town named "Sabiona," destroyed by Attila; eight miles S.W. of Brixen.

SEBENDUNUM, in Ancient Geography, a town in Spain, in the Tarragonensis, the country of the Castristani. The inhabitants were destroyed by the Salian Franks.

SEBENICO, in Geography, a sea-port town of Dalmatia, situated on the Kerka, near the Adriatic; one of the strongest towns on the coast, with a large harbour, defended by four citadels; erected into a bithropic in 1298. It is said that the city was founded by a number of banditti, who lived on the rock which is the present site of the castle, and who plundered any vessels that approached the coast. In the course of time they built some colleges, and encloosed them with a kind of palisades called "fibula," whence was formed Sebenico. The city was enlarged by an increase of robbers; and afterwards, when the ancient city of Scardon was destroyed, its inhabitants reftored to Sebenico. The inhabitants, oppressed by the king of Hungary, who was then sovereign of Dalmatia, surrendered themselves in 1412 to the republic of Venice. This city, whatever may have been its origin, is the most pleasantly situated of any in Dalmatia, and also the best built, containing the greatest number of noble families, next to Zara. On one side it is defended by a castle on a hill; and towards the sea, upon a narrow channel at the mouth of the harbour by another fort, a noble work of Sannichels, whose gate resembles that of Verona, by the same celebrated architect. Among the buildings of Sebenico, the dome or cathedral deferves particular notice, on account of its general fabric, and more especially of its roof, which is composed of large pieces of marble, connected together. In the sixteenth century the arts and sciences flourished here more than in any other city of Dalmatia. It has several buildings in good style of architecture, and it has produced many eminent men; 25 miles N.W. of Spalatro. N. lat. 44° 30'. E. long. 16° 15'.

SEBENNYTES NOMUS, in Ancient Geography, a name of Egypt, between the branches of the Nile, called the Pharnuthiac and Athribitic, and near their mouth. Ptolemy divides this nome into the Upper and Lower.

SEBENNYTICUM OSTIANUM, the name of one of the seven mouths of the Nile, E. of that called the Bolbitic. Ptolemy.

SEBENNYTUS, a town of Egypt, in the Delta, and capital of the Sebennytic nome.
Female, Calyx of four leaves. Corolla rose. Petals ten, filiform. Leaves many, S. subtile

1. S. fistulosa. In the botany of the Genesee, &c., E. A. Smith of the Clarke. Nature of the woods of China and Ceylon. A large tree, with spreading branches. In Asian countries, made into china, etc. Males as well as her malus lateralis, or male unferocious, thus: two, or three, or four.

Birch, oak, larch, tamarack, etc., may well be used for parks and borders. The branches and leaves extend a distance of 100 yards, and the fruit is easily reached by plowing or tilling, to an extent that it is as sure and durable. A great quantity of thick, white, paper is extracted from the bark of the male, as well as the paper of the female, but of a miserable kind.

We cannot further refer this account to any plant different from trees; and yet the tree should be well known in this country.

SEBINIKVAR, in Geography, a town of Transylvania; 6 & 8 S. of W. of Táj.

SEBIUS, or泗比), an Augean, in Geography, the name of a family which was distinguished at Strafsburg by the celebrity of the physicians whom it produced, and who were chiefly sacred to the professional chair in that city for the space of 134 years, without interruption, in the persons of four individuals only. The first, second, and fourth of these physicians were named Melchior; the third, John Albert; and all, with the exception of the first, succeeded their fathers in the chair. The first Melchior Sebius was, the son of George Sebius, a doctor of laws, and chamberlain of the duke of Châlons. Melchior Sebius was born in 1539, in Falkenburg, in Silesia, and was at first intended for the profession of the law; but in 1565 he changed his plans, and began the study of medicine. For this purpose, as was the custom of the times, he began his travels to different universities: he was at Montpellier in 1566, and three years afterwards went to Italy; and subsequently visited France, where he took the degree of doctor at Valence, in Dauphiné, in August 157. On his return to Germany, he practised his profession first at Hagenau; and having gone to Strafsburg in 1574, he determined to settle there. His talents soon raised him to the rank of professor, and he practised with great celebrity until his death, which took place in June 1625, in the eighty-sixth year of his age.

Sebius, Melchior, the son of the preceding, was born at Strafsburg in 1578. He began his education under his father, and is said to have studied in twenty-seven universities, among which he chose that of Bâle as the place of his graduation in 1610. So early as the year 1612, his reputation raised him to the professional chair, which his father resigned, or rather, perhaps, he became his father's colleague at that time. His increasing reputation obtained him the favour of the emperor Ferdinand II., who created him a count palatine in 1636. But no dignities could seduce him from the practice of his profession, or the duties of his chair, and during the space of sixty-two years, while he taught, and was rector of the faculty at Strafsburg, he examined one hundred and sixty-three candidates, and imposed the doctoral cap on fifty-five physicians. Enjoying uninterrupted health and a long life, never using spectacles, and suffering no infirmity except a slight deafness, he lived to the age of ninety-five, and died in January 1674. He was the author of numerous works, especially anecdotal dissertations, in which there is more learning than originality or discovery; whence Haller pronounced him "crudatus vita, perversus perennis experimentum." He wrote a pamphlet on the death of the title of his works.

SEBRETT, John Albert, fought for the Reformers, father, in the professional chair. He was educated at Oxford in 1645, and graduated in 1659 at the universities of Bâle, Montpellier, and Paris. In 1652 he was appointed to the position, and became within two years dean of the faculty. He died on the 16th of March, 1674, in the 71st year of his age. He was the author of four works in 4 vols. 8vo, and a treatise on "Eucharistic practices," relating to the eucharist in the head and church.

SEBEIN, Melchior, the son of John Albert, was born in 1664. After Bâle he went to Paris, then returned to Strafsburg, and took the degree of doctor in 1698; and in 1704 he received the title of professor. He held this office, however, but three years, and died in 1707, being at that time rector of the university. See also Del. H. de la Medecine.

SEBENITZ, in Geography, a town of Saxony, in the margravate of Mecklenburg. E. S. E. of Dr. B. N. lit. 50° lat. 59°. E. long. 14° 15'. Alto, a river of Saxony, which runs into the Peile, two m. N. of Scharnau.

SEBOIM, in Ancient Geography, the name of one of the four towns of the Pentapolis, which were enclosed by the city of heaven, with Sodom, Gomorrah, and Admah. Eusebius and Jerome speak of a town of this name which subsisted in their time, and which was situated on the western coast of the Dead Sea. The town must therefore have been rebuilt.

SEBOL, in Geography, a town of Hungary, in the province of Beszterce; 12 m. N. N.W. of Bécs.

SEBOO, or SeBO, a river of Africa, which passes by the city of Fez, and runs into the Atlantic a little below Marrakech.

SEBORZ, a town of Bohemia, in the circle of Boleau; 3 m. S.E. of Melnik.

SEBOU, a small island near the N.W. coast of Cape Breton.

SEBRAJEPOUR, a town of Bengal; 13 m. W. N.W. of Delhi. Alto, a town of Bengal; 13 m. S.E. of Koonda.

SEBRAIPA, in Ancient Geography, a town of the African Sarmatia, on the banks of the river Varusus. Profem.

SEBRITHITES, a name of Egypt, from which king Vaphres sent to Solomon 1000 men for building the temple, according to Eusebius.

SEBRUD, in Geography, a river of Persia, in the province of Khurasan, which runs into the Tigris, 6 m. S.E. of Zaweh.

SEBU. See SIBR.

SEBUH, a feast among the ancient Samaritans, when St. Ephraem accuses of changing the time expired in the law, for the celebration of the great annual feasts of the Jews.

Serrarius conjectures, that they were thus called from their celebrating the feast of the Pasch on the seventh month, called by the Hebrews יְבֵא, יְבֵא, week. Drusius rather takes them to have been denominated from שָׁבָא, the leader of a feast among the Samaritans. Scaliger derives the name from the Hebrews יְבֵא, week, because of its celebrating every second day of the seven weeks between Easter and Whitsun tide.

SEBUH.
SEBÚE, in Geography, a town of Abiylinia; 90 miles S. of Mina.

SEBUNTA, in Ancient Geography, a town situated in the interior of Arabia Petraea. Ptolemy.

SEBURAI, SEBURAI, a name which the Jews give to each of their rabbins or doctors, as lived and taught some time after the finishing of the Talmud.

The word is derived from יד, sařer, I think; whence יד, sařera, opinion, sentiment; and thence יד, sebar, or sebbar, opinatores.

The reason of this appellation, say the rabbins, is, that the Talmud being finished, published and received in all the feasts, and synagogues, these doctors had nothing to do but dispute for, and against, the Talmud, and its decisions. Others say, it was because their sentiment were not received as laws or decisions, as those of the Milkine and Gemaric doctors were; but were held as mere opinions.

Others, as the author of Schallhelethes Hakkabalah, or chain of tradition, tell us, that the perfections the Jews underwent in those times, not allowing them to teach quietly in their academies, they only propounded their opinion in the composition of the Milkine. The first and chief of the Seburai was R. Jofi, who began to teach in the year 787 of the era of contracts; which, according to R. David Gaultz, falls on the year of the world 4236, and, who, according to R. Abraham, was thirty-eight years president of the Jewish academy.

The era of contracts is the name with that of the Sebucide, the 787th year of which falls on the year of Christ 476, which, of consequence, is the era of the origin of the Seburai, whose reigns did not hold long: Buxtorf says, not above fifty years; R. Abraham, and others, say not fifty: The last of them was R. Simon. They were succeeded by the Gaons or Geonim.

SEBURG, in Geography, a town of France, in the department of the North 35 miles E. of Valenciennes.

SEBZAR, See Kesh.

SEBZVAR, a town of Persia, in the province of Khorasan; it was taken, in 1581, by Timur Bosc, but upon its revolting and being again reduced, he caused 9000 of the inhabitants to be piled in a heap, with mortar and bricks, and thus buried alive; 180 miles N.W. of Herat. N. lat. 36° 11'. E. long. 69° 14'.

SECA, LA, a town of Spain, in the province of Leon; 24 miles S.W. of Valladolid.

SECACUL, in the Materia Medica of the Ancients, a name given by Avicenna, Serapion, and others, to a root which was like ginger, and was brought from the East Indies, and used as a provocative to venery.

The interpreters of their works have rendered this word ingle, and hence some have supposed that our eryngium, or eryngos, was the root meant by it; but this does not appear to be the case on a strict enquiry, and there is some reason to believe that the famous root, at this time called gingfer, was what they meant.

SECALÉ, in Botany, a name in Pliny, which some etymologists, among whom is De Theis, derive from the Celtic gegal. This, he says, comes from gea, a sickle in the Latin language, and thence gea, the Latin appellation of all grain that is cut with a similar implement. Those who have looked no further for an etymology than the Latin geo, to cut or mow, have come to the same conclusion. —Rye. —Linn. Gen. 39. Schreb. 53. Willd. Sp. Pl. v. 1. 471. Mart. Mill. Dist. v. 4. Ait. Hort. Kew. v. 1. 178. Jull. 32. Lamarck Hilar. t. 49. Genr. t. 81.—Clafs and order, Triandra Digyna. Nat. Ord. Gramina.

Gen. Ch. Cal. Common receptacle toothed, elongated into a spike. Glume containing two flowers, and consisting of two opposite, ditant, erect, oblong, pointed valves, smaller than the corolla. Flores fertile. Cor. of two valves; the outermost hardest, tymid, pointed, compressed, fringed at the keel, and ending in a long awn; the inner flat, lanceolate. Nectary of two lanceolate, smooth, fringed scales, tymid on one side at the base. Stam. Filaments three, capillary, hanging out of the flower; anthers oblong, forked. Pfli. Gramen superior, turbinato; styles two, reflexed; stigma cylindrical, feathery. Peric. none, except the permanent corolla, which finally opens, and lets the seed escape. Sted solitary, oblong, somewhat cylindrical, naked, pointed. Ost. There is sometimes a third floret, scarcely perfect, forked, between the other two. It is very difficult to distinguish this genus from Triticum.

Edl. Ch. Calyx of two valves, solitary, two-flowered, on a toothed elongated receptacle.

1. S. circé. Cultivated Rye. Linn. Sp. Pl. 124. Wildl. n. 1. Ait. n. 1. Purv. v. 1. 90. Holt Gram. Auflr. v. 2. 35. t. 48. (Secale; Matthis. Vagr. v. 1. 364. Camer. Epit. 190. Ger. Ex. 68.)—Glumes of the calyx bordered with minute parallel teeth. —The native country of this, so generally cultivated, grain, is hardly to be guessed. Mr. Purv. says it frequently occurs, apparently wild, in North America, flowering in June. For its agricultural history, and mode of cultivation, see Rye. The root is fibrous and annual. Herbage somewhat glaucous. Stem jointed, slightly branched at the bottom, smooth. Leaves linear, rough towards the point. Spike terminal, erect, three or four inches long. Axena erecta, straight, rough, four or five times the length of the glumes.

2. S. villosum. Tufted Rye. Linn. Sp. Pl. 124. Wildl. n. 2. Sm. Fl. Græc. Sibth. v. 1. 77. t. 97. (Gramen spicatum ficalum, glumis villosis in arilis longifilis definitibus; Tourne. Infl. 518. G. ficalum maximum; Park. Theatr. 1144. G. ericinicum ficalum, glumis ciliariis; Tourne. Cor. 39. Buxb. Cent. 5. 21. t. 41.)—Glumes of the calyx wedge-shaped, abrupt, fringed with tufts of hairs.—Native of the south of Europe, and the Levant. Gathered by Dr. Sibthorp in the fields of Crete and Zante. The root is fibrous and annual. Stems numerous, erecta, twelve or eighteen inches high, leafy, smooth; their lower joints bent. Leaves spreading, flat, hairy on both sides, with soft smooth sheaths. Stipula very short, blunt, crenate. Spike about as long as the former, but twice as thick. Calyx bordered with remarkable tufts of fine hairs. This should seem to be cultivated in the above-mentioned islands, but we know nothing of its agricultural merits.

3. S. orientale. Dwarf Oriental Rye. Linn. Sp. Pl. 124. Wildl. n. 3. (Gramen orientale ficalum, spicâ brevi et latâ; Tourne. Cor. 49.)—Glumes of the calyx ovato-lanceolate, strongly ribbed, taper-pointed, hairy all over.—Native of the Archipelago, in a sandy soil. Root annual, with white downy fibres. Stems about six inches high, slender, smooth, often zigzag. Leaves linear, narrow; the upper one shorter, with a long, smooth, inlathed sheath. Spike hardly an inch long, thick and broad, composed of closely imbricated, two-ranked spikes, whose glumes are rigid, deeply furrowed, uniformly hairy, each tapering into a short, straight, rough point or awn, not so long as the glume itself.

4. S. etricum. Tall Cretan Rye. Linn. Sp. Pl. 125. Wildl. n. 4; excluding the synonym of Tournefort, which belongs to Hordeum bulbofum. (See Hordeum.)—"Glumes of the calyx externally fringed."—Native of Crete. Obf. We have never seen a specimen. Descientes affirms that this is distinct from Hordeum bulbofum of Linnaeus, his Seriacum, which
E. From Geography, That line... to another, or divides it into two parts. Sec. Line. &c.

The term AM (P. X. III. Geom. 4. 4.) denotes a tangent of the circle A D E, A, and cuts the circle in B. It is demonstrated by geometers : 1. That if several rays, M A, M N, M E, &c., be drawn from the same point M, that passing through the centre, M A, is the greatest; and the rest are all less than the half, as they are more remote from the centre. On the contrary, the rays of them without the circle M D, M O, M B, are to each other as the greater, as they are farther from the centre. The least is that of M A, which passes through the centre.

2. That if two lines, M A and M E, be drawn from the same point M, the secant M A will be to M E as M D to M B; or M E to M D, M A, M B is the square of a tangent to the circle drawn from the point of concurrence M.

The secant of the arc A H, which is the complement of the former arc to a quadrant, is called the co-secant, or secant of the complement.

The sine of an arc, A D, being given, to find the secant of F C, the rule is, as the co-fine D C is to the whole fine, so is the whole fine, or radius, A C, to the secant F C; or the secant is a third proportional to the co-fine and radius. See Sine.

To find the logarithm of the secant of any arc, the sine of the complement of the arc being given, multiply the logarithm of the whole line by two, and from the product subtract the logarithm of the line complement; the remainder is the logarithm of the secant. The reason of which operation is obvious; because

\[ \log D C = \log C F = \log E C. \]

From the nature of logarithms, twice the log. of E C = the log. of D C = the log. of C F.

**Secant.** Line of. Sec. Sector.

**Secans.** In Geography, a cluster of small islands in the Pacific ocean, near the coast of Vera Cruz. N. lat. 8° 20'. W. long. 83° 16'.

**Secatibas.** A town of Asiatic Turkey, in the province of Durrhakir; 75 miles S.W. of Moful.

**Secca.** A small island near the coast of Iliria. N. lat. 49° 52'. E. long. 14° 31'.

**Secche.** A small island near the coast of Iliria. N. lat. 45° 14'. E. long. 13° 45'.

**Secchia.** A river of Italy, which rises into the Po, at 3 miles N. of Quistello, in the duchy of Mantua.
SECEDES, formed from the Latin word secedo, to separate or withdraw, in Ecclesiastical History, an appellation comprehending those who are dissenters from the established church of Scotland. This kind of secession took place in the year 1727, when John Glass, disapproving every establishment of a national church, maintained that all churches ought to be congregational; or, in other words, that no general church should be formed for a nation, but that each religious society in a kingdom or state should be self-constituted, and controlled only by itself. For this and some other opinions he was suspended from his ministerial functions; and, for continued contumacy, deposed from the rank of minister, fut by the synod of Dundee, afterwards, viz. in 1730, by the general assembly of the Scots church. Perilling, however, in the propagation of his sentiments, both by preaching and writing, he formed several congregations, of which the most numerous was that of Dundee. The secession of Mr. Glass and of his immediate disciples was followed by that of several other divines, who, on different grounds, determined upon withdrawing from the establishment. The two brothers, Ralph and Ebenezer Erskine, enlisted, about the year 1730, in this number, and contributed very much to give reputation and influence to their cause. The seceding ministry alleged various infringements in the constitution of the kirk; but as they depaired of redress, they resolved to establish new congregations. They complained of the laws of patronage, and wished for a popular election of ministers; they pleaded that the right of protest against the proceedings of the assembly had been invaded, and that the rulers of the kirk not only acted arbitrarily, butuffered its doctrines to be corrupted. For the freedom of their animadversions on these points, four ministers were suspended from their parochial functions in 1733; and though they were reinstituted by the assembly in the following year, the ground of complaint remained, and they refused to rejoin the establishment. From the clergy and laity they gained an accession of strength, more particularly after they had published a second "Itinere of the Reasons of their Secession." Upon a citation to appear before the assembly, the jurisdiction of which they refused to acknowledge, they were debarred, in 1740, from the exercise of all clerical functions in the church, and excluded from all its emoluments. The Seceders are rigid Calvinists, strict and severe in their discipline, and somewhat zelote in their manners.

When the secession had formed three presbyteries, a division took place among them, in 1747, in consequence of an oath, which some of them deemed inconsistent with the sentiments avowed in their "Testimony." This was the ordinary oath of a burgher, in support of the true religion established by law. We cannot, said one party, called "Antiburghers," conscientiously honour with that appellation the establishment from which we have seceded; while the other members of the synod, denominated "Burghers," contended that the oath might safely be taken, as the religion of the state was full the true faith, though many of its offenible votaries had departed from its principles, or hoefely professed it. The Antiburghers prevailed in the contest, and obtained a vote, that the oath was incompatible with the testimony; and they even excommunicated the members by whom it was vindicated. This dispute long continued to maintain the separation of the Seceders in distinct synods. Of these two claus, the Antiburghers are said to be the most confined in their sentiments, and least disposed to associate with any other body of Christians.

Under this article we may mention another party in Scotland, who quitted the establishment, and assumed the title of the "Reformed Presbytery." Lamenting the defection of the national rulers, and the majority of the people, from the true principles of the reformation, a party of religious malecontents denounced all connection with the "reformation kirk," and under the guidance of Mac-Millan and Nairn, formed a seceding presbytery. By these ministers, others were selected for the same functions; and the secession has been continued to the present time. Besides the congregations of this complexion in North Britain, there are several in Ireland, and some in North America. The members profess to follow the scripture as their principal guide, and the ordinances of the Westminster assembly in the next place. They disapproved the high authority assumed by the state over the church of Christ, as the result of worldly policy, rather than a claim justified by the genuine spirit of religion. Yet they submit peaceably to the higher powers, and do not indulge in the clamours of sedition, or the murmurs of disaffection. Their public worship is conducted much in the same manner with that of the dissenters in South Britain.

Another considerable sect departed, in the year 1753, from the Seces establishment. A minister named Gilkiepe, who opposed the reception of a new minister, whose appointment was not agreeable to the majority of the inhabitants of Inverkeithing, was expelled from the church in which he officiated; and he was soon joined by others, who, like himself, wished pastors to be elected by the people; and they formed a congregation in Dunfermline. The "Presbytery of Relief," in allusion to the defined relief from the arbitrary rigour of the laws of patronage, was the denomination assumed by this body of seceders. More liberal than the generality of Presbyterians, they were willing to admit into their communion all those who seemed worthy of being called Christians, however they might differ with regard to particular points. Their congregations multiplied; and about the close of the last century, the allocation professed above fifty places of worship. Both classes of the "Seceders" and "Relief" include about 300 ministers, who are strict Presbyterians, though they secede or dissent from the established church of Scotland. Adams's Religious World displayed, vol. iii. Cooke's edition of Milhem's Ecc. Hist. vol. vi.

SECERRÆ, in Ancient Geography, a town of Spain, in the Tarragonensis, upon the route from the Pyrenees to Caftulo, between Aquae Voconiae, or Voconia, and Prætorium, according to the Itinerary of Antonine.

SECESPITA, among the Romans, a knife with a round ivory handle, adorned with gold and silver, which the flavens and priests used at sacrifices.

SECHELLES, in Geography, a cluster of rocky isles in the Indian sea, composed of a reddish granite, and generally low. On these are found some marine animals and vegetables, with different species of palm-trees. S. lat. 4° to 5°.

SECHES. See Secas.

SECHI, —, in Biography, an excellent performer on the hautbois, in the service of the elector of Bavaria, in 1772, who, if we had never heard Fischer, would have delighted us much more than the spirit of parallel would allow. However, in a duet with Rheiner, a performer of great merit on the bamboo, we were reminded of the two Bezazzis at Turin; for as their ingredients, so their genius and abilities seemed made for each other, there being a like correspondence in both.

SECHIEN, in Geography, a town of Perisia, in the province of Kerman, on the north coast of the Persian gulf; 141 miles S. of Sirjan.
SECHEIUM, in Romance, a name given by Dr. Patrick
Brown to this genus, and most probably derived from
the name of a fruit, the fruit being used in Jamaica to
fuel lamps. In this case, however, says professor Martyn,
it should have been called Scehium. — Brown, Jan. 355.
Dict. v. 4. 51, Lamarck Dict. v. 3. 65. — Cif

Gen. Ch. Male. Calyx tenuiflorus, of 5 leaves, tubu-
lar, ten half way down; tube bell-shaped, spreading;
segments of the limb large, flat, widely spread.
Calyx of one petal; tube the same size and figure of
the calyx, and adheres to it; limb divided into five, flat,
these parts, the segments, nearly twice as long as the calyx,
and much spreading. Nectary consisting of ten cavities in
the upper part of the tube of the corolla. Stam.
Filaments five, formed into an erect cylinder, five-cleft at the top, spreading;
anther one on the top of each filament, all the five
together forming a capsule, undulating, polliniferous
leaf. Female on the same plant. Caly. as in the male,
but placed on the germen, deciduous. Cor. 5 in the male,
but with larger cavities in the nectary. Pet. German, sepals,
leaves, ovate, five-furrowed; leaf cylindrical, erect,
the length of the calyx; stigma very large, peltate, reflexed,
five-cleft at the margin. Per. Apple very large, ovate,
turbinate, five-furrowed, theca, unequally gibbous at the top,
fruits with harmless prickles, one-celled above.
Seed foliolary, nearly ovate, flat or compressed, flabby,
obtuse at each end.

Nectary ten cavities. Filaments five, forming a cylinder.
Female, Calyx and Corolla as in the male. Style five-
cleft. Fruit minute, single-seeded.

Oec. 1150. (Sieges edulis; Jacq. Amer. 258. t. 163.) —
Native of the West Indies, where it flowers and fruits in
September. Root annual. Stem herbaceous, climbing or
premature, greatly divided, roundish, irregular, smooth,
theke. Leaves alternate, flat, angulate heart-shaped,
external, round-bent, toothed at the margin, rough on
the upper side, rough beneath, often a span long. Tendrils
opposite to the leaves, horizontally, very long. Flowers
mo
cocious, bell-shaped, yellow, scentless.

Jacquin informs us that the Chocho Vine is used by the
inhabitants of Cuba in their soups and puddings; and that
it is served up as a vegetable with boiled meats.

SECHURA, in Geography, a town of Peru, in the
province of Truxillo, and jurisdiction of Piura, situated
on the banks of the river Piura, about a league from the
Pacific ocean. The town contains about 200 houses, con-
structed of cane, and a handsome brick church. The inhabitants,
who are all Indians, compose nearly 500 families, and are
employed chiefly either in fishing or driving of mules. The
defence of Sechura is a waste of land, extending 30 leagues,
of difficult and dangerous passage; 180 miles N.W. of
Truxillo.

SECHIUM, among the Romans, a term used to signify
everthing the pears cut with the knife facipora, as the
Pom. placenta, &c.

SECK, Rent. See Rent Sen.

SECK, in Geography, a town of Germany, in the principa-
lity of Nassau-Dillenburg; 4 miles W. of Mengen-
Kichen.

SECKACH, a river of Germany, which runs into the
Jast, at Meckmuhl.

SECKAU, a town of Stiria, the see of a bishop, suffra-
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gan of Salzburg; 16 miles N.W. of Leibnitz; a
a town of the dukedom of Austria, 16 miles N.E. of the

SECKBACH, a town of Germany, in the principa-
lity of Han. 175; 7 miles W. of H. 3.

SECKENDORF, Freih. Linne, 1620-1698, a celebrated
German, was born in Saxony, near Nittenburg, in the year 1620. His father having attended
him to school, he was left chiefly to himself,
where he had the advantage of a few
books, and the tuition of a faithful master in the Latin tongue. At this period he began to study Latin, Greek, and
Hellenic languages; and still further to improve the studies of that age. He was four years
introduced to the court of Ulm, duke of Wurtemberg, where
he remained about a year, and the entitled him to the
studies at the academy of Göttingen. After two years, by
the assistance of a friend, succeeded to the studv of Stralau, which
was at that period celebrated for the charity of its professors;
and here he made such a rapid progress, that he surprised
in knowledge almost all his contemporaries.

1645 he returned to Erfurt, and resided near to
Gotha, where he met with a very warm reception from duke
Ernst. At this period he was found to have a taste for the study,
language, perhaps, not of eight languages, viz. the Lat., Gr., Hebr.
ues, French, Italian, Spanish, Danish, and Swedish. He had,
moreover, acquired a very deep insight into Old Testament
history, theology, philosophy, and feudal law, with
mathematical sciences. By these means, and a facility
rarely surpassed, he became not only a great translator,
but one of the brightest ornaments of the republic of letters.
At the end of two years the prince made him a gentleman of
his bed-chamber, and he was employed in various
important missions. In 1656 duke Ernst gave him the
management of a part of his revenues; and in the same year he
accepted the place of judge in the tribunal of Jesus,
which was conferred on him by the duke of Altenburg.
In 1663 he was nominated chancellor, a member of the
council of state, and director of the confabulary, and of
the chamber of justice. The labours attached to these offices
were too much for his strength was equal to, and in the follow-
ing year he resigned the greater part of them. After
this he was appointed by Maurice, duke of Sax-Zeitz,
to be his chancellor, and president of the ecclesiastical senate.

John George II., elector of Saxony, nominated him in
1669, to be one of his counsellors; and that he might
declare himself with more attention to this new office, he
required that which he held at Jena; for he was so strictly
conscientious, that he was ever cautious of undertaking
any thing that he did not believe he should be able to per-
form.

On the death of duke Ernst, he was held in no less esti-
uation by his son Frederic, who gave him an important
office; and in 1680 the duke of Altenburg entrusted him
with the management of a large part of his revenues.
He now found the interruption of his pressing up
private, reformed his employments, and in 1682 retired from public life.

After a residence of seven years on his country estate,
Frederic III., elector of Brandenburg, invited him to be
ecclesiastical counsellor; and soon after chancellor of the
university of Halle, which he had founded. He accepted
the offer, and removed to Halle in November 1692; but he
did not long enjoy his new offices, as death in a few months put
an end to his labours, having attained to his 65th year.
One of the most striking features in the character of Scken-
dorf was a rational and sincere piety, which was manifest
not only in his writings, but in the whole tenor of his life;
and to this mutual be ascribed his fidelity to his employers, and the uncommon probity which he displayed in the management of public affairs. He polished great acuteness and discernment, which enabled him to extricate himself from many embarrassments; and by his indefatigable application, he found means to arrange and go through labours, which would have overwhelmed almost any other person. His works are very numerous, but the most important and considerable is his "Commentary on Lutheranism," which was undertaken with the view of confuting Maimbourg. Duke Ernest had solicited him to write the History of the Reformation, or at least that part of it which related to Saxony; which, in 1682, he agreed to undertake. So highly were his talents esteemed, that as soon as his intention was known, most of the German princes opened to him their libraries and archives, and furnished him with such documents as might be useful to his project. A part of the work came out in 1698; but it was not till 1692 that the whole of it was given to the public, under the following title, "Commentarius Historicorum et Apologeticorum de Lutherismo, sive de Reformacione Religiosae ductu D. M. Lutheri in magna Germanica, alique Regionibus et speciatim in Saxonia recepta et stabilita," sec. 2 vols. fol. This work was received with great applause by the learned of all parties. Bayle, in speaking of it, says, "Whoever is desirous of being thoroughly acquainted with the history of that great man (Luther), needs only to read the extensive work of Seekendorf. It is, of its kind, one of the best books that have appeared for a long time."

Among the other works of Seekendorf, those most deserving of notice are, "The State of the Princes of Germany;" "A Defence of the Relation concerning Antoinette de Bourignon, or a Refutation of that female Fanatic;" "Historical and Apologetic Differentials on the Doctrine of Luther in regard to Mafs, published by Caspar Saggiaturius;" "The State of the Chriftians, in which Chrifiannes is examined in itself, and defended against Atheists." Gen. Biog.

SECKENHEIM, or SoHRENHEIM, in Geography, a town of the duchy of Baden; 4 miles E. of Manheim.

SECKER, THOMAS, in Biography, a celebrated archbishop of the church of England, was born in 1603, at Sibthorp, in Nottinghamshire. His father was a Protetant difenter, who lived upon a small paternal estate, and who was enabled to give his son an excellent education. He was first placed at a school at Chelfield, whence he was removed to an academy at Attercliffe, near Sheffield, intended for the education of young men designed for the ministry among difenters: after this, he was sent to a similar institution in the neighbourhood of Tewkbury. When he was about the age of 19, he had attained to a good knowledge of the classics, the Hebrew language, and of those branches of the mathematical sciences which were taught young men as preparatory to their studies in theology. From this time, till he was about 23 years of age, he pursued his theological course with great vigour; when, for some reasons with which we are unacquainted, he determined to abandon his plan and study physic, and after attending lectures two years in London, he went to Paris for farther improvement, and carried his attention to all the branches of medicine, including surgery and midwifery. During this period he kept up a close correspondence with Mr. (afterwards bishop) Butler, who had been a fellow-student at Tewkbury. His friend had already conformed, and persuaded Secker to follow his example, affuring him of the patronage of bishop Talbot. Secker now began to think seriously of those prospects which were held out to him in the established church. He was already amply provided with theological knowledge, and he had expressed a dissatisfaction with the divisions existing among the dissenters, and with the authority too frequently assumed by the heads of their congregations; he therefore closed with the invitation held out to him. It was thought right by his friends that he should have a degree from Oxford, with this view; and in order to expedite the process, he took the degree of M. D. at Leyden, in the year 1721, on which occasion he did himself great credit by a thesis which he delivered on the occasion, "De Medicina Statica." He then entered himself a gentleman-commoner of Exeter college, Oxford, and in a few months obtained the degree of B. A. in that university. He was ordained by Dr. Talbot, at that time bishop of Durham, and preached his first sermon in March, 1723. The prelate now took him into his family as chaplain, in which office he had Dr. Rundle for an associate. In 1724 he was presented to the valuable rectory of Houghton-le-Spring, in Durham; and being in a situation to maintain a family, he married the sister of Mr. Benfon, afterwards bishop of Gloucester; and Mrs. Talbot, the widow of the prelate, by whose advice Secker had conformed, came to live with Mr. and Mrs. Secker, from whom she received, to the end of life, the most affudious attentions, in return for the services he had received from her late husband.

Secker now set himself down seriously to the duties of a country rector; but the place in which he lived did not agree with the health of Mrs. Secker, and he exchanged Houghton for a prebend of Durham, with the rectory of Ryton. He continued to reside in the north till 1732, when, being nominated one of the chaplains of the king, he came to the metropolis, and in the following year he was presented with the rectory of St. James. Upon this occasion he went to Oxford, to take the degree of doctor of laws, not being of sufficient standing for that of divinity, when he preached what was denounced an act sermon, "On the Advantages and Duties of Academical Education," which was regarded as a master-piece of sound reasoning and good composition. It was printed at the desire of the heads of the houses, and passed through several editions; and the reputation derived from it was thought to be the principal means of his advancement to the episcopal bench, which took place in January, 1734—5, when he was consecrated bishop of Bristol, Dr. Benfon, his brother-in-law, being at the same time consecrated to the see of Gloucester. In his high office as prelate he exhibited the most striking proofs of a conscientious attention to all parts of his duty. He now delivered, twice a-week, in his parish church, a course of lectures on the church catechism, which were afterwards published, and which were generally regarded as admirably adapted to give a connected view of the principles of the Christian religion as profess'd by the church of England, and as established by law.

In 1737, Dr. Secker was translated to the see of Oxford, which he held more than twenty years, and no one could perform with greater affability and earnestness the essential duties of his function; his exterior deportment likewise was grave, dignified, and perfectly adapted to the importance of the character which he maintained. In 1748, Mrs. Secker died, leaving no issue, and the bishop did not marry again. In 1750 he exchanged his prebend of Durham and rectory of St. James for the deanship of St. Paul's; and in 1758 he was raised to the archbishopric of Canterbury. His original education among the dissenters did not render him less zealous in the interests of the church to which he had conformed: he even went farther than most of his contemporaries.
Ozanam, but if the one auntil Kirlrotl W. Uf* (own town J. Ihr cilr, oratory leaturr, Ihr 'I friidnefs name; a uj, to the the 1768, -la Tlir they Latin the 4 the Voltoii, and put ftiiirr frirr hour, cxtnliTr Orography, nearly the On The of Irvc*r! 1 and uf&. Of a worms, cient Candidates and those on those to the political party in which he exerted his chief degree. He bellowed in the project to further our Canada.

During the time that archbishop Secker held his high per- performer, the Methodists made very rapid strides in the propagation of their principles: some of the bishops had declared against them; but Dr. Secker acted with his usual prudence, and recommended to his clergy moderation and kindness in their behaviour towards those whom he wished to consider as his future friends, but whom others were disposed to treat as enemies.

The archbishop had for many years been a great sufferer from the coast, which latterly brought on severe local pains. They were at first confined to the thigh, and terminated in an extensive caries of the thigh-bone; one of the fatal consequences of which was a sudden fracture of that bone upon the mere raising him up on his couch. Shortly after this he died, Aug. 3, 1768, in the 75th year of his age.

To the many benefactions for useful and charitable pur- poses which he bestowed in his lifetime, he made large additions by his will. Besides his "Lectures on the Church Catechism," he was author of "Eight Charges delivered to the Clergy of the Dioceses of Oxford and Canterbury; with Instructusions to Candidates for Orders, and a Latin Speech, intended to have been made at the opening of the Convocation in 1761;" "Fourteen Sermons, preached on several Occasions;" and "Sermons on several Subjects," in four volumes, published after his death by his chaplains, Drs. Porteus and Stinton. The various works of this able prelate have established his character as one of the most useful and rational preachers among the English divines.

Their style is simple and without ornament: they have no pretence to oratory and fine writing; but they display more knowledge of the human heart, and the real motives of action, than is usually found in those kinds of compositions. They are truly didactic, and "come home to men's businesfs and bofoms" in a remarkable degree.

He was attached to those political principles which placed the house of Hanover on the throne; and on the breaking out of the rebellion in 1745, he exerted himself most con- spicuously in support of government. He enlisted himself under the banner of no flat party; but his chief parlia- mentary connections were with the duke of Newcastle and lord Hardwice. Life of Secker, prefixed to his Sermons.

SECKINGEN, in Geography, a town of Baden, on the Rhine, the waters of which surround it; 4 miles W. of Laufenburg. N. lat. 47° 34'; E. long. 8°.

SECKVELT, a town of the flate of Utrecht; 13 miles W. of Utrecht.

SECLA, a name by which some authors have called wormwood.

SECLIN, in Geography, a town of France, in the de- partment of the North, and chief place of a canton, in the district of Lille; 4 miles S. of Lille. The place contains 2500, and the canton 18,579 inhabitants, on a territory of 1244 kilometres, in 26 communes.

SECO, a town of Africa, in Karto; 65 miles N. of Kenne. - Alto, a river of Peru, which rises on the Pacific side, S. lat. 7° 6'.

SECOANU, in Asia, Geography, a town of Afghanistan, Syria, mentioned in the mountains, S. of the Mediter- ranean, and W. of the river Orontes, in the territory of Apam.

SECOMBI, in Europe and Asia, the name of a genus of plants of the class of the Jepami; the characters of which are, that they are herbs of a decumbent habit, divided into parts, or portions of a spiral manner, into several smaller or his regular portions, of a moderately fine texture, not giving fire with flesh, but forming with and matters, and easily calcining.

The tepretan of this genus are, of all others, the most common, and are what have been known by the little expor- tive, or in a manner, the common name of the common vein, or dumb Holmsen. We have many species of these bodies coming among us. Of the whitish or brownish kinds we have thirteen; of the yellowish, five; and of the ferruginous ones, four.

SECOND, in Anatomy. See Secondi generi.

SECOND, in Geometry, Astronomy, &c., the sixteenth part of a prime, or minute; either in the division of circles, or in the measure of time.

A degree, and an hour, arc each divided into sixty minutes, marked thus '; a minute is subdivided into sixty seconds, marked thus ; a second into sixty thirds, marked thus ; &c.

We sometimes say, a second minute, a third minute, &c. but more usually, simply, second, third, &c.

A pendulum, three feet three inches and two-twentieths of an inch long, vibrates seconds, according to Sir Jonas Moore's reduction of Huygens, three feet eight and a half of Paris measure to English measure. See Pendulum.

Second, in Music, denotes one of the musical intervals; being only the distance between any found, and the next found, whether higher or lower.

As in the compass of a tone there are reckoned nine sensible different sounds, which form those little intervals called commas, one might in strictness say there are eight kinds of sounds.

There are three kinds of seconds occurring in practice, the lesser, the greater, and the superfluous second; to which, if the enharmonic genus were reformed, we might add the diminished second. The lesser second is the teton major, and is nearly equal to five commas. The greater second is the tone, which being either major or minor, there must also be two great seconds; one nearly equal to five commas, and the other to nine commas; but practitioners usually found these two. The superfluous second is a tone major, and femitone major; the other superfluous second, arising from the tone minor, and femitone minor, is not in use. Lastly, the diminished second is a femitone minor less than the lesser second; that is, equal to the diatonic interval. Thus, between E and F, or between A and B, would be a diminished second, as also between G sharp and A. This last has been practised by Mr. Handel, in the oratorio of Samp- ton, in the second part of the song, to Return, return, O God of Hosts." See Interval.

Some authors, as Ozenan, call the femitone minor by the name of diminished second, but this is contrary to the analogy in like cases, where diminished is usually applied to intervals a femitone minor less than a true diatonic interval.
Thus the diminished seventh is a semitone minor less than the flat seventh, or seventh minor.

SECOND, Diminished. See DIMINISHED SECOND.

SECOND de l’Oreille, in Anatomy, a name given by Vieuftens and others to a muscle of the ear, called by Cowper and others fistulaceus, and fistulida muscleus; and by Albinus fistulidus. Winiflow calls it the muscle of the petriou.

SECOND Captain. See CAPTAIN.

SECOND Cause. See CAUSE AND EFFICIENT.

SECOND Deliverance, Secundo deliberation in Law, a judicial writ that lies after nonuit of the plaintiff in replevin, and a return bakado of the cattle replevied, adjudged to him that distrained them; commanding the sheriff to repley the same cattle again, upon security given by the plaintiff in the replevin for the re-delivery of them, if the diftreb be justified. It is a second writ of replevin, &c. F. N. B. 68.

SECOND Flank, Notion, Order of Curves, Rate. See the substantives.

SECOND Sight, an odd qualification, which many of the inhabitants of the Western islands of Scotland are said to be possessed of. The thing is attested by many credible authors (among whom is Mr. Martin, author of the natural history of these islands, and a member of the Royal Society); and, notwithstanding the strangeness of it, many have fledfully believed it.

The second sight is said to be a faculty of seeing things to come, or things done at a great distance, represented to the imagination as if actually visible and present.

Thus, if a man be dying, or about to die, his image, it is pretended, shall appear distinctly in its natural shape, in a shroud, with other funeral apparatus, to a second-frightened person, who, perhaps, never saw his face before; immediately after which, the person fo seen certainly dies.

The quality of second-frighteneds, they say, is not hereditary; the person who has it cannot exert it at pleasure; nor can he prevent it, or communicate it to another; but it comes on him involuntarily, and excrcises itself on him arbitrarily; and often, especially in the younger second seers, to their great trouble and terror.

There is a great number of circumstances said to attend these visions; by observation of which, the particular circumstances, as to time, place, &c. of the death of the person, &c. are learnt. The method of judging of them, or interpreting them, grows into a kind of art; which is very different in different persons. Second-frightened is held a discredit in the country; so that none, they say, will counterfeit it; but that many conceal and dissemble it. See Johnson’s Journey to the Western Islands of Scotland, p. 248, &c.

SECOND Surcharge, Writ of, in Law. See SURCHARGE.

SECOND Terms, in Algebra, those where the unknown quantity has a degree of power less than it has in the term where it is raised to the highest.

The art of throwing these second terms out of an equation; that is, of forming a new equation, where they have no place, is one of the most ingenious and useful inventions in all algebra.

SECOND Title. See TITLE.

SECONDARY, or SECONDARY, an officer who acts as secon, or next to the chief officer.

Such are the seconday of the courts of king’s bench and common pleas; the seconday of the compters, who are next the sheriffs of London in each of the two compters; two secondays of the pipe; secondays to the reembrancers, &c.

Secondary is more frequently used in an adjective sense, by way of opposition to primary, or principal.

SECONDARY ADORS. See ACTORS.

SECONDARY AFFECTIONS. See AFFECTIONS.

SECONDARY Circles of the Ecliptic, are circles of longitude of the stars; or circles which, passing through the poles of the ecliptic, are at right angles to the ecliptic. See CIRCLES OF LATITUDE.

By the help of these, all points in the heavens are referred to the ecliptic; that is, any star, planet, or other phenomenon, is understood to be in that point of the ecliptic, which is cut by the secondary semicircle, which passes through such star, or phenomenon.

If two stars be thus referred to the same point of the ecliptic, they are said to be in conjunction; if in opposite points, they are said to be in opposition; if they be referred to two points at a quadrant’s distance, they are said to be in a quadril aspect; if the points differ a sixth part of the ecliptic, they are said to be in sextile aspect.

In the general, all circles which intersect one of the six greater circles of the sphere at right angles, may be called secondary circles. As the azimuth or vertical circles in respect of the horizon, &c. the meridian in respect of the equator, &c.

SECONDARY COLATERAL POINTS. See COLATERAL.

SECONDARY CONVEYANCES, in Law. See DERIVATIVE.

SECONDARY DIOLS. See DIAL.

SECONDARY FEVER, is that which arises after a crifis, or the discharge of some morbid matter; as after the declension of the small-pox, or mealls. See FEVER, SMALL-POX, &c.

SECONDARY Motion. See Motion.

SECONDARY PLACE. See PLACE.

SECONDARY PLANETS, those moving round other planets as the centres of their motion, and along with them round the sun. See PLANET.

SECONDARY QUALITIES, RAINBOW. See the substantives.

SECONDARY USE, in Law. See USE.

SECONDIGNY, in Geography, a town of France, in the department of the Two Seves, and chief place of a canton, in the dilliric of Parthenay; 6 miles W.S.W. of Parthenay. The place contains 1405, and the canton 6140 inhabitants, on a territory of 172½ square leagues, in seven communes.

SECONDINE. See SECUNDINE.

SECORA, in Geography, one of the branches of the river Darsh, which joins the main stream at Timiskilt.

SECOTAN, a town of Candahar; 150 miles S. E. of Candahar.

SECOUSE, DENYS-FRANÇOIS, in Biography, was born at Paris in 1691. He was one of the earliest pupils of the celebrated Rollin, and being brought up to the bar, he was for some time a pleader. This profession, however, he quitted in order that he might devote himself entirely to literature, in which the study of French history was his principal object. In 1723 he was admitted into the Academy of Inscriptions and Belles Lettres. The office of censor-royal was conferred upon him, and he was appointed, in 1746, to examine the public documents preferred in the newly conquered towns of the Low Countries. He died at Paris in 1754. His publications were, the Collection of Royal Ordonnances, from the second to the ninth volume inclusive; “Mémoires pour servir à l’Histoire de Charles le Mauvais,” two vols. 4to.; an edition of the “Mémoires de Condé,” six vols. 4to., in conjunction with the abbé Lenglet, and several dissertations in the “Mémoires de l’Académie des Inscriptions.”

SECOZANO, in Geography, a town of the county of Tyrol; 13 miles N.N.E. of Trent.

SECRETARIUM, among the Romans, a reclusiae room, where
The secretaries of state have the custody of that seal, properly called the signet, and the direction of the great office; in which there are four chief clerks and three deputies employed, who prepare all things as to pass the signet, in order to the pry or great seal. All grants, signed by the king, are returned thereto, which, transferred, are carried to one of the principal secretaries of state, and sealed, and then called dispatches; which, being directed to the lord privy-seal, are his warrant.

On the secretaries of state is likewise dependent another office, called the paper office; in which all public proceedings, papers, matters of state, &c. are preferred.

All the under secretaries and clerks are in the choice of the secretary of state, without reference to any person; the under secretaries receive orders and directions from them, for writing dispatches, foreign or domestic, which they give to the chief clerk, who distributes them to the under clerks.

The secretary at war belongs to the war-office, and has under him a deputy secretary, with his private secretary, and a number of clerks and other officers.

SECRETARY OF AN EMBASSY, is a person attending an ambassador, for the writing of dispatches relating to the negotiation.

There is a great difference between the secretary of the embassy, and the ambassador's secretary; the last is a domestic, or mental of the ambassador's; the first a servant, or minister of the prince.

SECRETION, in Physiognomy, is that vital procex, in which some substance, either designed to answer a purpose in the animal economy, or to be thrown out of the body as useless or injurious, is separated from the blood by an organ of glandular structure. It agrees with nutrition, with the exhalations from the skin, membranes, adipous and lymphatic cells, in being the separation of something from the blood; but it is distinguished from these processes by the circumstance of its being performed by glands. The word secretion however is often used more loosely by medical writers, in application to any living process, by which matters are separated from the blood. The organic structures, in which secretions are carried on, the material agents of these processes, and the powers by which they are executed, are considered under the article GLAND.

SECT, two collective terms, comprehending all such as follow the doctrines, or opinions, of some famous divine, philosopher, &c. For the scriptural meaning of the term sect, see HEResy.

The sects of philosophers among the ancients, particularly in Greece, were numerous: as the Pyrrhonians, Platonists, Epicureans, Stoics, Peripatetics, Academics, &c. See each under its proper article.

In later times, the sects of philosophy have been chiefly reducible to three; viz. the Cartesians, Peripatetics, and Newtonians. See Cartesian, &c.

In theology, the sects are much more numerous; yet the ancients had many legions, now extinct; as Machinists, Gnostics, Montanists, &c.

The principal now on foot are the Lutherans, Calvinists, Anabaptists, Arrians, Socinians, Arminians, and Unitarians. The rife, progress, and fate, with the distinguishing characters and opinions of each, see under LUTHERAN, CALVINIST, &c.

SECT, Ionic. See IONIC.

SECT, Hellenic. See HELLENIC.

SECTS OF HINDOOS. It has been long known that the Hindoos are divided and subdivided into a number of sects, tribes, or calls. Under our articles BRACHMANS, CAST, and GENTOOS, we have given the substance of what has been communicated.
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Communicated by early and later travellers to eastern regions on the subject of these distinctions. In common with these writers, we have also used the term cafia, or cafie, though we are not aware of any classical authority for the word. We are disposed to think it introduced by the Portuguese; and it is now, and has been for many years, as common in the mouths of natives as of Europeans, especially on the coast of Coromandel. We do not affirm that the word is not of Sasanian origin, and in truth it sounds very like it: but we have never met with the word in eastern writings, nor heard it used by natives beyond the reach of European colloquial influence.

In considering the division and subdivision of the numerous race of Hindoos, we are disposed to separate them into theological, civil, and philosophical classes or tribes. Theologically we find two grand divisions, the Saivas, who worship Siva, and the Vaishnavas, who worship Vishnu: these are numerously subdivided, as we shall notice presently, as are the many sects which essentially or trivially differ from both, and are probably numerically equal to both, under the general denomination of Buddhists or Baudhins, and various specific varieties. The civil grand divisions are four, viz. Brahman, Kshatriya, Vaisya, and Sudra. As the two former theological grand divisions comprise the whole race of Hindoos (leaving for the present the sects into which the Saivites have divided themselves), so do likewise these four civil tribes or grand divisions: either of the four may be theoretically a Saiva or a Vaishnava, as his parents may have taught, or his feelings led him. These four civil grand divisions are subdivided into almost innumerable distinctions and varieties. Here follows a brief outline of the distinctions of these four great civil tribes.

1. Brahman. This is a small tribe in point of number; but in power paramount. Intellectual is power; and, with a few exceptions, the intellectual wealth of India is confined to the Brahmanical treasury. As among the Jews all priests were taken from the tribe of Levi, so with the Hindoos the tribe of Brahman exclusively furnishes the priesthood. All Hindoos priests are therefore Brahmins, but all Brahmins are not priests. Ministers and public officers of state are very commonly Brahmins, even in Mahomedan governments; and they are occasionally merchants, and even soldiers. In both the British and native armies of India, are many Brahmins. The two Maharrat generals whose names are best known in England, Purfemaran Bhan and Hurry Punt, were both Brahmins. A Brahman is pointedly prohibited from becoming a king: royalty appertains to the second tribe. (See Peshwa.) In the Gita, a work profoundly venerated by numerous sects, the duties of the four tribes are very concisely and plainly stated. "The natural duty of the Brahman is peace, self-restraint, zeal, purity, patience, rectitude, wisdom, learning, and theology," Gita, p. 130. (See Mahabarata.)

2. Kshatriya, usually pronounced Keri, or Kheri, is the second civil grand division. It is the warrior tribe; comprising all soldiers, who alone can lawfully become kings. (See Peshwa.) All the other tribes, however, furnish soldiers; and, indeed, princes too, if the ambitious individual can effect it. "The natural duties of the Kshatri are bravery, glory, fortitude, rectitude, not to flee from the field, generosity, and princely conduct." (Gita, ib.)

This grand division is very numerous. Some hundreds of different sects might be enumerated as belonging to it, and many hundreds would still be omitted. The Ayin Akerly flates, (vol. iii. p. 87. Calcutta ed.) that of the tribe of Kshatri, there are upwards of five hundred subdivisions, fifty-two of whom are in Europe, and twelve particularly so. Of one of these subdivisions, that of Rajput, the same authority says there are upwards of a thousand different sects. The term Rajput, or rather Rajaputra, means offspring of kings: a title assumed by various warrior tribes in the north of India; individuals of which are pretty numenously spread in the southern and other provinces, wherever good pay invites their services.

3. Vaisya, vulgarly called Vai, or Blye, is the tribe next in rank to the military. This is a very numerous tribe, comprising merchants, traders, and cultivators. In this, that is, practising its avocations, are found many individuals of the three other. "The natural duty of the Vaiya is," according to the Gita, "to cultivate the land, tend the cattle, and buy and sell." (Ibid.) This tribe is numerously subdivided like the others. It contains a great proportion of wealthy individuals. The subdivision of Varna, or Bania, called by the English Banya, belongs to this class, and has been comprehended eighty-four different sects: it being only itself a tribe of this third grand division, or of Vaiya.

4. Sudra. In this is comprised mechanics, artisans, and labourers of every description. In the protection of the Sudras' avocations, individuals of the leonid and third tribes or classes will be found; and occasionally, though comparatively but rarely, of the first. Many mechanics and artisans are of the third class. "The natural duty of the Sudra is servitude," Gita.

This arrangement into castes or sects, tribes or grand divisions, is, as before noticed, of very early origin. In the Institutes of Menu, (see Menu) we find it laid down as of the remote antiquity; and, as is usual with every thing relating to the Hindoos, traced to a mythological source. "That the human race might be multiplied, he (the supreme lord, or Brahma) caufed the Brahman, the Kshatriya, the Vaiya, and the Sudra, (so named from the scriptures, protecting, wealth, and labour,) to proceed from his mouth, his arm, his thigh, and his foot." Ch. i. v. 31.

In early times it is probable that these distinctions of castes were kept up and observed with considerable strictness, both in respect to intermarriages and avocations. These times were, however, anterior to the Institutes of Menu, who gives names to the spurious offspring of sectarian intermarriage; wisely endeavouring to correct, what his authority would prove unequal to prevent, or materially restrain. Denunciations, however, against these illicit practices, sexual and handicraft, abound in the books of law; and absolution from the sin thus incurred is doubted even, and
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The principal sects are distinguished who worship exclusively as deities. Three are: The Siva, who worship Siva. 1. The Vishnu, who worship Visnu. 2. The Shakti, who worship Devi. 3. The Satea, who worship Parvati. 4. The Ganesa, who worship Ganapati. 5. The Siva, who worship Siva. But if we examine closely the relation which they respectively bear to each other, we shall find the fourth and fifth to be ramifications of the first, or sect of Siva; of which may be traced these distinctions. 1. Siva himself, generally supposed to include both the worshippers of Siva only, or of Brahma and Parvati jointly. (See Siva.) 2. Linga, the adorer of Siva under his phallic emblem called Linga. (See Linga and Siva.) 3. Sakti, the adorer of Parvati, under her symbol the Yoni. (See Sake and Yoni.) 4. The Ganapatias, worshippers of Ganesa, son of Parvati and Siva. (See Polleman.) These four sects, and many divisions and sects of them, may be deemed as comphended in the first named, Siva, or Sivaibakt. The worshippers of Baghesa, or Siva, are sometimes called Soma Suddhanta.

The second great sect of Vaihna is also variously divided and subdivided. Two principal divisions or branches are the Gokulavis and Ramavir, or worshippers of Visnu, in two of whose grand incarnations of Krihna (one of whose names is Gokul), and of Rama. These two principal sects of Vaihna are each divided into three. The Gokulavis are 1. Those who exclusively worship Krihna as Visnu himself; and this sect is extensively considered as the true and orthodox Vaihna. (See Krihna and Vaihna.) 2. Those who exclusively worship Krihna as Krihna of Rama. (See Krihna and Vaihna.) This sect is sometimes called Radha-baliabibi. 3. The worshippers of Krihna and Rama conjointly. The three divisions of Ramavis are 1. Those who worship Rama only. (See Rama and Ramane.) 2. Those who worship Siva only. And 3. Those who worship both Rama and Siva conjointly. See Siva.

The sect of Ganapatias we have considered as a division of that of Siva; and the sect of Sura, worshippers of Sura, or the sun, we are disposed to class under that of Vaihna; for although Siva be the sun as well as Vaihna, yet the other, and more particularly in his incarnation of Krihna, is more generally reckoned the archetypal of the solar deity; or, what amounts to the same thing, the sun, a symbol or type of Vaihna. Individuals of several sects of Sura do doubt mix their adoration with the solar worship; as do also many sects of the Vaihna. See Sura.

Under our article Sakti we have observed that the Hindu mythology has portrayed the abstract and attractive powers of the divinity, and ascribed lores to these mythological personages. The Sakti, or energy of an attribute of God, is female, and is fabled as the comfort of that performed attribute. Hence has arisen such a series of fictions, comprehending all natural and moral phenomena, obscured by myth, and felt for all purposes, as it is fairly possible, in the case of Krihna, Parvati, and other Asuras. Religion, the Siva, in that, is worshipped in a spiritual form, or as the mind-like embodiment of the universe. In the sect of Krihna, that now is worshipped by the lower classes, the Sakti is considered as the energy of the heathen divinity. The sect of Ramavis is portrayed as the worship of a eternal life, the Sakti, or the soul, is represented as existing for ever as the energy of the universe. (See Sakti.) And the sect of the Siva worshippers, in which the Sakti is worshipped, as well as a multitude of other divinities of similar kind, who are supposed to exist as the energy of the universe and to possess the attributes of the Sakti.

There is another very numerous sect of Vaihna, called Bhagavatas, of more modern origin, than the others. Their tenets and practices are grounded on the eighteenth Puranas, which is chiefly a history of the life, adventures, and doctrines of Krihna, and is entitled Saivagara, which see. The work is ascribed to Vapadeva, who endeavored to reconcile and unite all sects, by recognizing the deities of each, but as subordinate to the Supreme Being, or as attributes or manifestations of God. This is, in fact, the doctrine of the Gita; but that work, as well as the Sri Bhagavata, while professing to uphold a unity in the deity, claims that pre-eminency for Krihna; and although the sect of Bhagavata is very numerous, and includes individuals of or from many other sects, still a purity of doctrine is far distant from all, while a mythological paraphrase is given to the attributes or the Amritak. For all the other sects, or at least a portion of the most enlightened and learned individuals among them, are sufficiently ready to profess a belief in the unity of the deity, if their claim of that awful designation for the object of their own adoration be conceded. See Krihna, Sama, and Siva.

The Bhagavatas, while recognizing the five divinities worshipped by the other sects respectively, and even paying them in turn their daily adoration, and on particular occasions extending it to other deities, still deny the charge of polytheism, and repel the imputation of idolatry. It may be easily imagined that but few, we may almost say none, of the numerous followers of this sect can fully comprehend the doctrines they profess. They incline much to real polytheism, but do at least reject the derogatory notions of the deity which the other sects seem to have adopted. The practice of adoring images of celestial spirits, they justify by arguments similar to those which have been elsewhere employed in defence of image-worship. (See Gentious and Idolatry.) If the doctrines of the Vedas, and even those of the Puranas, be closely examined, the Hindu theology will be found consistent; notwithstanding, though it contains the seeds of polytheism and idolatry. See Purana and Vedas.

Modern Hindoos seem to have misunderstood the numerous texts in their sacred books, which declare the unity of the godhead,
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godhead, and the identity of Viṣṇu, Śiva, the Sun, &c. Their theologians have entered into vain disputes on the question of which, among the attributes of God, shall be deemed characteristic and pre-eminent?

Sankaračārya (see the article under his name) the celebrated commentator on the Veda, contended for the attributes of Śiva, and founded or confirmed the sect of Saiva, who worship Śiva as the supreme being, and deny the co-equal or independent existence of Viṣṇu and other deities. Madhava and Vallabha, both also furnamed Ācārya, denoting literary dignity, have in like manner established by their comments the sect of Vaiṣṇava, who adore Viṣṇu as God.

Under the article Saraswati we have noticed, that there is now no sect, who exclusively or principally worship Brahma; no one hath hitherto been discovered named after him, denoting the creative power to be the object of exclusive adoration. Still by some legends he is described as the Almighty; leading us to infer, that he was once factually addressed as the other two members of the triad now are. His faksi, Saraswati, is described in some passages as all-productive, all-powerful, and all-wise. It may be reasonably inferred, that there are many more sects among the Hindoos than have hitherto been ascertained. Most of the sects, however, approach or melt into each other on closer inspection; as may in all such cases be supposed, when they mutt all have originated in one common source. This union is with the Hindoos marked with their usual extravagant sexual mythology. Śiva and Parvati, they say, had a contest on the question of the comparative potency or eminence of their several worship; in other words, the worshippers of their symbols, the Linga and Yoni, contended the point. To appease this physiological difference between the god and his consort, Viṣṇu interposed, and his novel, or rather as times, came at length to be considered as the same with the Yoni; confounding the Vaiṣṇavas with the Yonis; but we must refer to our article Yoni, and the other articles and the works therein mentioned, for further particulars on this point.

In the early part of this article, we have adverted to the numerous šāstras, under the generic term of Baudhas, followers of the doctrines of Buddha or Boooth. (See Boodh.) These, under various dénominations, we are diffused to clafs as heretical Vaiṣṇavas, worshipping Viṣṇu under one of his avatars or incarnations, that of Buddha; as the Gokalathas and Ramanujas do under others; those of Gokal, or Krishna and Rama. "In respect to the number of followers," the author of the Hindoo Pantheon observes, "and the extent over which they have spread, the doctrines of Buddha have probably obtained greater dominion than those of any other religious persuasion. Although now comparatively trampling on the continent of Hither India, his doctrines and followers are still found, differing in externals, and divided into sects, throughout China and its tributary nations; in the great empires and states of Cochinchina, Cambodia, Siam, Pegu, Ava, Afam, Tibet, Budan or Boatun, (see these several articles) many of the Tartar tribes, and generally all parts east of the Ganges; including those vast and numerous islands in the seas southward and southwestward of the farther Indian promontory, whose inhabitants have not been converted to Islamism. In these great and distant parts of the globe the tenets of Buddha, distinguished by various apppellations, may be recognized as forming the religion of the people; an extent exceeding that either of the Mahomedan or Brahmanical superstition, and outnumbering perhaps, the followers of the religion of Jesus Christ."

Buddhism, like other distinctions of faith among Hindoos, is divided into sects. If it be reckoned the grand generic fact, we may deem the sects of Jainah and Mahahmoh sects of specific varieties; and there appears no good reason why they should not all be clad with the other sects, who adore exclusively one of the avatars or incarnations of Viṣṇu, under the comprehensive denomination of Vaiṣṇavas. Of these avatars see under the article Visnu; and for some account of the heresy of Buddha and its subdivisions, see Boooth, Jainah, Sakyah, and the other articles hence referred to in this work. Most oriental people seem to have prized themselves on distinguishing their deities by a great many names. Those names are, however, mostly, perhaps all, significant and characteristic; of which early enquirers were of course ignorant. The prevalence of this pride will be seen in our articles Parvati, Śiva, and others. In the infancy of Buddha, another proof might be exhibited of the same feeling. He is distinguished by different names in the same and in different parts. Boooth, Budha, Butta, and others of nearly similar found, are mere varieties, in different parts of India, in orthography and pronunciation; and so perhaps is the Bud, or Wud, of the ancient Pagan Arabs. Pout in Sienn; Poti, or Poti, in Tibet; and But in Cochinchina, are the same; the Chinese having, it is said, no B or D in their alphabet, and their language being monosyllabic, fastened his name into Fo, or Fo-e. (See Fo.) They call him also Xa-ka; a variation, perhaps, of the Sanscrit Sakyah. (See Sakyah.) That the Toth of the Egyptians, and the Woden of the Scandinavians, and other northern nations, is the same name and deity, is upheld by some; but the supposition is denied by others: some, indeed, will not recognize him in the Fo of China. A Buddha, whether the ninth incarnation of Viṣṇu or not may be disputed, has been deemed to answer in character with Mercury; so has the Gothic Woden. Each respectively gives his name to the same planet, and to the same day of the week. Buddha is, very extensively in India, whether among Baudhah, Śivah, Vaiṣṇavas, or Mahomedah, the same with Dies Mercurii, or Woden's day; whence some have derived our Wednesday.

The common reproach of the Brahmans is that the Baudhas uphold the dangerous dogma of the eternity of matter and the perifhability of the soul. But we ought to receive accounts of the tenets of a heretic sect with caution; and of the Baudhas and Jainah we have yet but little else. Like the Jainah, their worship is confined to deified images; and the name for the chief of them is, as flatted in another place, derived from the Sanscrit word bodha, to know; hence Buddha is philosophy; and hence has been the Saxon and English verbs bodian, to bode, forebode, &c.

The Jainah, or votaries of Jainah, are probably the most ancient of Hindoo sectaries. They reject, like the Baudhas in general, the authority of the Vedas; and are the most scrupulous of any sect in their cautions against the even accidental extintion of animal life. (See of this under our article Jainah.) In the Vedas the slaugther of animals is not only allowed, but on some occasions enjoined. (See Vedah.) The adoration of the Jainah is exclusively offered to deified mortals, or rather, as they affirm, through them to the deity; and in the clafs of deified mortals may be included many of the gods of the Hindoos, although they profess to reject the polytheism and incarnations of the latter. The doctrine of transmigration is found among the Jainah; how extensively it is not ascertained; the belief of a future state of rewards and punishments, and an extensive portion
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portion of the Puranic history, is common to them with the orthodox Hindoos. Formerly powerful and widely disseminated, this sect is supposed to have suffered great diminution from the extension of the modern heresy of Buddhism. And at present its more opulent members are said to find it convenient to reform the orthodox persuasion, which may be done without much difficulty, and will greatly tend to a diminution of its members and respectability.

Several of the sects noticed in the articles of this work named after them, are described as distinguished by marks on their foreheads, arms, and breasts. The forehead mark is the chief distinction, and when horizontal or parallel with the eyebrows, it is understood to designate a Sava, while a Vahinava is recognized by its perpendicularity. One, two, or three of these lines, red, white, or yellow, accompanied by circles and dots, differing in position and colour, together with many other symbols and hieroglyphics, afford an infinite variety of indications of the sectarian bias of the individual so decorated. When convenient, and no special objection exists, it is said to be held necessary, that these marks be daily renewed; and, of course, by the hand of a Brahman. One of that tribe cannot perform his daily offices, ablutions, &c. without the completion or contemplation of this distinction; and it is held irreverent in one of an inferior tribe to approach a holy man, or to ask his blessing, without, or in view of, this sectarian decoration. The second plate of the Hindu Pantheon contains some figures of these mysterious symbols. To that work, page 400, &c. we refer fuch of our readers as desire further information on this point, for a curious variety of the distinguishing marks, and a full explanation of their sectarian application.

Another sect, who worship fire, or the perfunctory in Agni its regent, is noticed under the article SAGNIKA, (which see). This is referrible to the grand division Sava, Agni being of that line of parentage. See PA-

VAKA.

Having, under the article PHILOSOPHY of the Hindoos, given the names of the principal sects, or schools; and referred for a brief explanation of the several doctrines to the articles of this work, under which they are respectively noticed, we shall not, in this place, offer any thing farther thereon. For some of the particulars of this article we are indebted to Mr. Colebrook's Essay on the Religious Ceremonies of the Hindoos, in the ninth volume of the Asiatic Researches, and to the Hindoo Pantheon.

From what precedes it will appear, that an individual of either of the four civil tribes may profess his own theological sect: a Brahman, or a Sudra, is at liberty to choose what form of worship he may think proper, and to what deity he will offer it: observing, of course, due consistency and conformity with the ritual. He may thus, without offence beyond incurring some displeasure, perhaps, from his trailer family, and Guru, or pator, change from a Lingi to a Yonja, or associate one with the other; or from a Saura to a Ganapatyia; or he may combine all, and more; and, being all in Krishna, become a Bhagavata; he may, without incurring sin, or, as the idea is better understood in Europe, without losing caste, turn from a Sava to a Vahinava. All these are prevalent, and admit of caste expiation. He is still under the spiritual dominion of the same priesthood, and while he observes the ordained fasts and feats, performs pilgrimages, is liberal in alms, and conforms to the externals that serve to meet the mental cravings forg'd for him by the Brahman, all is well. He may also study, and, under certain limitations, believe and profess, whichever philosophical doctrines he prefers. It would not, perhaps, be thought decorous in a Brahman, especially if he were a priest, to make any dissertation display of the doctrines of a free-thinking Brahman, who prescribes border on a denial of the existence of the mythological beings, reverence to which is the basis on which rests the spiritual faculty of his own tribe. But there are still many individuals among the Brahman who think deeply; and who, in relaxing on the gross eres and obscurities of these mythological legends, cut themselves. See VEDANTA.

It is in the civil distinctions that the Hindu law is guarded against innovation. Here every possible care has been taken to keep the tribes apart; and sexual intercourse, the principal apprehended cause of confusion, is regulated and legitimated with great precision. These regulations vary in minute particulars in different tribes and countries, but agree pretty nearly in the main point of degrading the offspring of forbidden intercourse. Such degradation does not, however, necessarily reflect. Rich delinquents can assert immediate ecclesiastical censure; and the lape is soon forgotten. With the poor such things are of little moment; exciting perhaps little else than the passing scandal of the neighbourhood; unless in cases where the Brahmanical dignity or purity may be implicated in a manner too gross or notorious to be overlooked. Formication or adultery between a male Sudra and a Brahman would be deemed of this nature. So would eating or drinking together of individuals of remote or different tribes. But the latter, if not frequent or wilful, admit of expiation; expensive and vexatious in proportion to the wealth of the offenders, and the degree of enormity in the offence.

Some writers have told us of the cace with which the Hindoos, and even the Brahmanas, seem to change their religion: "with as much facility," say they, "as their garments." The theological change of fect as above noticed, is not attended with much difficulty: they are still Hindoos, and can find priests of their new persuasion, who will afford them the consolations and benefits of religion, such as they are. But the work of conversion altogether from that religion, and liberation from the trammels of prieres, have ever been, and ever will be found, a task of much greater difficulty: to be accomplished only by the potency of continued persuasion, superadded to the aid of example in the preceptors.

In concluding this article on the sectaral divisions of the Hindoos, we may observe that there is strong reason to believe many of them to be of modern origin. The Veda, the scripture of the Hindoos, affords no authority for such extravagancies as worshipping deified heroes, female powers or indelent symbols, or avatars. See VEDA.

We shall here subjoin a brief account of Saniafay, omitted in its proper place. Saniafay denotes an order of Hindoo mendicants, who arrive at this distinction by divers acts of persevering penance and suppoosed piety. We are not aware of any material distinction between this description of saints, and the so-called Yogi and Yati by different sects. In the Gita, as translated by Mr. Wilkins, Krishna declares him to be both a Yogi and a Saniafay, who performeth that which he hath to do independent of the fruit thereof. Saniafay, or a forsaking of the world, is declared to be the same with Yogi, or the practice of devotion. He who can bear up against the violence produced from luft and anger in this mortal life, is properly employed, and a happy man. The man who is happy in his heart, at rest in his mind, and enlightened within, is a Yogi, or one devoted to God, and of a godly spirit. The soul of the placid, conquered spirit, is the same in heat and cold, in pain and pleasure, in honour and disgrace. To the Yogi, gold, iron, and lumes are the same. The man is distinguished whose resolution, whether amongst his companions and friends, or in the midst of his enemies; with those wha
who love and with those who hate; in the company of saints or sinners, is the fame. The Yogi constantly exerciseth the spirit in private. He is a recluse of a subdued mind, free from hope, and free from perception. He planteeth his own feat firmly on a spot that is un değerlendir, and sitteeth upon the sacred grails, kusas, covered with a skin and a cloth. (See Kusa.) There he, whose busses is the restraining of his passion, should sit, with his mind fixed on one object alone, in the exercise of his devotion for the purification of his soul, keeping his head, his neck, and body steady, without motion, his eyes fixed on the point of his note, looking at no other place around. To be a Sanavis, or recluse, without application, is to obtain pain and trouble.

This divine discipline is not to be attained by him who eateth more than enough, or lesse than enough; neither by him who deepeth too much, nor by him who deepeth not at all. A man is called devout, when his mind remaineth thus regulated within himself, and he is exempted from every luft and inordinate desire. The Yogi of a subdued mind, thus employed in the exercise of devotion, is compared to a lamp standing in a place without wind, which waweth not. He becometh acquainted with that boundless pleasure, which is far more worthy of the understanding than that which arises from the senses; depending upon which, the mind moveth not from its principles; which having obtained, he refpecteth no other acquisition so great as it; on which depending, he is not moved by the severest pain. Supreme happiness attendeth the man whose mind is thus at peace; whose carnal affections and passions are thus subdued; who is thus in God, and free from sin. The Yogi is more exalted than the Tapafwi (see Tapas); the zealot who harasses himself in performing penances, is respected above the learned in science, and inferior to those attached to moral works.

The above passages from different pages of the Gita, may serve as a specimen of that extraordinary work; supposed to have been composed by Veya, many centuries before the Christian era. See Vyasa, Jaina, Yati, and Yogi, for some farther notice of Hinduoo penance and devotion; and Tapas, for instances of their authority.

Individuals calling themselves Saniassys and Yogis, are still found wandering about India; sometimes stark-naked; rubbed over with ashes, especially if of the sect of Sarva (which see); the god Siva being represented to powdered. Sometimes they have, like him, a tiger's skin to fit on: and at others, carry one of Vishnu's emblems, the chakra, of which see under Vishnu and Vajra. In the latter cafe, the individuals are probably of the sect of Vijaya-vanu, which see.

Secta, in Law. See Suit.

Secta Hundred. See Hundred Suit.

Secta ad curiam, a writ which lieth against him who refetheth to perform his suitor to the court county, or court baron.

Secta curia. See Suit of Court.

Secta facienda per illum quam habet amicam partem, a writ to compel the heir that hath the elder's part among co-heirs, to perform service for all the coparencers.

Secta falde. See Faldage.

Secta ad sulphatum faciendum, is a service which a man is bound to perform by his see.

Secta molendini, a writ lying where a man by uffage, time out of mind, &c. has ground his corn at the mill of a certain perfon, and afterwards goes to another mill with his corn, thereby withdrawing his suitor to the former. And this writ lies especially for the lord against his tenants, who hold of him to do suit at his mill. This is now generally turned into an action of the cafe.

Secta regalis, a suit by which all perfon were bound twice in a year to attend the sheriff's town, and was called regalis, because the sheriff's town was the king's seat; wherein the people were to be obliged by oath to bear true allegiance to the king, &c.

Secta unica tantum saccia pro pluribus h Persistence, a writ that lies for an heir who is distrained by the lord to do more suits than one, in respect of the land of divers heirs defended to him.

Sectilia, among the Romans, pavements laid with flowers cut into various forms. Suctonius distinguishes them from those that were tessellated.

Sectineus, in Anatomy, a small, flat, and pretty long muscle, broad at the upper part, and narrow at the lower; situated obliquely between the os pubis, and the upper part of the os femoris.

It is commonly a single muscle, but it sometimes found double. It is fixed above by fleshy fibres to all the sharp ridges, or critia, of the os pubis, and to a small part of the oblong notch, or depellation, on the fore part of the critia, in which the upper extremity of this muscle is lodged; and thence it runs down obliquely towards the little trochanter, under, and a little behind which it is inserted obliquely by a flat tendon, between the anterior part of the muscle's insertion, and inferior portion of the triceps secundus, with which it is united. Windlow.

Sectio Cesarea. See Cesarian Section.

Section, Section, formed from secare, I cut, a part of a thing divided; or the division itself.

Such, particularly, are the subdivisions of chapters, by others called paragraphs, and sometimes articles. The mark of a section is §.

The ancients neglected to divide their books into chapters and sections: that was a talk left for future editors and critics.

Section, in Geometry, denotes a side or surface appearing of a body, or figure, cut by another; or the place wherein lines, planes, &c. cut each other.

The common section of two planes is always a right line; being the line supposed to be drawn by the one plane in its cutting or entering the other.

If a sphere be cut in any manner, the plane of the section will be a circle, whose centre is in the diameter of the sphere. The sections of the cone are five, viz. a circle, triangle, parallelogram, hyperbola, and ellipse. See each under its proper article. See also Cone.

Sections, Conic. See Conic Sections.

Section, Axis of a Conic. See Axis.

Section, Centre of a Conic. See Center.

Section, Diameter of a Conic. See Diameter.

Section, Tangent of a Conic. See Tangent.

Sections, Following, Sections Successive, in Conics, may be thus conceived: suppose two right lines, as A B, C D, (Plate XIII. Analysis, fig. 5.) mutually intersecting one another in E, which point E is supposed to be the common centre of the opposite hyperbolic sections F, G, H, I, and whole common asymptotes, the proposed lines A B, C D, also are. In this case, the sections G, F, and H, I, are called sections successives; because they are placed following one another in the contiguous angles of two intersecting right lines.

If the determinate diameter, H G, of one of the sections successives (which is coincident with the supposed indeterminate diameter of its opposite) be equal to the vertical tangent K L, applied between the asymptotes in the point G, of the diameter G F; then Apollonius calls such sections, conjugated sections. See Gemin of the Hyperbola, under Conic Sections.

Sections, Opposite. See Opposite.
SEC

**Sections.** The nature of the problem, or a description of the various parts, if any, on the plan, or if the object is not described, to determine the whole.

**Sector.** (or.) The figure, or the length of the arc, and the other side directed to the centre.

**SECT.** The figure, or the length of the arc, and the other side directed to the centre.

**SECTOR.** A part of a circle comprehended between the radius and the arc.

The mixed triangle ACD (Plate XIII. Geometry, fig. 5) comprehended between the radius AC and CD, and the arc AD, is a sector of the circle.

It is demonstrated by geometricians, that the sector of a circle is equal to a triangle, whose base is the arc AD, and whose altitude is the radius AC.

If from the common centre of two concentric circles be drawn two radii to the periphery of the outer, the two areas included between the radii will have the same ratio to their peripheries; and the two sectors, the ratio to the areas of their circles.

To find the area of a sector DCE, the radius of the circle CD, and the arc DE, being given. To 100, 314, and the radius DC, find a fourth proportional number; this will be the semiperimeters: then to 180 degrees, the given arc DE, and the semiperimeter just found, will give the fourth proportional; which will give the arc DE in the same measure in which the radius DC is given: halfly, multiply the arc DE into the semiperimeter, and the product is the area of the sector.

In order to find the area of any sector of a circle, Dr. Hutton, in his "Menfuration," has given the two following rules:

**Rule 1.** Multiply the radius by half the arc of the sector, and the product will be the area, as in the whole circle.

For the demonstration of this, see the article Circle. Putting r = the radius of a circle, d = the diameter, a = the area of a sector of it, u = the length of the arc of the sector, b = the degrees in $\frac{1}{2}$ of $\frac{1}{2}$, x = half the chord of the arc a, or the line of $\frac{1}{2}$ a, and $\nu = \sqrt{\frac{2}{2}}$; then, by multiplying the radius by half the arc, by a variety of rules which Dr. Hutton has stated, we shall have,

1. $a = \frac{1}{2} dr = 174532.7 r r r$. 2. $A = r \sqrt{\frac{1}{2}} \nu \times$

$3. A = \frac{1}{2} dr + \frac{1}{4} d^2 r$. 4. $A = \frac{1}{2} \sqrt{\frac{1}{2} \nu}$.

5. $A = \frac{1}{2} \nu \times \nu$. 6. $A = \frac{1}{2} \nu \times \nu$. 7. $A = \frac{1}{2} \nu \times \nu$.

**SECT.** The number of the parts of the circle included in the figure, or the number of its sides, but the terms above are in the manner of the circle.

Redhill. As one of the degrees, or the arc of the sector, for the whole area of the circle is the area of the sector.

SEC. A sector of a triangle, or the area of the sector, for the whole area of the circle is the area of the sector.

**Double.** The figure, or the length of the arc, and the other side directed to the centre.

**Doubles.** The figure, or the length of the arc, and the other side directed to the centre.

**Double.** The figure, or the length of the arc, and the other side directed to the centre.

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**Decimals.** The figure, or the length of the arc, and the other side directed to the centre.

**Double.** The figure, or the length of the arc, and the other side directed to the centre.

**Double.** The figure, or the length of the arc, and the other side directed to the centre.

**Double.** The figure, or the length of the arc, and the other side directed to the centre.
The manner in which these scales are disposed of on the
sector, is best seen in the figure.

The scales of lines, chords, fines, tangents, rhumbs, longitudes, hours, longitude, incl. merid. may be used, whether the instrument is shut or open, each of these scales being contained on one of the legs only. The scales of inches, decimals, log. numbers, log. fines, log. versed sines, and log. tangents, are to be used with the sector quite opened, part of each scale lying on both legs.

The double scales of lines, chords, fines, and lower tangents, or tangents under 45 degrees, are all of the same radius or length: they begin at the centre of the instrument, and are terminated near the other extremity of each leg; viz. the lines at the division 16, the chords at 60, the fines at 90, and the tangents at 45; the remainder of the tangents, or those above 45 degrees, are on other scales beginning at one-fourth of the length of the former, counted from the centre, where they are marked with 45, and run to about 76 degrees.

The secants also begin at the same distance from the centre, where they are marked with 10, and are from thence continued to as many degrees as the length of the sector will allow, which is about 75 degrees.

The angles made by the double scales of lines, of chords, of fines, and of tangents, to 45 degrees, are always equal. And the angles made by the scales of upper tangents, and of secants, are also equal; and sometimes these angles are made equal to those made by the other double scales. The scales of polygons are put near the inner edge of the legs, their beginning is not far removed from the centre, as the 60 on the chords is. Where these scales begin, they are marked with 4, and from thence are figured backwards, or towards the centre, to 12.

From this disposition of the double scales, it is plain, that those angles which are equal to each other, while the legs of the sector were close, will still continue to be equal, although the sector be opened to any distance it will admit of.

The scale of inches is laid close to the edge of the sector, and sometimes on the edge; and contains as many inches as the instrument will receive when opened: each inch being usually divided into eight, and also into ten equal parts. The decimal scale lies next to this: it is of the length of the sector, when opened, and is divided into ten equal parts, or primary divisions, and each of these into ten other equal parts; so that the whole is divided into a hundred equal parts: and if the sector admits of it, each of the subdivisions is divided into two, four, or five parts; and by this decimal scale, all the other scales, that are taken from tables, may be laid down. The length of a sector is usually understood when it is shut; and, therefore, a sector of five inches makes a rule of twelve inches when opened; and a foot sector is two feet long, when quite opened. The scales of chords, rhumbs, fines, tangents, hours, longitudes, and inclinations of meridians, are such as are described under Plane Scale.

The scale of logarithmic or artificial numbers, called Gunter’s scale, or Gunter’s line, is a scale expressing the logarithms of common numbers, taken in their natural order.

For the construction of this scale, and also of those of logarithmic lines, logarithmic tangents, and logarithmic versed sines, see Gunter’s Line, and Gunter’s Scale.

We shall here observe, that all these scales should have one common termination to one end of each scale, i.e. the 10 on the numbers, the 90 on the fines, the 0 on the versed sines, and the 45 on the tangents, should be opposite to each other: the other end of each of the scales of lines, versed sines, and tangents, will run out beyond the beginning (marked 1) of the numbers; nearly opposite to which will be the divisions representing 35 minutes on the lines and tangents, and 168$^\circ$ degrees on the versed sines.

The double scales are constructed in the following manner.

The line of lines is only a scale of equal parts, whole length is adapted to that of the legs of the sector; thus, in the six-inch sector, the length is about 5$^\frac{1}{2}$ inches. The length of this scale is divided into primary divisions; each of these into ten equal secondary parts; and each secondary division into four equal parts. The accuracy of the division may be determined by taking between the compasses any number of equal parts from this line, and applying that distance to all the parts of the line; and if the number of divisions be contained between the points of the compasses in every application, the scale may be received as perfect. The line of fines is constructed by making the whole length of this scale equal to that of the line of lines; and from this line, taking severally the parts expressed by the numbers in the tables of the natural lines, corresponding to the degrees, or to the degrees and minutes, intended to be laid upon the scale; and then by laying down these several distances on the scale, beginning from the centre. In scales of this length, it is customary to lay down divisions, expressing every 15 minutes, from 0 degree to 60 degrees; between 60 and 80 degrees, every half degree is expressed; then every degree to 85; and the next is 90 degrees. The length of the scale of tangents is equal to that of the line of lines, and the several divisions upon it (to 45 degrees) are laid down from the tables and line of lines, in the same manner as the former; observing to use the natural tangents in the tables. The scale of upper tangents is laid down, by taking $\frac{1}{4}$ of each of the natural tangents above 45 degrees, as are intended to be put upon the scale. The beginning of this scale, at 45 degrees, though the position of it on the sector respects the centre of the instrument, is distant from the centre $\frac{1}{4}$ of the length or radius of the lower tangents.

The distance of the beginning of the scale of secants from the centre, and the manner of laying it down, are the same as those of the upper tangents: except that in this the tabular secants are to be used.

For the scale of chords; its length is to be made equal to that of the fines; and the divisions, which are twice the length of the fines of half the degrees and minutes counted from the centre, express every 15 minutes from 0 degrees to 60 degrees, to be laid down as in the scale of fines.

The scale of polygons usually comprehends the sides of the polygons from fix to twelve sides inclusive. The divisions are laid down by taking the lengths of the chords of the angles at the centre of each polygon, and laying them down from the centre of the instrument. When the polygons of four and five sides are also introduced, this scale is constructed from a scale of chords, where the length of 90 degrees is equal to that of 60 degrees of the double scale of chords on the sector. Instead of none of the double scales above described, there are found other scales on the old sectors, and also on some of the French ones, such as scales of superficies, of solids, of inscribed bodies, of metals, &c.; but these are left out to make room for others of more general use. See CALIBER.

In describing the use of the sector, the terms lateral distance, and transverse distance, often occur. By the former is meant the distance taken with the compasses on one of the scales only, beginning at the centre of the sector; and by the latter, the distance taken between any two corresponding
SECTOR.

The transverse distance of the sectors of the same name, the legs of the sector being in an angular position: but in taking their transverse distances, it is to be observed, that each of the sectors hath three parallel lines, and it is which the divisions of the scale are marked, and that the points of the compasses must be always set on the inside line, or that line nearest the inner edge of the leg, which is the only line, in each scale, which runs to the centre.

For the use of the logarithmic scale of numbers, see

Gunter's Line.

1. To divide a given line into any number of equal parts: e.g. 9. Make the length of the given line, or some known part of it, a transverse distance to 9 and 9; then will the transverse distance of 1 and 1 be the 4th part of it; or such a submultiple of the 4th part, as was taken of the given line, or the 4th part will be the difference between the given line and the transverse distance of 8 and 8.

2. To make a scale of a given length, to contain a given number of equal parts: e.g. let the scale to the map of a survey be 6 miles long, and contain 140 poles, and let it be required to divide the scale into the several parts, so that a corresponding scale may be taken from the line of miles. Make the transverse distance 7 and 7 (or 50 and 50, vs. 14) equal to 3 inches (-\frac{1}{3}); and this position of the line of miles will produce the given scale.

3. To divide a given line (e.g. 5 inches) into any affixed proportion, as of 4 to 7. Make 5 inches, the length of the given line, a transverse distance to 9 and 9, the sum of the proposed parts; and the transverse distances of the affixed numbers, 4 and 5, will be the parts required.

4. To two given lines, vs. 2 and 6, to find a third proportional. Take between the compasses the lateral distance of the second term, viz. 6; set one point on the division expressing the first term, viz. 2, on one leg, and open the legs of the sector till the other point fall on the corresponding division on the other leg; keeping the legs of the sector in this position, take the transverse distance of the second term, viz. 6, and this distance is the third term required, which distance, measured laterally from the centre, will give 18, the number required: for 2 : 6 :: 6 : 18.

Otherwise, take the distance 2 laterally, and apply it transversely to 6 and 6, the sector being properly opened; then the transverse distance at 2 and 2, being taken with the compasses, and applied laterally from the centre of the sector on the scale of lines, will give the third term, when the proportion is decreasing; for 6 : 2 :: 2 : 7.

If the legs of the sector will not open far enough to let the lateral distance of the second term fall between the divisions expressing the first term; then take \frac{1}{2}, \frac{1}{4}, or any aliquot part of the second term, that will conveniently fall within the opening of the sector, and make such part the transverse distance of the first term: then, if the transverse distance of the second term be multiplied by the denominator of the part taken of the second term, the product will give the third term.

5. To three given lines, vs. 5, 7, and 10, to find a fourth proportional. Open the legs of the sector, till the transverse distance of the first term, 3, be equal to the lateral distance of the second term, 7, or some part of it: then will the transverse distance of the third term, 10, give the fourth term, \frac{3}{10}, required; or such a submultiple of it, as was taken of the second term; for 3 : 7 :: 10 : 23.

Otherwise, set the lateral distance, 7, transversely from 10 to 10, opening the sector accordingly; and the transverse distance, at 3 and 3, applied laterally, will give \frac{7}{5}; for 3 : 7 :: \frac{3}{5}.

6. To diminish a line of four inches, in the proportion of 8 to 7. Open the sector till the transverse distance of 8 and 8 be equal to the lateral distance of 7, with the point, where four inches, and lateral distance, taken from the centre, reaches; and the transverse distance taken at that point will be the line required. If the line should be too long for the legs of the sector, take \frac{1}{2}, \frac{1}{3}, or \frac{1}{4}, &c. part of the given line for the lateral distance, and the corresponding transverse distance, taken twice, three, or four times, &c. will be the line required.

7. To open the sector, so that the two scales of lines shall make a right angle. Take the lateral distance from the centre to the division marked 5, between the points of the compasses, and set one foot in the division marked 4, on one of the scales of lines; and open the legs of the sector till the other foot falls on the division marked 5, on the other scale of lines, and then will those scales stand at right angles to one another; for the lines 3, 4, 5, or any of their multiples, constitute a right-angled triangle.

8. To two right lines given, e.g. 40 and 50, to find a mean proportional. Set the two scales of lines at right angles; find the half sum of the given lines, vs. 65, and the half difference, vs. 25, and take with the compasses the lateral distance of the half sum, 65, and apply one foot to the half difference, 25, the other foot transversely will reach to 60, the mean proportional required: for 40 : 60 :: 60 : 60.

9. To find the Scale of Chords on the. 1. To open the sector so that the two scales of chords may make an angle of any number of degrees, e.g. 40. Take the distance from the point to 40, the number of degrees proposed on the scale of chords; open the sector till the transverse distance from 60 to 60, on each leg, be equal to the aforementioned lateral distance of 40: then do the scales of chords make the angle required.

2. The sector being opened, to find the degrees of its aperture. Take the extent from 60 to 60, and lay it off on the scale of chords from the centre: the number, where it terminates, shews the degrees of its opening. By applying sights on the scales of chords, the sector may be used to take angles, as a surveying instrument.

3. To project or lay down an angle of any given number of degrees. 1. Let the number of degrees be less than 60, vs. 40. At any opening of the sector, take the transverse distance of 60 and 60 on the chords; and with this opening describe an arc: take the transverse distance of the given number of degrees, 40, and lay this distance on the arc described, marking its extremities: from the centre of the arc, through these extremities, draw two lines, and they will contain the angle required.

When the degrees given are more than 60, vs. 148; describe the arc as before; take the transverse distance of 7 or \frac{1}{2} of the given degrees, 148, e.g. 7 = 49\frac{1}{2} degrees; lay this distance on the arc three: and from the centre draw two lines to the extremities of the arc thus determined, and they will contain the required angle. N.B. If the radius of the arc or circle is to be of a given length, then make the transverse distance of 60 and 60, equal to that affixed length.

4. To find the degrees which a given angle contains. About the vertex describe an arc, and open the sector till the distance from 60 to 60, on each leg, be equal to the radius of the circle; then taking the chord of the arc between the compasses, and carrying it on the legs of the sector, see what equal number, on each leg, the points of the compasses fall on: this is the quantity of degrees the given angle contains.

5. To take an arc, of any quantity, from off the circumference of a circle. Open the sector till the distance from
from 60 to 60 be equal to the radius of the given circle; then take the extent of the chord of the number of degrees, on each leg of the secto, and lay it off on the circumference of the given circle. By this use, may any regular polygon be inscribed in a given circle, as well as by the line of polygons: e.g., in a circle whose diameter is given to describe a regular polygon of 24 sides. Make the given diameter a transverse distance from 60 to 60 on the scales of chords; divide 360 by 24, and take the transverse distance of 15 and 15, the quotient, and this will be the chord of the twenty-fourth part of the circumference. In order to prevent errors, where the distance is to be repeated several times, it will be best to proceed thus: with the chord of 60 degrees divide the circumference into 90 equal; in every division of 60 degrees lay down, first, the chord of 15 degrees, and next the chord of 30 degrees, and then the chord of 45 degrees, beginning always at the same point. Thus the error in taking distances will not be multiplied into any of the divisions following the first.

**sector. use of the line of polygons on the.** In a given circle to inscribe a regular polygon, e.g., an octagon. Open the legs of the secto, till the transverse distance of 6 and 6 be equal to the given diameter, then will the transverse distance of 8 and 8 be the side of an octagon, which may be inscribed in the given circle. In like manner may any other polygon be described, the number of whole sides does not exceed 12, be inscribed in a given circle.

2. On a given line to describe a regular polygon, e.g., a pentagon. Make the given line a transverse distance to 5 and 5; at that opening of the secto, take the transverse distance of 6 and 6; and with this radius, on the extremities of the line, as centres, describe arcs intersecting each other; and on the point of intersection, as a centre, with the same radius, describe a circumference passing through the extremities of the given line; and in this circle may the pentagon, whose side is given, be inscribed. By a like process may any other polygon, of not more than 12 sides, be described on a given line.

3. On a right line, to describe an isosceles triangle, having the angles at the base double that at the vertex. Open the secto till the ends of the given line fall on 10 and 10 on each leg; then take the distance from 6 to 6; this will be the length of the two equal sides of the triangle.

**sector. use of the scales of sines, tangents, and secants on the.** By the several lines disposed on the secto, we have scales to several radii: so that, 1, having a length, or radius, given, not exceeding the length of the secto when opened, we find the chord, sine, &c. thereto: e.g., suppose the chord, sine, or tangent, of 10 degrees to a radius of three inches required. Make three inches the aperture, or transverse distance, between 60 and 60 on the scales of chords of the two legs; then will the same extent, from 45 to 45 on the scale of tangents, and from 90 to 90 on the scale of sines, on the other side: so that to whatever radius the line of chords is set, to the same are all the other sines. In this disposition, therefore, if the aperture, or transverse distance, between 10 and 10, on the scales of chords, be taken with the compasses, it will give the chord of 10 degrees; if the transverse distance of 10 and 10 be in like manner taken on the scales of sines, it will be the sine of 10 degrees: lastly, if the transverse distance of 10 and 10 be in like manner taken on the scales of tangents, it gives the tangent of 10 degrees to the same radius.

2. If the chord, or tangent, of 70 degrees were required, for the chord, the transverse distance of half the arc, viz., 35, must be taken, as before; which distance, being repeated twice, gives the chord of 70 degrees. To find the tangent of 70 degrees, to the same radius, the scale of upper tangents must be used, the other only reaching to 45: making, therefore, three inches the transverse distance between 45 and 45 at the beginning of the scale; the extent between 70 and 70 degrees, on the same, will be the tangent of 70 degrees to three inches radius.

3. To find the secant of an arc, make the given radius the transverse distance between 0 and 0 on the line of secants; then will the transverse distance of 10 and 10, or 70, on the said lines, give the secant of 10 degrees, or 70 degrees.

The scales of upper tangents and secants do not run quite to 76 degrees; but those of a greater number of degrees may be found by the secto in the following manner. Thus, the tangent of any number of degrees may be taken from the secto at once; if the radius of the circle can be made a transverse distance to the complement of those degrees on the lower tangent. E.g., to find the tangent of 78 degrees to a radius of two inches. Make two inches a transverse distance of 12 degrees on the lower tangent; then the transverse distance of 45 degrees will be the tangent of 78 degrees. In like manner the secant of any number of degrees may be taken from the fines, if the radius of the circle can be made a transverse distance to the cofine of those degrees. Thus, making two inches a transverse distance to the fine of 12 degrees, then the transverse distance of 90 and 90 will be the secant of 78 degrees. Hence it will be easy to find the degrees answering to a given line, expressing the length of a tangent or secant, which is too long to be measured on those scales, when the secto is set to the given radius. Thus, for a tangent, make the given line a transverse distance to 45 and 45 on the lower tangents; then take the given radius, and apply it to the lower tangents: and the degrees, where it becomes a transverse distance, give the cotangent of the degrees answering to the given line. And for a secant, make the given line a transverse distance to 90 and 90 on the fines: then the degrees answering to the given radius, applied as a transverse distance on the lines, will be the cofine of the degrees answering to the given secant line.

4. If the converse of any of these things were required, that is, if the radius were required, to which a given line is the fine, tangent, or secant, it is but making the given line, if a chord, the transverse distance on the line of chords, between 10 and 10, and then the secto will stand at the radius required; that is, the aperture between 60 and 60, on the said line, is the radius.

If the given line were a fine, tangent, or secant, it is but making it the transverse distance of the given number of degrees; then will the distances of 90 and 90 on the fines, of 45 and 45 on the lower tangents near the end of the secto, and of 45 and 45 on the upper tangents towards the centre of the secto, and of 0 and 0 on the secants, be the radius.

5. If the radius, and any line representing a fine, tangent, or secant, be given, the degrees corresponding to that line may be found by setting the secto to the given radius, according as a fine, tangent, or secant, is concerned; taking the given line between the compasses, applying the two feet transversely to the scale concerned, and sliding the feet along till they both rest on like divisions on both legs; and the divisions will shew the degrees and parts corresponding to the given line.

For the method of determining the degrees answering to any tangent, or secant, that cannot be thus measured, see above.

6. To find the length of a vered sine to a given number of degrees, and a given radius. Make the transverse distance
tance of 90 and 90 in the frixes equal to the given radius; take the trancverse distance of the true complement of the given degrees; if the two degrees are less than 90, the difference, but if greater, the half of the true complement and divide by the given radius.

3. To give the sides of the fides from the corresponding double scales of lines, wherein, 1°, take, each of them, a right angle. On the lines, make the lateral distance of the given length, and 6 on the other leg; on the line, make the lateral distance 90 a transverse distance of 45 to 45, or from 90 to 90, or from 90 to 90, or from the line of any degrees to their complement; and, as the distance of 45:2, transverse distance of 12.5.

Sector. 1. The base and perpendicular of a right angled triangle being given, to find the hypotenuse. Suppose the base BC (Plate Triang. nom. fig. 5.) 40 miles, and the perpendicular AB 32; open the fector till the two scales of lines make a right angle; then, for the base, take 40 parts on the scale of lines on one leg; and, for the perpendicular, take 32 on the same scale on the other leg; then the extent from 40 to 32 on the other, taken in the compass, will be the length of the hypotenuse; which line, applied to the scale of lines, will be found 50 miles.

2. The perpendicular AB of a right angled triangle ABC being given, 30, and the angle BCA 37 degrees; to find the hypotenuse BC. Take the given side AB, and let it over, on each side, on the line of the given angle ACB; then the parallel distance of 90 and 90 or radius, will be the hypotenuse BC; which will measure 50 on the scale of lines.

3. The hypotenuse and base being given, to find the perpendicular. Open the fector till the two scales of lines be at right angles; then lay off the given base on one of the scales from the centre; take the hypotenuse in your compasses, and letting one foot in the term of the given base, let the other fall on the scale of lines on the other leg; the distance from the centre to the point where the compasses fall will be the length of the perpendicular.

4. The hypotenuse being given, and the angle ACB; to find the perpendicular. Make the given hypotenuse a parallel radius, i.e. make it the extent from 90 to 90 on the scales of lines; then will the parallel line of the angle ACB be the length of the side AB.

5. The base and perpendicular AB given, to find the angle BCA. Lay off the base AB, on both sides the fector, from the centre, and note its extent; then take the given perpendicular, and to it open the fector in the terms of the base given; the parallel radius will be the tangent of BCA.

6. In any right-lined triangle, two sides being given, with the included angle; to find the third side. Suppose the side AC (fig. 6.) 20, the side BC 30, and the included angle ACB 110 degrees; open the fector till the two scales of lines make an angle equal to the given angle, viz. 110 degrees; lay off the given sides of the triangle, from the centre of the fector, on each of the scales of lines; the extent between their extremities is the length of the side AB sought.

7. The angles C A B and A C B given, and the side C B; to find the base A B. Take the given side C B, and turn it into the parallel face of its opposite angle C A B; and then the parallel line of the angle A C B will be the length of the base A B.

8. The three angles of a triangle being given; to find the proportion of the sides. Take the lateral lines of the several angles, and measure them in the scale of lines; the numbers answering to which give the proportion of the sides.

9. The three sides being given; to find the angle A C B. Lay the sides A C, C B, along the scale of lines, from the center, and let over the side A B in the terms, in the fector opened, in their lines, to the quantity of the angle A C B.

10. The hypotenuse A C (fig. 7.) of a right angled parallelogram triangle A B C, given, e.g. 43 degrees, and the angle C A B 29 degrees; to find the side C B. The rule is, as radius A to the line of the given hypotenuse, is 43 degrees, so is the line of the given angle 29 degrees to the side of the perpendicular C B. Take the 29 degrees from the center, along the scale of lines, in your compasses, and let the extent from 0 to 0 on the two legs; and the parallel line of 43 degrees, the given hypotenuse value, will, when measured from the center on the scale of lines, give 13. 36", the side required.

11. The perpendicular B C, and the hypotenuse A C, given, to find the base A B. As the true complement of the perpendicular B C is to radius, so is the true complement of the hypotenuse to the true complement of the base. Therefore make the radius a parallel line of the complement of the given perpendicular, e.g. 47, then the parallel line of the complement of the hypotenuse, e.g. 47, measured on the scale of lines, will be found 25. 1", the complement of the base required; consequently the base itself will be 40. 35'.

Sector, in Geometry. &c. particular use of the. 1. To make a regular polygon, whole area shall be of any given magnitude. Let the figure required be a pentagon, whose superficial area is 125 feet; extract the square root of 5 of 125, it will be found 5. Make a square, whose side is 5 feet; and, by the line of polygons, as already directed, make the isosceles triangle C G D (Plate XII. Geometry, fig. 8.) so as C G being the semi-diameter of a circle, C D may be the side of a regular pentagon inscribed in it; then let fall the perpendicular G E. Then continuing the lines E G and E C, make E F equal to the side of the square before made; and from the point F, draw the right line F H parallel to G C; then a mean proportional between G E and E F will be equal to half the side of the polygon sought, which, doubled, will give the whole side. The side of the pentagon thus had, the pentagon itself may be described, as above directed.

2. A circle being given, to find a square equal to it. Divide the diameter into fourteen equal parts, by the scale of lines, as above directed; then will 12 of those parts, found by the same line, be the side of the square sought.

3. A square being given, to find the diameter of a circle equal to it. Divide the side of the square into eleven equal parts, by means of the scale of lines; and continue that side to 12.4 parts; this will be the diameter of the circle required.

4. To find the side of a square equal to an ellipsis, whose transverse and conjugate diameters are given. Find a mean proportional between the transverse and conjugate diameters; which being divided into fourteen equal parts, 12, of it will be the side of the square required.

5. To describe an ellipsis in any given ratio of its diameters, the area of which shall be equal to a given square. Suppose the proportion of the transverse and conjugate diameters be required, as 2 to 1; divide the side of the given square into eleven equal parts; then, as 2 is to 1, to is 11 x 12 = 14 to a fourth number; the square root of which is the conjugate diameter sought. Then, as 1 is to 2, is 2 the conjugate diameter to the transverse. Now.

6. To describe an ellipsis, by having the transverse and conjugate diameters given. Let the two diameters A B, C D,
CD, bisect each other at right angles in E (Plate XIII. Geometry, fig. 9.) Make AE a tranverse diameter to 90 and 90 on the lines; and take the tranverse distances of 10°, 20°, 30°, 40°, 50°, 60°, 70°, 80°, successively, and apply those distances to A E from E towards A, as at the points 1, 2, 3, 4, 5, 6, 7, 8; and through these points draw lines parallel to EC; make EC a tranverse distance to 90 and 90 on the lines; take the tranverse distances of 80°, 70°, 60°, 50°, 40°, 30°, 20°, 10°, successively, and apply those distances to the parallel lines from 1 to 2, 2 to 3, 3 to 4, 4 to 5, 5 to 6, 6 to 7, 7 to 8, and so many points will be obtained, through which the curve of the ellipse is to pass. The same work being done in all the four quadrants, the elliptical curve may be completed. In the construction of solar eclipses, instead of using the lines to every ten degrees, the lines belonging to the degrees and minutes corresponding to the hours and quarter hours, are to be used.

7. To describe a parabola whose parameter shall be equal to a given line. Draw a line to represent the axis, in which make AB (fig. 10.) equal to half the given parameter; divide AB, like a line into ten degrees, as at the points 10, 20, 30, 40, 50, &c. and through these points draw lines at right angles to the axis A B. Make the lines A a, 10 b, 20 c, 30 d, 40 e, &c. respectively equal to the chords of 90°, 80°, 70°, 60°, 50°, &c. to the radius A B, and the points a, b, c, d, e, &c. will be in the curve of a parabola; and a smooth curve line drawn through those points, and the vertex B, will represent the parabolic curve required.

N. B. As the chords on the secter run no farther than 60, those of 70, 80, and 90, may be found by taking the tranverse distance of the lines of 35°, 45°, 55°, to the radius A B, and applying those distances twice along the lines 20, 10 b, &c.

8. To describe an hyperbola, the vertex A, and asymptotes BH, BI, being given (fig. 11.) The asymptotes BH, BI, being drawn, the line BA bisection the angle I BH, and the vertex A taken, draw A I, A C, parallel to BH, BI. Make AC a tranverse distance to 45 and 45, on the upper tangents, and apply to the asymptotes from B so many of the upper tangents taken successively as may be thought convenient, as B D 50°, B E 55°, B F 60°, B G 65°, B H 70°, &c. and draw D d, E e, &c. parallel to AC. Make AC a tranverse distance to 45 and 45, on the lower tangents; take the tranverse distances of the cotangents before used, and lay them on those parallel lines; thus, make D d = 40°; E e = 35°, F f = 30°, G g = 25°, H b = 20°, &c. and through the points A, d, e, f, g, b, &c. draw a curve line, which will be the hyperbola required.

Sector. In Surveying, Use of the. The bearings of three places, as A, B, C (Plate VII. Surveying, fig. 1.) to each other, i.e. the angles ABC, BCA, and CBA, being given; and the distance of each, from a fourth standing among them, as D, i.e. B D, B C, and A B, being given; to find the distances of the several places A, B, C, from each other, i.e. to find the lengths of the sides A B, B C, A C. Having drawn the triangle EFG similar to ABC, divide the side E G in H, so that E H may be to H G, as A D to D C, after the manner already directed; and after the like manner must E F be divided in I, so that E I may be to I F as A D to D C. Then continuing the sides E G, E F, E F, as E H - H G is to H G, so is E H + H G to G K; and as E I - I F is to I F, so let E I + I F be to F M; which proportions are easily wrought by the scales of lines on the secter. This done, bisection H K and I M in the points L, N; and about the said points as centres, with the distances L H and L N, describe two circles, intersecting each other in the point O; to which, from the angles E, F, G, draw the right lines E O, F O, and O G, which will have the same proportion to each other, as the lines A D, B D, D C. Now, if the lines E O, F O, and O G, be equal to the given lines A D, B D, D C, the distances E F, F G, and E G, will be the distances of the places required. But if E O, F O, O G, be less than A D, B D, D C, continue them till P O, O R, and O Q, be equal to them; then the points P, Q, R, being joined, the distances P R, Q R, and P Q, will be the distances of the places sought. Lastly, if the lines E O, F O, O G, be greater than A D, B D, D C, cut off from them lines equal to A D, B D, D C, and join the points of section by three right lines; the lengths of the said three right lines will be the distances of the three places sought.

Note, if E H be equal to H G, or E I to I F, the centres L and N will be infinitely distant from H and I; that is, in the points H and I there must be perpendiculars raised to the sides E F, E G, instead of circles, till they intersect each other; but if E H be less than H G, the centre L will fall on the other side of the base continued; and the same is to be understood of E I, I F.

The sector is of especial use for facilitating the projection of the sphere, both orthographic and stereographic.

See on the construction and use of the secter, Bion's Construction, and Mathematical Instruments, by Stone, p. 54, &c. edit. 1. and Robertson's Treatise of Mathematical Instruments, &c. p. 50, &c. edit. 2.

Sector of a sphere, is composed of a segment less than a hemisphere, and of a cone having the same base with the segment, and its vertex in the centre of the sphere. The secter of a sphere, generated by the revolution of the secter of a circle C A E (Plate III. Geometry, fig. 12.) about the radius A C, is equal to a cone, whose base is equal to the portion of the spherical surface generated by the arc A E, or to the circle described with the radius A E, and whose height is equal to CA the radius of the sphere. Arch. de Spher. et Cyl. Maclaurin's Fluxions, Intro. p. 15. See Sphere.

SECUL, in Geography, a town of European Turkey, in the province of Moldavia; 5 miles S.W. of Niemecz.

SECULAR, something that is temporal; in which fene the word faneus opposed to ecclefojical.

Thus we fay, fecular power, fecular arm, fecular jurifdiction, &c.

Secular is more peculiarly used for a person who lives at liberty in the world; not shut up in a monastery, nor bound by vows, nor subjected to the particular rules of any religious community.

In which fene the word faneus opposed to regular.

The Romish clergy is divided into regular and fecular.

The regulars pretend, that their fte is much more perfect not than that of the feculars. Secular priests may hold abbeyes and priories both fimple and conventual, though not regularly, but only in commendam.

It is a maxim in their canon lairl, feneularia feneularius, i.e. feneular benefices are only to be given to fecular perfons; regular only to regular.

Secular Corporation. See Corporation.

Secular Games, Ludi Seculares, in Antiquity, were four games held among the Romans, once in an age; or, in a period deemed the extent of the longest life of man, called by the Greeks, and by the Latins, sexaevum.

The fecular games were also called Terentius games, ludi Terentini, either because Manius Valerius Terentius gave occasion to their institution; for having been warned in a dream,
dream, to dig in the ground in a place near the Campus Martius, called Termeum, he there found an inscription referring to Dido, to Plato and Proserpine: upon which, as he had heard him in his dreams, three of his children, born blind, obtained their sight; and he, in gratitude, performed another rite, the same day. In the Tyber, three days and three nights, a fish only. Or, heaps, he found here was an altar of Pluto; and deep under ground, the bottom of the Tyber, three times, he entered into the depth of this place.

The first games held three days, and as many nights; during which a time sacrifices were performed, the oil, the cubs, the birds, and other fruits and flowers; and all those games were executed, withebus, sports, etc. in the Circus.

Their origin and institution are delivered at length by Val. Max. 13; the occasion of which, according to this writer, was to flogh the prospects of a plague. The first who had them celebrated at Rome, was Valerius Publicola, the first consul created after the expulsion of the kings; in the year of Rome 245. The ceremonies to be observed in them were found prescribed in one of the books of the Sibyls; in which was contained a prophecy to this effect, viz.: that the Romans at the beginning of every age should hold solemn games in the Campus Martius to the honour of Pluto, Proserpine, Juno, Apollo, Diana, Ceres, and the Parcae; their city should ever flourish, and all nations be subjected to their dominion. Accordingly, they were very ready to obey the oracle, and in all the ceremonies used on this occasion conformed to its directions.

At the time of the celebration of the secular games, heralds were sent to invite all the world to a solemnity which nobody had ever yet seen, nor was ever to be seen again.

They were introduced with extraordinary preparation, under the direction of the quindecemviri; who distributed to the people flambeaux and sulphur, and wheat and other grains; for an offering. On the first day after they had offered sacrifices to the above named deities at the Capitol, they returned to the Campus Martius, where they had assembled, and held sports to the honour of Apollo and Diana. On the second day, at the hour appointed by the oracle, the noble matrons went to the Capitol to sing hymns to Jupiter; and on the third day of the feast, twenty-seven boys, and as many girls, sung in the temple of Palatine Apollo hymns and versets in Greek and Latin, to recommend the city to the protection of those deities, whom they particularly honoured by their sacrificies.

Authors are not agreed as to the number of years in which these games returned; partly because the quality of age or feculum, among the ancients, is not known; and partly on other accounts; some will have it, that they were held once every hundred years; and that the feculum, or age, was our century. This Varro and Livy seem to express in very plain terms; yet others will have it, that feculum comprehended a hundred and ten years; and that the secular games only returned in that period; that is, at the beginning of every 11th year; which opinion is countenanced by Horace, in his Secular Poem, ver. 21.

Be this as it will, it is certain they sometimes did not stay for the 11th, nor even for the 100th year, for the celebration of these games. The first were held A. U. C. 245, or 298; the second, A. 505, or 408; the third, A. 518; the fourth, either A. 605, or 608, or 618. Augustus held them in the year of Rome 735, and Claudius again in the year of Rome 800, and of Christ 38, viz. sixty-four years after the former; and Domitian, again, in still less time; viz. in the year of Rome 841, or of Christ 79, at which Tacitus alludes in quality of quindecimvir, as he himself tells us, Annal. lib. xi. cap. 11. and this was the seventh time that Rome had seen them from the first institution. The

ch., 38. 8. 102.

emperor Sev. el extended them the eighth time, that is, the hundred and seventh year after the death of Domitian. The day it was the last, but in a year, in the year of Rome 822, that is, fifty years after the death of the emperor Philip, the first celebration was greater than ever had been known. These that were celebrated by permission of the emperor Hadrian, after he had received the gift of the victory of Sertorius from Augustus, were held under his authority. Zosimus states the number of the victory of the fift games among the Romans. We find them represented by many deities.

Secular Poem. S. SEV. CARP. EORAM.

Secular Year, the same with Secular.

Secularis, Carpen, Secularis, a poem long, or reformed, at the funeral games.

Of this kind we have a very free piece among the works of Horace; it is a satirical ode, which éludes care at the end of his epistles. In some editions, the two last lines of the first book is also called "Carmen Secularis." Secularis, the act of secularizing, or of converting a regular person, place, or ceremony, into a secular one. Almost all the cathedral churches were anciently regular, i.e. the canons were to be religious, but they have been since secularized.

For the secularization of a regular church there is required the authority of the pope, that of the prince, the bishop of the place, the patron, and even the consent of the people. And in France all this must be confirmed by parliament.

Religious that want to be released from their vows, obtain briefs of secularization from the pope.

Secul., in Antiquity. See Age and Secular Games.

Secunda Aqua, among Chemists, &c. See Aqua Secunda.

Secunda super operationis pastura. See Surcharges.

Secundani, in Ancient Geography, a people of Gaul, who inhabited the town of Arauio, situated in the interior of the country.

Secundans, in Mathematici, an infinite series of numbers, beginning from nothing, and proceeding as the squares of numbers in arithmetical progression, 25 0, 1, 4, 9, 16, 25, 36, 49, 64, &c.

Secundaria in Geography, a town of Hindoostan, in the subah of Delhi; 25 miles S.E. of Delhi. N. lat. 28°32'. E. long. 78°17'.

Secundary, or Secondary. See Secondary.

Secunderpoure, in Geography, a town of Hindoostan, in Benares, on the Ganges; 35 miles N.E. of Gazypour.—Also, a town of Hindoostan, in the circuit of Jeynagar; 15 miles S.E. of Parsafoo.

Secundi Generis, in Anatomy, a distinction among the lactic vessels. There are two kinds of lactic; one primary, or those of the first kind, primum generis; and se- fundi generis, secondary, or of the second kind.

The first carry the chyle from the intestines into the glands, dispersed in great numbers throughout the mesentery. The second carry it from these glands, after its being diluted there with lympha, into the common receptacle. See Lacteals.

Secundi internodi pollicit esterior. See Extensor.

Secundans, in Ecclesiastical History, a sect of Val- estrians in the second century, whose chief, Secundus, one of the principal followers of Valentine, maintained the doctrine of two eternal principles, viz. light and darkness, from
whence arose the good and the evil that are observable in the universe.

SECUNDINES, in Anatomy and Midwifery, the placenta, umbilical cord, and membranes including the fetus, which, being expelled from the uterus after the fetus, constitute the after-birth. They are described under the article Embryo.

Dr. Grew, in his Anatomy of Plants, applies the term fecondine to the fourth and last coat or cover of seeds; because this performs nearly the same office in plants, that the membranes, investing the fruit, do in animals. And indeed Pliny, Columella, Apuleius, &c. have used fecondine in the same sense.

SECUNDO. Proposito de Secundo adjacente. See Proposition.

SECUNDRA, in Geography, a town of Hindooistan, in the circum of Sirkhand; 90 miles E. of Sirkhand.—Alto, a town of Hindooistan, in Doob; 15 miles W. of Canoge.

SECUNDUS, Johannes, in Biography, is the literary name of John Everard, a celebrated Latin poet, the son of Nicholas Everard, an eminent jurist, and prebend of the council of Mecklin under Charles V. He was born at the Hague in 1511, and at an early age fled the law at Bourges. He, however, shewed a decided attachment to polite literature in preference to jurisprudence, and contracted intimacies with some of the most distinguished Latin poets of his time. He travelled into Italy and Spain, and was made secretary to cardinal Tavera, archbishop of Toledo. He followed Charles V. in his expedition against Tunis, but the delicacy of his constitution not permitting him to undergo the fatigues of war, he returned to the Low Countries, where he died at the early age of twenty-five. Few modern Latin poets have possessed more facility and sweetness than Secundus. A volume of his elegies, epigrams, odes, and miscellaneous pieces, together with a narrative in prose of his different journeys, was published. Of all his poetical works, the “Biaia” have been the most popular, on account of their diction, and the delicate volupitousness of their painting. They are still read, and new editions are frequently printed. Johannes had two brothers, who were also eminent Latin poets, known by the names of Nicolas Gradius, and Adrian Marius. They have united in an affectionate commemoration of their deceased brother, annexed to his poems. Secundus himself practised the art of engraving, and to his volume is prefixed a portrait of a female, with the following inscription: “Vatis amatoris Julia sculpta manus.”

Secundus, in Botany, a term not very easy, in the technical sense of Linneaus, to translate. One ranked may generally express its meaning. This term is applied to a racemosus, or cluster, whose flowers are all turned to one side, as in Pyrola secunda. Engl. Bot. t. 517.

Secundus Mulle, in Anatomy, a name given by Duverney, and some others, to one of the muscles of the ear. It is the internus auris of Cowper and others, and is most properly named by Albinus tenor tympani.

Secundus Occlum Movens, a name given by Velalius to that muscle of the eye, called by Riolanus and others superculus, and elevator oculi, and by Albinus the subducitor, one of his four muscles recti of the eye.

Secundus Poronexus. See Poronexus.

Secundus Scalenus. See Scalenus.


Gen. Ch. Cal. Perianth inferior, small, deciduous, of three, ovate, colored leaves, the uppermost of which is opposite to the standard, the others accompany the keel. Cor. papilionaceous, of five petals: wings much spreading, very obvtule; standard of two leaves, oblong, straight, united to the keel at the base, reflexed at the tip; keel as long as the wings, nearly cylindrical, its border dilated, bearing a little, obvtule, plaited appendage. Stam. Filaments eight, combined at the bottom; anthers oblong, erect. Pifl. German superior, ovate, terminating in an awl-shaped fylle; stigma flat, dilated, toothed at the tip. Peric. Legume ovate, of one cell, ending in a ligulate wing. Seed solitary, oblong.

Obf. In habit this genus is very nearly allied to Polygala, but it is polypetalous, and the fruit has only a single cell, resembling the capsules of Banifleri.

Ed. Ch. Calyx of three leaves. Corolla papillonaceous: the standard of two leaves within the wings. Legume ovate, of one cell and one seed, ending in a tongue-shaped wing.


2. S. volubilis. Climbing Securidaca. Wilth. n. 2—(S. scandens; Jacq. Amer. t. 183. f. 83—Spartium scandens, fructu crisitato et alato, flore rubro; Plum. Ic. t. 247. f. 1.)—Stem twining. Leaves oblong, acute.—Native of South America, and the West Indies. Found in Jamaica by Browne, and at Carthagena by Jacquin.—A twining fbrus, whose younger, leafy branches are changed into very strong tendrils. Leaves alternate, oblong, pointed, scarcely flalked. Flowers in loaves, lateral clusters, red, ficientes.

3. S. virgata. Wand-like Securidaca. Wilth. n. 3—Swartz Prod. 104.—(Spartium alterum scandens, fructu alato, flore variegato; Plum. Ic. t. 144. f. 1.)—Stem twining. Leaves roundish, very obtule.—Native of Jamaica and Hifpaniola. Swartz is of opinion, that Browne’s first species in his Hiory of Jamaica, must be this, and not S. ericeta, as Linneaus supposed. We know of no further description of this species than what is quoted above.

For Securidaca of Tournefort, Miller, and Gartner, see Cornusilla.

Securinega, so denominated by Commerson, from securis, a hatchet, and nega, to deny, or refuse to yield; in allusion to the extreme hardiness of the wood, called Bois dur by the French, in the Ille de Bourbon. Some also call it, according to Commerson’s manuscripts, Bois de Tres, and others Quin-quin. The English, who rest with this tree in Otaheite, named it, from the appearance of the leaves, Otaheite Myrtle.—Juff. 388—Wilth. Sp. Pl. v. 4. 761—Point in Lamarck Dict. v. 7. 631—Ait. Hort. Kew. v. 5. 583—Clas and order, Dioecia Pentandria; (or rather Monadelphia.) Nat. Ord. Euphorbiaceae, Juff.


Female, on a different tree, Cal. Perianth as in the male, inferior, permanent. Cor. Nectary as in the male; permanent. Pifl. German superior, nearly globular, three-sided; fylles
instance, a few spines as in the male, permanent.

Cymodoceum, Oct.* 3, three-celled.

S. C. M. A., Calix, in five deep segments. Petals

N., a peculiar ring on the outside of the

Tarsus, Calyx, and calyx as in the male, permanent.

Cymodoceum, Oct. 3, three-celled.

S. C. M. A."

SECURIS, John, in Biography, an English physician

of considerable character in his day, was born in Wiltshire,

and studied with great reputation in New college, Oxford,

in the reign of Edward VI. From thence he went to Paris,

where he diligently pursued the study of astronomy and med-

dicine, the latter under the celebrated professor Sylvius.

On his return, he settled at Salisbury, and was much referred
to on account of his skill in the practice of physic. He

published annual tracts, which he called "Prognostics!"

and which appear to have been a kind of almanacs, accom-

panied with astronomical predictions and medical precepts.

Andrew Wood had been two of them, for the years 1579

and 1580. To the latter was added, "A Compendium, or

brief instructions how to keep a moderate diet." Securis

was likewise the author of "A Detection and Queremony

of the daily Enumorities and Alphabets committed in Physic,

concerning the Three Parts thereof." Lond. 1566.

This is a little treatise, written with learning and pithiness,
on the often repeated complaint of the intrigue of irregularly

educated persons into the practice of physic, and the per-

sistence of surgeons and apothecaries in taking upon them

to act the physician. A peroration in verse, addressed to the

two universities, is subjoined. This work was thought to be

so much meritorious, that it was reprinted in 1662, and

published along with Recorde's "Judicial of Urines." The

author is not named in the title-page, but is called "A Doc-

tor of Physick in Queen Elizabeth's Days." In this tract

there is a reference to one which Securis had published about

the year 1554, with this odd title: "A great Galley lately

come into England out of Terra Nova, laden with Physi-
cians, Surgeons, and Apothecaries." See Atkin's Biography.

Memoirs of Med.

SECURITATE PACIS, in Law, a writ which lies for

one who is threatened with death or danger, against the

person who threatens him. It is taken out of chancery, di-

rected to the sheriff. See Peace and Security.

SECURITATEM, serious factum quod non divisatur ad

paetis extra finem legis regis, an ancient writ lying for the

king against any of his subjects, to stay them from going

out of this kingdom into foreign parts; the ground whereof

is, that every man is bound to serve and defend the common-

wealth, as the king shall think fit.

SECURUM, Si tine fuerit. See Si tine fuerit.

SECUTOR, VR. 2, 6, an army officer designated

for the purpose of fire, fire, and for the

SECUTORIES, in Anglia, a kind of sea, among the Romans, well described by the return

The word is taken from the verb to set, to bring; hence the levellers used to plant the return, when they

took to cast the net, or, of those on their head; and they were two miles on their head. Some considered the return

with writs, because both had nearly the same

Weapon.

Secundus was also the name given to two glorifiers as

took the place of those killed in the combat; or who

fought the conqueror. The part was usually taken by

the ancient mountaineers we also meet with secutor triumvir, se-

cutor duumvir, secutor Cesaris, sec. who were officers attending

the tribunes and generals; perhaps like our aids-de-camp.

SECEZENIAGA, in Geography, a town of European

Turkey, in Dobroua Tartary, on the Dismoe; 20 miles N.

of Kirfova.

SEDA, a town of Portugal, in Alettejo; 6 miles W.

of Altor do Chao.

SEDAB, in History, a name given by the Persian

physicians to the wild, or mountain rae, a plant common

in Syria, Greece, and other places. Avicenna supposes the

gum, which he calls gentum, or gentum, to be produced from

this plant, but very erroneously, that gum being obtained

from the roots of the thafia, or deadly carrot.

SEDAINE, Michel Jeann, in Biography, a French

dramatic writer, was born at Paris in 1719. His father, an

architect, having left his family entirely destitute, the sub-

ject of this article was obliged to work for a common mason,

to maintain his mother and two younger brothers. By his

ludicrous industry he became a master mason, but his fond-

ness for the theatre having led him to make some attempts at

dramatic composition, which were attended with a con-

siderable portion of success; he was, in 1754, engaged by

Monet, director of the comic-opera, to devote himself to the

service of the stage. His talents were so well exerted,

that he brought full audiences to that theatre, which had,

before his time, been nearly deserted, and he passed many

years in this employment, generally beloved and esteemed

by the literary characters of the time. He died in the year

1797, in the 78th year of his age. Sedaine was the author

of a great number of pieces, chiefly of the light kind, and

accompanied by music. Some of them were eminently suc-

cessful; the "Le Deferent" was represented one hundred

times. He had a perfect knowledge of stage effect: his
dialogue was easy and natural, though extremely incorrect;

hence his works were more adapted to the stage than to the

closet.

SEDAKI, in Geography, a town of Japan, in the island

of Nippon; 40 miles N.W. of Nambu.

SEDA, a town of France, and principal place of a

district, in the department of the Ardenne, situated on the

Meuse; strongly fortified, and reckoned one of the keys of

France. It is divided into the north and south parts: the

former contains 5984, and its canton 11,471 inhabitants, in

14 communes: the latter has 4563, and its canton 13,724

inhabitants, in 22 communes. Both comprehend 320 kilo-

metres. This town has a manufacture of cloth; and before

the revocation of the edict of Nantes, it had a flourishing

protestant university; 131 polls S.S.W. of Liege. N. lat.

49° 42'. E. long. 5° 1'.

SEDAN CHAIR. See Chair.
SEDANG, in Geography, a town on the N.W. coast of the island of Borneo. N. lat. 2° 15'. E. long. 116° 45'.

SEDAREE, a town of Persian Armenia; 30 miles S.E. of Erivan.

SEDASHYCUR, a town of Hindoostan, in Canara, on the coast; 6 miles N.W. of Carwar.

SEDASIER, a town of Hindoostan, in the country of Coorga, where a battle was fought in 1799, between the troops of Tippoo Sultan, and the British under general Stuart, in which the former were defeated; 7 miles from Periapatam.

SEDATIVE, in Medicine, from sedare, to still, or allay, a term which was used by the older writers, nearly in the same acceptation with anodyne; namely, to denote such medicines as were calculated to allay pain. But among the moderns it has been employed in another sense, and stands in opposition to stimulant. In the modern pathology, all the actions of the animal frame are ascribed to the agency of the nervous power; and whatever increaees or excites that power, or its actions, is thence called a Stimulant; and those agents, on the contrary, which diminish or retrain that power, or its actions, are therefore denominated sedatives. Of the former class, wine, alcohol, camphor, ether, aromatic substances, &c. may be enumerated as examples; of the latter, tobacco, digitalis, fugar of lead, opium, &c. In the school of Brunswick, however, which the word stimulant is in constant use, the existence of a direct sedative is absolutely denied; for the Brunonian hypothesis maintains, "that life is the result of the action of stimulants on the principle of excitability, and, consequently, that every thing which acts must be stimulant."

(See Excitability.) It further maintains, that a sedative action is not real, but apparent; or rather, is not direct, but indirect; that is, it is the result of the previous stimulation; and therefore, that an actual sedative is a non-entity. But this argument, like many others of the Brunonian school, is an obvious petitio principii in logic: it is founded upon two unproved propositions; first, that life is solely the result of excitement; and, secondly, that a previous excitement occurs, where it is not cognizable, as in the case of digitalis, and the superacetum of lead, and some other narcotics, which appear to influence directly the action of the heart and arteries, and to depress the whole nervous power. The use of sedatives for medicinal purposes, is principally confined to the regulation of the arterial system, as in cases of hemorrage, especially from the lungs, in defeces of the heart, &c.

SEDATIVUM SAL. See Sedative Salt.

SEDAU, in Geography. See Seyda.

SEDBERGH, a market-town in the west division of the wapentake of Staincliffe and Evercros, Well Riding and county of York, England, is situated in the parish of Sedbergh, at the distance of 27 miles N.W. by N. from Settle, and 27 miles N.W. by N. from London. This place, which, according to the late population returns, contained 344 houses and 1865 inhabitants, is chiefly indebted for its support to the manufacture of iron articles. The market is held on Wednesday, weekly; and there are fairs annually on the 20th of March, and the 29th of October. Here is a free school, but neither it nor the church is in any way remarkable. Beauties of England and Wales, vol. xvi. by John Bigland, 8vo. 1813.

SEDE, a lake of Egypt, separated from the Mediterranean by a neck of land, which extends from Aboukrik to within a mile or two of Alexandria. It communicates with the sea by a narrow opening, and wetherly the British army opened a channel to form a communication with lake Marcots; it is also called the "lake of Aboukrik."—Also, a lake of Egypt, producing natron; 55 miles N.W. of Cairo.

SEDEANA, a town of Italy, in Friuli; 10 miles W.S.W. of Udina.

SEDEF, a town of Egypt, on the left bank of the Nile; 7 miles S. of Abutigé.

SE DEFENDENDO, in Law, a plea for him who is charged with the death of another; alleging, that he was forced to do what he did in his own defence, the other so assailing him, that he had not done as he did, he must have been in danger of his own life. See SELF-defence, HOMICIDE, and MANSLAUGHTER.

SEDELLA, in Geography, a town of Spain, in the province of Grenada; 12 miles N. of Velez Malaga.

SEDEM ATTOLLENS, in Anatomy, a name given by Vefalus and others to the mucule, now more generally known by the name of levator ani.

SEDENTARIUM Os, a name given by some anatomical writers to the protuberance of the os coxendicus, on which the whole weight of the body rests in fitting.

SEDER OLAM, in Philology, a Hebrew term, literally signifying, order of the world; being the title of two chronicles in that language.

They are both very short, though the one more so than the other; for which reason the one is called feder olam roabb, that is, the great feder olam; and the other, feder olam wata, i.e. little feder olam.

SEDER OLAM, the Great, commences at the creation of the world, and comes down as low as the war of the plessed-messiah Barcochesha, under Adrian, fifty-two years after the destruction of the temple of Jerusalem; and by conquence to the hundred and twenty-second year of Christ. It is almost all taken from the Scripture, excepting the end. It is the work of R. Jofa, son of Hillepeta of Tipperior, who lived in the second century, about the year 130, and was master of the famous R. Juda Hakkadoth, the compiler of the Mishna.

SEDER OLAM, the Lesser, is an abridgment of the former, brought down as far as Mar Sutra, who lived 450 years after the destruction of the temple, or 522 years after Christ. F. Morin, continually bent upon diminishing the antiquity of the principal books of the Jews, endeavours to prove this to have been written about the year of Christ 1124, as indeed it is expressed in the beginning; but R. Dav. Gantz has overthrown this opinion in his Tienmaiah David, and shewn that the date in the beginning is an interpolation.

These two chronicles were first printed at Mantua in 1514, 4to. 5 again at Baffy, by Probenius, in 1580, 8vo. at Venice, in 1545, 4to. and at Paris, with a Latin version of Genebrard, in 17mo. They have been since reprinted at Amsterdam, in 1711.

SEDERON, in Geography, a town of France, in the department of the Drôme, and chief place of a canton, in the district of Nyons. The place contains 614, and the canton 7334 inhabitants, on a territory of 375 kilometres, in 18 communes.

SEDFE, a town of Egypt, on the left bank of the Nile; 3 miles S. of Bata.

SEDGE GRASSES, in Agriculture, a title given to various sorts of grases of the poor hard carnation kind, which are very hardy in their nature, and prevail much in most crude heavy land. They are scarcely ever touched by live- stock, being what may be called the fag end of herbage. See CAREX and WEEDS.
SEDGEFIELD, in County, a market-town in the north-east division of Stockton, was on 15 Jan.[1] late of Durham, England, is situated at the distance of 11 miles S. by E. from Durham, and 255 N. by W. from London. The position of this town is one of the finest that can be imagined, being that of the summit of a gentle hill, surrounded on all sides by a country in the highest state of cultivation. On the north and south-east is a delightful prospect of Clark's, Reckaby, Toppesfield, and a large range of pretty hills, with the borders of the river Tees, drawn to the German sea; on the south-west is a beautiful country decked with a variety of fine woods; and on the south and south-west appear the towns of Bishop Middleham and Pickburn and Thornton. The celebrated Dr. Abraham called Sedgefield the Montpelier of the north of England, and very frequently recommended his patients to it for the benefit of the air. In the centre of the town is a spacious market-place ornamented with a handsome clock. On one side of it stands the church, which consists of a nave, transept, chancel, and three aisles, with a lofty tower rising from the intersection of the nave and transept. The pillars of the interior are clustered, and support light pointed arches. Between the nave and the chancel is a rich screen of oak woodwork, having three arches on each side, divided by beautiful light columns, and covered with canopies. The whole chancel is wainscotted with oak, panelled, and ornamented with cherubs. In this church were formerly two chantries, one dedicated to St. Catherine, and the other to St. Thomas; also a guild, dedicated to St. Mary. Here are numerous monuments; and among others two curious brasses, representing skeleton figures in winding sheets.

Sedgefield became a market and fair-town in 1312, by grant from bishop Kellaway. The market-day is Friday, weekly; and the fair is held on the eve of St. Edmundo. Here is an hospital, founded by the truckers of Thomas Cooper, surrog of this place, who died in 1703; also a free grammar-school, situated near the church. According to the parliamentary returns of 1811, this town contained 247 houses, and a population of 1307 inhabitants. The History and Antiquities of the County Palatine of Durham, by William Hutchinson, F.A.S. vol. ii. 410. 1794.

SEDGEPOOK, a village of Patagonia, which runs into the Strait of Magellan. Its water is excellent, and on each side are very fine trees, which Commodore Byron says were supplied the British navy with the best masts in the world; some of them being of a great height, and more than eight feet in diameter. Among these woods are many parrots, and other birds of most beautiful plumage. Geese, ducks, and fish, and fresh provisions are abundant. The traces of wild beasts were perceived in the field, but none were seen. Many huts and wigwams were seen, but no Indian was observed. The mouth of this river is in the W. part of Port Famine.

SEDGMOOR, a large tract of English land, in the county of Somerset, memorable for the defeat of the Duke of Monmouth in the year 1685; situated between Somerset and Bridgewater.

SEDGWARA, a town of Hindeoostan, in Guzerat; 20 miles E. of Surat.

SEDGWICK, a town of America, in the state of Maine and county of Hancock; on Naugatuck Point, which bounds Persiffor on the N.E., extending to the town of Penobscot, and distant 155 miles E. from Boston. It contains 1735 inhabitants.

SEDHOU, a town of Hindeoostan, in the circuit of Cuddapa; 6 miles N.E. of Cuddapa.

SEDILIO, a town of the land of Song, 36 N.E. of Oranges.

SEDIMUMENT, learned from the Latin, signifies, which Matthew Sylvanus derives a state or furnishing, or dress of any thing; or that part, way, or field body was, up a winding, leads to the L of the world.

Some physicians live hard, and few to deliver, in the nature of the disease, from the hand of man. Dr. Woodward testifies, that, at the decline, the whole terrestrial globe was divided into two departments, that the new world, among others, was: chiefly explored, and without any inequalities, consisting of several states, which the earthy element gradually produced, as it drained.

SEDINA, in the Maturi Medici, a word highly used by the writers to express dragon's blood.

SEDINI, in Geography, a town of the island of Sar- dina; 10 miles S.E. of Cotel Ansepolis.

SEDATION, among Graecians, is used for an irregular commotion of the people, or an assembly of a number of citizens without lawful authority, tending to disturb the peace and order of society. See Revolition.

This offence is of different kinds: some seditions are immediately threatening the supreme power, and the subversion of the present constitution of the state; others tending only towards the redress of private grievances. Among the Romans, therefore, it was generally punished, according to its end and tendency threatened greater mischief. (See lib. i. Cod. de Seditionib, and Matth. de Crum's lib. ii. n. 5. de Lacta Majellate.) In the punishment, the authors and ringleaders were justly distinguished from those, who, with less wicked intention, joined and made part of the multitude.

The same distinction holds in the law of England, and in that of Scotland. Some kinds of sedition in England amount to high treason, and come within the stat. 25 Edward III. as levying war against the king. And several seditions are mentioned in the Scottish acts of parliament as treasonable. (Baye's Crim. Law of Scotland, p. 33, 34.) The law of Scotland makes riotous and tumultuous assemblies a species of sedition. But the law there, as well as in England, is now very much regulated by the riot act made 1 Geo. I., only it is to be observed that the proper officers in Scotland to make the proclamation thereby enacted, are sheriffs, lieutenants, and bailies of royalities, or their deputies; magistrates of royal boroughs, and all other inferior judges and magistrates; high and petty constables, or other officers of the peace, in any county, city, or town. And in that part of the island the punishment of the offence is death, and confiscation of moveables: in England it is felony. See Riot.

SEDELEY, Sir Charles, in Biography, a dramatic writer, born in 1639, was son of Sir John Sedley of Ayleford, in Kent. He was educated at Wadham college, Oxford, and after leaving the university, he passed his time in retirement till the restoration. On that event he came to court, and was one of the licentious circle round Charles II. His first efforts in writing were some amatory poems, chiefly distinguished by their voluptuous cast. At this period of his life he was guilty of some public indecency, on account of which he was fined 500£. Sir Charles's fortune being impaired by this course of life, he got into the house of commons, and he sat in three parliaments during that reign, in which he was frequently speaker. In the following reign he took a patriotic part, which would have been highly to his credit, if private pique
had not been the principal motive of his conduct. It appears, notwithstanding the laxity of his own morals, that he was much offended with James II. for taking his daughter for a mistress, in which quality she was raised to the title of countess of Dorchester, an elevation that, as her husband indignantly said, only rendered her infamous the more conspicuous. Sir Charles joined the earl of Dorset in a steady opposition to the design of keeping up a standing army after Monmouth's rebellion, and he concurred in all the measures which produced the revolution. For the latter he gave the honourable reason, that as the king had made his daughter a countess, he would in return do all in his power to make his majesty's daughter a queen.

Sedley long continued to be regarded as a fine gentleman, a lively companion, and a judge and patron of poetry, in which last capacity he was instrumental in bringing Charles Montague, afterwards earl of Halifax, into notice. He is supposed to have lived to beyond his eightieth year. His works, in two vols. 8vo., consist of poems, speeches in parliament, and a number of dramatic pieces, none of which are retained on the stage. Biog. Brit.

SEDLEZANY, in Geography. See SELTSCHAN.

SEDLITZ, or GREAT SEDLITZ, a town of Saxony, in the margrave of Meissen; 2 miles S.W. of Pina.— Alto, a village of Bohemia, in the circle of Sazt, where Hoffmann, in the year 1724, discovered a medicinal spring, from which is prepared a purgative salt, near Moft.

SEMDA, a word used by some as a name for the lapus hamaticus.

SEDNEVO, in Geography, a town of Russia, in the government of Tchernigov; 24 miles N.E. of Tchernigov.

SEDORP, a town of the duchy of Holstein; 8 miles N.E. of Segerborg.

SEDSÁ, a town of the island of Corfica; 12 miles N.W. of Corte.

SEDOSCHEROI, in Ancient Geography, a people of Pontus, in the vicinity of the river Cohibus, according to Tacitus.

SEDr, or SEDRE, the high priest of the sect of Ali, among the Persians.

The fdr is appointed by the emperor of Persia, who usually confers the dignity on his nearest relation.

The jurisdiction of the fdr extends over all effects defined for pious purposes, over all mosques, hospitals, colleges, felpuches, and monasteries. He dispenses of all ecclesiastical employments, and nominates all the superiors of religious houses. His decisions, in matters of religion, are received as so many infallible oracles; he judges of all criminal matters, in his own house, without appeal; and is, without contradiction, the second person in the empire.

The fdr, however, has not any indelible character, but frequently quits his post for another purely secular one. His authority is balanced by that of the mudschich, or first theologe of the empire.

SEDRE PASSAGE, in Geography, a narrow channel of the East Indian sea, on the N. coast of Sumatra, between Pulo Nancy and King's Point.

SEDIULUS, CATHÓLICUS, or ZEOLIUS, in Biography, a priest and poet, who flourished about the year 250. He is known only by his writings, of which the principal is a Latin poem in heroic verse, entitled "Paehala Carmen," in five books, the first of which relates to the histories recorded in the Old Testament, and the last four to the life and miracles of Christ. This work is chiefly esteemed for its subject, though the style is flowing, and, for the age in which it was written, is tolerably pure. It has been printed several times, and is contained in Mattaire's "Corpus Poetarum." An edition of it was printed in 1704. A prose work of the same writer is extant, entitled "Paehala Opus."


Ell. Ch. Calyx five-cleft. Petals five, with five nectariferous scales at the base of the germen. Capsules five, superior.

The herbage of this genus is succulent, and mostly, though not invariably, smooth. The flowers are either of a yellow, white, or reddish colour.—Willdenow enumerates twenty-nine species, which are divided, after Linnaeus, into two sections, Planifolia and Tereifolia; the former including such as have flat leaves, the latter such as have round, or cylindrical ones. To these however we have several to add, some of which are Brit. As a collection from the whole genus, the following are the most remarkable.

Seet. 1. Planifolia.—Leaves flatish.

S. Telephium. Orpine or Live-long. Linn. Sp. Pl. 616. Engl. Bot. t. 1319. Curt. Lond. fisc. 3. t. 25.—Leaves flatish, serrated. Corymb leafy. Stem erect. Found in dry fields, about hedges, and on bulbous hills in Britain and most parts of Europe, on a gravelly or calcareous soil, flowering in August.—Root perennial, tuberous, fleshy, white. Stems two feet high, erect, simple, leafy, round, smooth, purplish. Leaves scattered, fleshy, ovate, fleshy, flat, toothed in a serrate manner, rather glaucous, smooth. Flowers purple, occasionally white, forming terminal, many-flowered, crowded, leafey tufts. This species is found to vary in the colour of its flowers and the serrature of its leaves, as well as in the size of all its parts.

S. Anacamperos. Evergreen Orpine. Linn. Sp. Pl. 616. Curt. Mag. t. 118. (Anacamperos minor, rotundire folio, sempervirens; Tournef. 264.)—Leaves wedge-shaped, attenuated at the base, nearly fleshy. Stems succulent. Flowers corymbose.—Native of the south of France, mostly in the crevices of rocks. It flowers in July and August.—Root perennial, fibrous. Stems redish, trailing at their base, more upright and glaucous towards the top. Leaves numerous, alternate, or scattered, ovate, fleshy, dotted at the tip of a blue-fish-green colour. Flowers deep lilac or purple, rarely white, in compact, leafy, terminal tufts.

SEDUM.

Auga. — 
Stems tuberculate, erect, a little wavy, spreading, about a foot in height, frequently of a bright red color. **Leaves alternate,驿站, on length stalks, slightly leathery, turning of a brownish-red colour, fleshy.**

In habit and appearance this plant greatly resembles Sarcocaulon rotundifolium.

S. rotundifolium. Starry Stonecrop. Linn. Sp. Pl. 617. "Fl. Græc. t. 434." Leaves flat, angulated. Flowers lateral, solitary, little — Native of France, Italy, and the mountains of Greece, flowering in June and July. **Root annual, with spreading fibrous. Stem upright, thick, waxy, pink coloured at the base, brownish at the top. Leaves scattered, wedge-shaped, angulated with about seven teeth, very fleshy, with yellow dots, finely fringed. Flowers solitary, terminal, of a delicate white colour; each petal marked longitudinally with a pink line.**


S. tetraphyllum. Four-leaved Stonecrop. Sm. Prod. & Fl. Græc. Sibth. n. 1048. "Fl. Græc. t. 448." — Leaves in fours, spatulate, entire, obtuse. Found by Dr. Shibthorpe in Peloponnesus, and also in Sicily. **Root annual, fibrous, white. Stem upright, hairy, branched at the base; the branches rather decumbent. Leaves four together, numerous, fleshy, club-shaped, fibrous, fringed with hairs. Flowers in long, terminal, leafy spikes, white, tipped with a pink rib. The whole plant is of a yellowish-brown hue, dotted with red, and thickly beft with hairs.**


S. angustus. English Stonecrop. Sm. Fl. Brit. t. 171. Engl. Bot. t. 171. — Leaves thick, ovate, gibbous, and loose at the base. **Cyme of two branches. Native of Great Britain, but not a common plant. It has been gathered near Dumbarton castle, on the fanny downs near Yarmouth, and other maritime and mountainous localities, flowering in July.**

S. aequal. Flowering in July. — Roots and stems. **Leaves** crowded at the base, flat, leathery, red. **Roots** frequently occur, rising, very thick, fleshy, ovate, slightly green, with a few tubercles at their base. **Stems** red, thickly covered, afterwards in red; red, petal white, with a red rib, and generally dotted with red at the tips. Capillary membranous, two-ribbed.**

S. aequal. Bitsy Stonecrop. Wall. Wood. Sp. Pl. 619. Engl. Bot. t. 857. Curt. Lond. Isæ. 1. t. 8. — Wood. Sp. Suppl. 5. 231. — Leaves entire, short, thick, fleshy, gibbous, fixed to the stem by their root in the base. **Cyme three-ribbed, leafy.** — The flowers are compact in an hour or two in some time afterwards, with red, and dry, red, or a fancy ground, which it sheds as it rises with a clasp of gold, in distance of course and most for charming air.**

S. pentim. Pentim. — Leaves tufted, branched, decumbent, smooth, round, leafy. Leaves alternate, fleshy, erect, spreading, gland, green, scarlet, pretentious at the back. Flowers erect, golden-coloured, its terminal, three-ribbed, leafy. — The whole herb is annual, leaf and bunching to the tailer, whence its common name.

S. pentim. Bitsy Stonecrop. Wall. Wood. Sp. Pl. 620. Engl. Bot. t. 1926. Curt. Lond. Isæ. 4. t. 53. — Leaves in five or seven rows, few, flat, ovate, red, fleshy, spreading, fixed to the stem by its root in the base, the base. **Cyme three-ribbed, leafy.** — Occasioned to be met with in dry, leafy places, about wells, flowering in June and July. In hills this is general, so it resembles the last species, but it is generally red rather. The leaves are more cylindrical, not ovate, about three together in alternate whorls,1 distant in the whole leafy stem or branch five or seven or eleven rows. **Cyme terminal, of two larger branches, and a small one. Flowers pellucid yellow.** The foliage frequently turns red. The whole herb, though unpleasantly bitter, is of the most elegant pungency of flavour.

S. hians. Mountain Stonecrop. Willd. n. 16. Wiggers Hol. t. 35. "Fl. Græc. t. 450." Fl. Dan. t. 59. — Leaves scattered, convex on one side, flat on the other, obtuse, loose at the base. **Stem branched, decumbent.** — Native of rocky mountains in Norway and Switzerland, also in Greece, flowering about June. **Root annual. Stems** woody, five inches high, branched, diffuse. **Leaves** distinctly alternate, fleshy, bright green, the lower ones sometimes turning red. **Flowers** fleshy, solitary, hanging on one side of the branches, yellow.

S. villifolium. Hairy Stonecrop. Linn. Sp. Pl. 620. Engl Bot. t. 354. Fl. Dan. t. 24. — Stem erect. **Leaves** flatish, slightly hairy, as well as the flower stalks. **Native of mountains and damp pastures, and the most fibres of rocks, flowering in July.** — **Root perennial, fibrous, stem erect, leafy, downy towards the upper part, branched at the base. Leaves alternate, linear, fleshy, often pink-coloured, rough at the back with vied hairs. Flowers cyme or paniculated, on vied stalks; their petals white or rose-coloured, with a red rib. Capillary pointed, red, purplish.**


S. aequal. Petal white, with a red rib. Capillary membranous, two-ribbed.**
SEDUM.

a span high, round, leafy, branched, smooth, decumbent at the base. Leaves scattered, spreading horizontally, rather glaucous, fleshy, and extremely juicy. Panicle terminal, rather cymose, many-flowered, smooth. Flowers white or reddish.

S. achroleucum. Pale Stone-crop. Sm. Prod. Pl. Græc. Sibth. ii. 1825. Sm. in Trans. of Linn. Soc. v. 10. 6. (Sempervivenia fediformis; Jacq. Hort. Vind. t. 81.)—Leaves glaucous, scattered, acute; the lower ones round; upper elliptical, deprested. Segments of the calyx rather acute. Found on walls, rocks, and banks, as well as about shady culverts, in the south of Europe. It flowers in July. An interesting account of this species is given by Sir J. E. Smith, in the volume of the Linnean Transactions above quoted, where it is shown to be the Anargon to which Diocleides, who describes it thus: "Several slender stems spring from one root, thickly encompaßed with little, round, succulent, sharp-pointed leaves. It throws out, moreover, a stem towards the middle, about a span high, with an umbel of slender (greenish or) pale yellowish flowers?"

This plant, when potted, is used at Athens as a cooling cataplasm to bruises or gouty limbs.


S. glaucum. Glaucous Stone-crop. Engl. Bot. t. 2477. (S. reflexum β; Sm. Pl. Brit. 490. S. minus hematoides; Ger. Em. 512.)—Leaves glaucous, awl-shaped, scattered, loosened at the base; those of the branches thread-shaped. Flowers in a cyme. Segments of the calyx lanceolate. —Native of this country, flowering in July and August. It differs from the last (of which it has till lately been considered but as a variety) in its more glaucous hue, and more slender leaves, especially those of the branches.


S. Forsterianum. Forsterian Stone-crop. Engl. Bot. t. 1852.—Leaves thick, awl-shaped, clustered together in many rows, spreading, loose at the base. Flowers in a cyme. Segments of the calyx short and rounded. Gathered by E. Forster, jun. eqv. near the Devil's bridge, Cardiganshire, in 1856. It flowers in July. This species has hitherto been confounded with rugosum, from which however (fays the author of English Botany) it differs in having the leaves of the barren branches spreading in a rostrate form, not clove-pressed or erect, and especially in the want of a glaucous hue in the leaves, stem, and calyx. The petas also are more elliptical and blunt.

SEDUM, in Gardening, contains plants of the hardy herbaceous succulent kind, of which the species cultivated are; the orpine Stone-crop (S. telephium); the evergreen Stone-crop (S. anacampseros); the yellow Stone-crop (S. aizo on); the poplar-leaved Stone-crop (S. populifolium); the hairy Stone-crop (S. flaccidum); the purplish-leaved Stone-crop (S. cepa); the thick-leaved Stone-crop (S. dasyphyllum); the rock Stone-crop (S. rupestris); the Spanish Stone-crop (S. hispanicum); the white Stone-crop (S. album); the biting Stone-crop, or wall pepper (S. acre); the infundibular Stone-crop (S. fexangulare); the English or mild white Stone-crop (S. anglicum); and the annual Stone-crop (S. annuum).

In the first fort there are several varieties, as with purple flowers, with white flowers, with broad leaves, and the greater orpine.

In the sixth fort there is a variety which has the fln more erect, and the lower leaves in threes or fours, the next opposite, and the uppermost alternate.

The seventh fort, when introduced into a garden, propagates itself freely upon walls, in wall places, and about garden pots; and no plant is better adapted to the purpose of decorating rock-work, as it grows without any trouble, in any aspect, multiplying very much by young shoots, and always looks beautiful.

The ninth, as well as the preceding fort, are cultivated in Holland and Germany to mix with lettuces in fallads.

The eleventh fort is eaten by fome as a pickle.

Method of Culture.—These plants are all raised without much difficulty, by proper care and attention to have the soil dry, and of the poor sandy kind.

Culture in the Orpine Sorts.—These may all be readily increased by planting cuttings, during the summer months, in light mould in a shady situation, or in pots placed in similar situations. The plants in the open ground, as well as those in pots, should be kept clean from weeds, and be watered frequently when the weather is dry. They may likewise be raised by pitting the roots, and planting them in a similar manner in the spring or autumn. When the plants are once well established, they spread rapidly, and require little or no care.

These plants are sometimes cultivated for medicinal use.

Culture in the Stone-crop Kind.—These are raised without much trouble, by planting out their trailing flanks in the spring or summer feason, which readily take root. They thrive most perfectly on old walls, buildings, or rock-works. Where cuttings or roots of the perennial kinds are planted in some soft mud, placed upon such situations, they quickly take root and spread into the different joints and crevices, covering the whole in a very short time.

The seeds of the annual sorts also, when sown soon after they become ripe in such situations, soon come up and support themselves without further trouble.

Most of the perennial sorts are kept in the nurseries in full plants, fit for setting out in the borders, pots, &c. either in the spring for flowering the same year, or in the autumn to flower in the following year. These plants may be planted out in any dryish light soil, in borders, beds, and other places, and in the sides of dry banks, or in any elevated rubbishy soil, as well as in pots to move to different parts occasionally; or also some of the evergreen kinds, to introduce in their pots among winter plants under shelter, to increase the variety. In most sorts, they may also be introduced as rock plants, to embellish artificial rock-works, ruins, and other similar places in pleasure-gardens. The Stone-crops and other low trailing kinds may also be made to occupy the tops of any low walls, pent-houses, hedges, or other low buildings.

And further, the twelfth and thirteenth sorts may like-
wife be diffused in patches towards the fronts of borders. As they spread thick and thinly close to the ground, and flower all day, they being plated in pots, are proper to place in the out of doors, copy as of low walls, and rich, dark, and ever-varying, in color, with other low fancy plants: they will secretly overspread the surface, and flower profusely as far as they extend in such situations.

Sedum Aber, Walled Grass, or Little Bittercress in Murraya Medicus, a common British plant, growing on banks, walls and gravelly banks, is in 13 cent hirt, extremely acid, like the hydraper; and, therefore, it taken in large doses, it acts powerfully on the plasma, proving both emetic and cathartic, and applied to the skin, as a cataplasma, it frequently produces venules and erosions. Boerhaave, therefore, imagined that its internal employment must be unsafe; but experience has discovered, that a decoction of this plant is not only safe, but of great efficacy in scorbutic complaints; for which purpose, a handful of the herb is directed by Below, a Swedish physician, to be boiled in eight parts of beer till they are reduced to four; of which three or four cures are to be taken everyday, or every other morning. Milk has been found to answer this purpose better than beer. Not only ulcers, simply scorbutic, but those of a scrophulous and even cancerous tendency have been cured by the use of this plant, of which Marquet relates several instances. He likewise found it useful as an external application in destroying fungous flesh, and in promoting a discharge in gangrenes and carbuncles. Another effect for which this plant has been esteemed, is that of stopping intermittent fevers.


Sedum Majus. See Semprevivum.

Seduni, in Ancient Geography, a people of Gallia Narbonensis, in the vicinity of the Nantuates and Veragari, who jointly occupied the country that lies between the Allobroges and the higher Alps.

Sedunova, in Geography, a town of Russia, in the government of Iekutski, on the Lena; 12 miles N. of Ork Lange.

Sedusius, in Ancient Geography, a people of Germany, who fought under Ariovistus against Caesar.

Sedziszow, in Geography, a town of Poland, in the patrimoine of Sandomierz; 35 miles S. of Sandomierz.

See-Amol, a small island in the East Indian Sea, near the eait coast of Borneo. N. lat. 5° 25'. E. long. 118° 48'.

Seeassee, a small island in the Soooloo Archipelago. N. lat. 5° 25'. E. long. 120° 50'.

Seexur, a river of Hindoostan, which runs into the bay of Bengal, near Pondicherry.

Seebach, a town of Austria; 1 mile S.S.W. of St. Jergen.—Also, a river of Saxony, which runs into the Mulda, 2 miles S. of Eulenburg.

See-Bangol, a small island in the East Indian sea, near the east coast of Borneo. N. lat. 4° 11'. E. long. 118° 24'.

Seebergen, a town of Germany, in the duchy of Gota, in which is a celebrated observatory, erected by the late duke; 4 miles E.S.E. of Gota.

Seebugung, a town of Hindooftan, in Bengal; 12 miles S. of Goragot.—Also, a town of Hindooftan, in Bengal, on the left bank of the Ganges; 5 miles N. of Nagpore.—Also, a town of Bengal; 45 miles N.E. of Purasch.—Also, a town of Bengal; 40 miles N.W. of Nattore. N. lat. 25°. E. long. 87° 32'.

Seebu, the largest river in Well Barbyr: it rises in a piece of water situated in the midst of a forest, at the foot of Atlas, eastward of the cities of Her (Iz), trench (Mogador), and west of the town, between the town of Belloul and the town of Bouch. Another branch, passing over the hills in the north of this city, and distending itself to this river. This river is navigable to the inhabitants of sea, and supplies the town with water, that it is called "Well El Juir," the river of pears, according to its vegetation. Some secondary streams, proceeding from the territory of Terra, fall into the Seebo in Laco, on the pedl between the 20th of December and 20th of January inclusive. This river is navigable, except in boats, or on rafts. At Macluna, or Moctrail, where it enters the ocean, it is a large, deep, and navigable river; but the port being vacated, revenue commerce is a diluted and little flippany has been admitted here. The Portuguese settled the place. This river absorbs more than any other in that rich and delicate soil called blackburb. If this country afforded any encouragement to industry, corn might be conveyed up the Seebo river to live at a very low charge: whereas it is now transported to that populous city by camel, the expense of the hire of which often exceeds the original cost of the grain. Jackson's Account of the Empire of Morocco.

Seebbour, a town of Bengal; 12 miles N. of Hoogly.

Seeburg, a town of Prussia, in the province of Ermeland; 55 miles S. of Konigberg. N. lat. 53° 31'. E. long. 20° 40'.—Also, a town of Weipplin, in the counties of Mansfield; 5 miles E. of Eifelbean. N. lat. 51° 31'. E. long. 11° 51'.

Seed, Jeremiah, in Biography, a learned divine of the church of England, was born at Chilton, in Cumberland, and educated at Queen's college, Oxford, where he took his degrees in the arts, and obtained a fellowship. He was afterwards presented to the rectory of Ashburn, in Hampshire, where he died in 1747. His sermons, which are very highly esteemed, are published in 4 vols. 8vo.

Seed, Siemen, in the Animal Economy. See Seem and Generation.

Seed, in Brittany, is that most important organ in the fructification of vegetables, the perfecting of which is indeed the sole object of all the other parts: so that rud they are subervient either in forming, perfecting, or dispersing it. A seed is composed of many essentia parts. See Embryo, Cotyledones, Albumen, Vitellus, Testa, Hilum.

Besides these, there are various accessory parts, or appendages, to seeds, which come under the following denominations. See Pellucula, Arillus, Parfus, Calyx, Rostrum. To these we must add Alas, which our predecessors have neglected to describe as a seminal appendage, in its proper article. (See that article.) The Alas, or wing, is a dilated membranous appendage to seeds, serving to waft them along in the air; it is commonly foliary, except in some umbelliferous plants. Seeds are occasionally furnished with spines, hooks, scales, crested appendages, particularly a little gland-like part sometimes called Straminum, and situated near the Hilum. The various modes by which seeds are dispersed, in order to accomplish their germination, cannot fail to strike an observing mind with admiration. Indeed this is a most amusing branch of the science of vegetable economy. See Intro. to Bot. ed. 3. 210—232.

Seeds, Ethinate. See Ethinate.

Seeds, Naked. See Naked.

Seeds, Winged. See Winged.
SEED-DOWN. See PAPPUS.
SEED-FIELD. See Pericarp.

Seed, in Agriculture, the grain or other product of a plant, whereby the species is propagated, upon its being sown or put into the earth.

It may be observed, that the choice of the seed intended to be sown, is an object of greater importance than many farmers seem to imagine. It is not sufficient that the finest grain be chosen for this purpose, unless it be likewise clear from weeds. In procuring feed, it should, therefore, be a rule with the farmer to purchase or reserve such as is the most full, plump, found, clean, and healthy, whatever the fort may be; as it is perhaps only in this way that crops of really good corn can be ensured. And this practice is still more obvious, from the circumstance of its being in some measure the same with plants as with animals, that the produce is in a degree similar to that from which it originated. It is not, however, merely on this principle that such grain as is small, shrivelled up, and imperfectly fed, should be rejected as improper for feed, but as containing a smaller proportion of farinaceous matter, and being thereby less proper for affording that degree of nourishment which is necessary to the young plants, during the period of the first stage of their growth. Where shrivelled-up and imperfectly ripened feed is sown, in general a little of it vegetates; and that which does, mostly sends forth plants of a weak and feeble kind, that afford only a lean and feeble sort of crop. Besides, there are other circumstances which ought to be taken into the account, in providing of feed corn; such as that it be new, and recently threshed from the thraw, and that the skin be clear and thin; for it is found that grain which is fresh, and only just threshed out, is in a much more proper state for quick vegetation, than such as has been long kept, consequentley less liable to perish in bad seasons; and that where the rind or skin is of a bright colour, and thin, a much larger proportion of fine farinaceous or mealy matter is yielded from the fame quantity of grain, which renders it of course more valuable to the cultivator. This is particularly the case in wheat, and the same thing probably takes place in other sorts of corn.

And the writer of the Synopsis of Husbandry has shewn, by some experiments, that wheat, after being kept fix or seven years, though there may not be any perceptible difference in its appearance from such as is new, is wholly unfit for being made use of as feed, on account of only a small portion of it being capable of vegetating; a circumstance that may probably, in many cases, be owing to the grain being more disposed, under such conditions, to take on the putrefactive fermentation, or become rotten, than to the absorption of oxygen, which is believed to be essential to the procceds of vegetation in the early stage, as stated by Mr. Gough in the Manchester Transactions; and besides this effect, where the moisture and juice of the grain is much taken away, as is the case in keeping it for a great length of time, the plants that are produced from it may even be less vigorous and luxuriant, as happens in gardening to some kinds of feeds, as that of the melon, which is frequently kept for several years, in order to effect this purpose in a more perfect manner.

On these accounts, therefore, it must be evident that, on such principles, grain, in order to secure perfect vegetation, should not be placed too much out of the influence of the atmosphere; and that the bed of mould, or earth, in which it is deposited, be in as fine a powderly state as possible; as, under such circumstances, the air is more uniformly admitted, and the feed, from being in a more equal temperature, and more equally supplied with moisture, is exposed in the most favourable circumstances to the combined effects of the causes that have been found to promote the sprouting, growth, and prosperity of the young corn plant, as has been fully shewn by Mr. Gough, in his excellent paper on the vegetation of feeds. And there should likewise be a constant attention, that no such grain as is in any way diseased should ever be made use of as feed corn; as the fowing of this sort of feed, though it may have been advised by some cultivators, who have not been sufficiently cautious, or who have placed too much confidence on the efficacy of steeped, can only disappoint the views and hopes of the farmer, by propagating more widely such maladies, or producing scanty crops of good grain.

A great many different methods have been pursued, in the view of securing such grain as is healthy and proper for the purpose of fowing; but that which is the most readily executed is probably that of selecting from among the corn plants, while they are growing in the fields; as in this way an opportunity is afforded of choosing such heads or ears of the plants of different kinds as are the most perfect, the most forward, and most vigorous in their growth, and which contain such feeds as are the most plump, and full, and the beet ripened. These benefits or advantages may likewise, in some measure, be attained in the most valuable sorts of grain, by having them picked over by hand, after being threshed out; but this is a tedious practice, and not so certain of having the feed from the most healthy and best ripened plants, as the above and some others: therefore, to have the most perfect sorts of feed, and at the same time the most healthy and proper for vegetation, the most vigorous plants should be selected, as well as such as are the most forward and early in respect to the season; and that these, while they are growing, be so preferred, that they may not be injured by having weaker plants of the same kinds near them; as the art of having good feeds does not, it is contended by an experienced farmer, depend so much upon obtaining new feeds from places at a considerable distance, as upon collecting and referring the best feeds or roots of our own production. Dr. Priestley, in a paper in the first volume of Communications to the Board of Agriculture, has remarked that this method of practice has been hitherto, in consequence of its having been found that though vegetables of all kinds are extremely liable to changes, in respect to the times of their maturation, or ripening, and other properties, the best feeds never fail to produce the best plants. It is likewise remarked, in addition, that in the preferring of feed grain, by collecting it in the ears from the sticks or sheaves, there may, however, be disadvantages in the way of lengthening the produce, by choosing the largest ears, which have rarely more than one upon it, and by taking such as become ripe at different periods.

It is observed that many different modes have been proposed for ascertaining the goodnefts of grain or feed-corn; but the farmer generally depends upon the appearances that it exhibits, preferring such as is full, plump, and well fed, and that has a certain brightness and cleanliness, without any shrivelling or thinking in the husk or external covering. But it may perhaps be ascertained with greater accuracy by other means, as the weighing of a certain measure or quantity; and from its being well known that grain or feeds, on being immerced in fluids, leave the more light and imperfect floating on the surface, while the better and more perfect sink to the bottom; solutions well saturated with saline substances, from their gravity being much increased, become useful in ascertaining the goodnefs of the corn, as none but such as are perfectly found sink in them. And the
SEED.

the author of the Philosophy of Gardening observes, that the weight of a given measure of grain may be a determinately certain method of discovering the quantity of bulk or
branch contained in it; as that grain which is cut too early, or which is otherwise not quite ripe, as happens in wet seasons, thrashed in the barn or granary, and becomes wrinkled, and has thus a greater pro-
portion of skin or bran than that which has been more perfectly ripened, and weighs lighter in proportion to its
bulk. And another method, which he supposes may be had
recourse to in order to distinguish light from heavy grain, is
that of winnowing, as the surfaces of light grains, from their
being greater in proportion to their solid contents, may be
carried further by the current of air afforded in the opera-
tion; of course in passing them through a screen, the heavy
grains may be liable to run further out on the floor from
their being more propelled by their greater gravity, without
the resistance of the air on their surfaces being increased,
and be consequently more proper for feed-corn in general.
See Change of Seed.

But lately, however, a very different notion from the above
has been entertained by Sir Joseph Banks, though we do not
find it supported by the tell of experiment in the field.
The result of a single trial, made under the circumstance of
a hot-house, can never be satisfactory to the farmer. He
thinks, that although the foods of wheat may be rendered by
the exhausting power of a fungus so lean and thrivelled,
that fearcely any flour fit for the manufacture of bread can be
obtained by grinding them, these very foods will, except in
the very worst cases, answer the purpose of feed-corn as
well as the finest and plumpest samples that can be obtained,
and in some respects better; for as a bushel of finely thrushed
corn will contain one-third at least more grains in number
than a bushel of plump corn, three bushels of such corn will
give as far in sowing land as four bushels of large grain. And
that the use of the flour of corn in furthering the process
of vegetation, is to nourish the minute plant from the time
of its development till its roots are able to attract food from
the manured earth; for this purpose one-tenth of the con-
tents of a grain of good wheat is more than sufficient. The
quantity of flour in wheat has been increased by culture and
management calculated to improve its qualities for the benefit
of mankind, in the same proportion as the pulp of apples
and pears has been increased by the same means above what is
found on the wildings and crabs in the hedges. Further, that
though it is customary to set aside or to purchase for feed-
corn the bold and plumpet samples that can be obtained,
that is, those that contain the moulder flour, this is unnecessary
waste of human subsistence: the smallest grains, such as are
lifted out before the wheat is carried to market, and either
consumed in the farmer's family or given to his poultry,
will be found by experience to answer the purpose of propa-
gating the form from whence they sprang as effectually as
the largest. Every ear of wheat is composed of a number of
cups placed alternately on each side of the straw; the
lower ones contain, according to circumstances, three or four
grains nearly equal in size; but towards the top of the ear,
where the quantity of nutriment is diminished by the more
ample supply of those cups that are nearer the root, the
third or fourth grain in a cup is frequently defrauded of its
proportion, and become thrivelled and small. These small
grains, which are rejected by the miller because they do not
contain flour enough for his purpose, have nevertheless an
ample abundance for all the purposes of vegetation, and as
fully partake of the sap (or blood, as we should call it
in animals,) of the kind which produced them, as the full
and fullest grain that can be obtained from the bottoms of
the lower cups by the walled proofs of beating the sheaves.
But, however further and more numerous experiments may
establish this doctrine, the best practice of the farmer is
probably, at present, to take care to have good well ripened
grain, clear from all adulteration of feeds of the weed kind;
without any blackheads about the extremities of the grains,
being free from that dark-brown colour that indicates its
having been heated too much in the stack; and that it have
no signs of mouldiness from being badly secured, or of
shrinking from being cut in too green a state. It has also
been lately suggested by Mr. Lerti, who has been engaged in
many interesting experiments on the subject, not by any
means to procure feed grain from a soil north of that on
which it is to be sown, but from a district south of it; as
he considers it a general rule, that the product of feed improves
in going from the south to the north, but decreases in virtue
in paling from the north to the south.

And with respect to the proportion of feed that may be
proper to be sown on different soils and situations, attention
will not only be necessary to their peculiar nature, and to
the periods of sowing or putting the feed into the ground,
but also to the nature of the faion, and the mode in which
the fowing is executed in it. For crops in general, the strong,
woody, and fiffer sorts of land will demand a larger quantity
of feed than such as are more mellow, thin, and light; for
coarse strong wet loams, and stiff retentive clays, will require
more feed than light mellow loams, and sandy gravelly
or even thin chalky lands. But where lands of the rich loamy
kinds have been well reduced and broken down by the op-
erations of tillage, it is observed, that if the feed be not
sown in too great a proportion, an opportunity is afforded
for the plants spreading themselves from the roots, many
items often issuing from the same root, in consequence of
which the crops frequently become, even when thinly
sown, extremely thick upon the ground; and from the
great nutritive power of rich soils, or what is moily
termed strength by the farmers, would be greatly too much
so, if a large proportion of feed were at first put in.
And that in the case of root crops, whether such as are formed
upon or within the soil, where such lands are in a sufficiently
mellow and friable state for producing them, the feeds or sets
should not on the same account be sown or put in too
great a quantity, or too thickly. While in the strong, fluff,
woody, retentive clays, from the plants seldom retiring, or
branching off much from the roots, except in particularly fa-
vourable circumstances of weather, a much greater proportion
of feed will be necessary, in order to secure such full crops as
lands of this kind are capable of supporting and bringing to
maturity in moli cafes.

But where the soils are light and thin, a less quantity of
feed will be sufficient, according to Mr. Donaldson and
others; as, if a large proportion be put into such kinds of
ground, from their potelling much less strength the crops will
rarely, except in particular faions, be well formed in the ear,
or have the grain plump and well fed. It is likewise a prac-
tice in the best grain districts, on all sorts of land to sow
smaller proportions of feed on lands of the same quality,
in the early periods of the feed time, than in those of the
latter. The reason of this, according to the above writer,
is, that grain sown early in the season takes deeper root, and
has more time to branch out additional floutes, than that
which is later sown, which, when the soil is not very free as
well as fertile, generally runs up into one tingle flalk, so
that if a liberal quantity of feed be not allowed, the crop,
however luxuriant in respect to the plants, must be scanty in
the
the article of grain or produce. And for this there may also be other reasons, as where the feed is put in at a later period, especially in the spring, it will not have time fully to establish itself in the soil, before it becomes retarded by the hot and dry summer weather, unless a large quantity of seed be employed so as to afford protection by the closeness of the growth of the plants. And in the late autumnal sowings, the grain may not become well fixed and rooted in the soil before the frosts begin to affect them; and on that account a larger proportion of seed be required than under other circumstances would be necessary. Something may likewise depend on the state of the weather in sowing or putting feed into the ground; as where the season is very dry, and there is but a small proportion of moisture in the soil, more of the feed may fall in vegetating, than where the contrary is the case; which also shows the propriety of sowing and putting in the feed in such dry seasons, immediately after the plough has performed its work.

And it must likewise vary according to the manner in which it is deposited in the earth; as where the grain is scattered over the whole of the land, in some measure at random, as in the common broadcast method of sowing, a much larger proportion of seed must be sown, than where the grains are deposited with equality and exactness, but only on certain portions of the land, as in drilling and dibbling. And as some disadvantage may attend the first method, in respect to the vegetation of the feed, a larger proportion may also be requisite on that account. It is consequently evident, that the quantity of seed must vary according to different circumstances, and that it is a matter of much difficulty to fix upon a proportion that may be suitable to all the circumstances and sorts of soil. It is, however, commonly supposed, that from two and a half, to three and a half bushels to the acre, may be the proportion that may be the most proper both in the spring and autumn sowings. Mr. Middleton has suggested, that for sowing wheat broadcast about the latter end of September, two bushels and a half is the most advantageous quantity on soils of medium quality; but that for every fortnight later, four quarts of seed should be added to that proportion. But the tabular view given below of the proportions that have been found to answer well in practice in an extensive midland district, on soils of different qualities, may afford a more satisfactory notion of the nature of sowing soils of different kinds and qualities.

It may be necessary, before inserting this however, to shew the quantities in use in a great southern grain district with wheat. In Norfolk, in practice of the belting farmers, the proportions of feed-wheat usually made use of, according to the late Agricultural Survey of that district, are about Walton, when dibbled, six or seven pecks, in the practice of some; but with others, when sown before Michaelmas, two bushels, afterwards two and a half. Also near Dereham, the quantity is four bushels broadcast, and when dibbled, from ten pecks to three bushels. At Wiston ten pecks dibbled, and three bushels broadcast; and at East Bilney, and the adjoining parishes, only from two and a half to three. But in the practice of Mr. Henry Blythe of Burnham, seven or eight pecks are drilled per acre; but the common quantity broadcast, from ten to twelve. And in the clays of Marpham, from five to six pecks are sown broadcast. And about Wymondham they dibble in from six to eight pecks, but in the broadcast method few three bushels. In some situations they however complain of loss from too thin a plant in this sort of crop.

### Table of Proportions of Seed on different Soils.

<table>
<thead>
<tr>
<th>Kinds of Soil</th>
<th>Wheat</th>
<th>Barley</th>
<th>Oats</th>
<th>Beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich, newly</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>broken up</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>common land.</td>
<td>3</td>
<td>3 ½</td>
<td>5 ½</td>
<td>6</td>
</tr>
<tr>
<td>Middling.</td>
<td>3</td>
<td>3 ½</td>
<td>4</td>
<td>5 ½</td>
</tr>
<tr>
<td>Newly inclosed land.</td>
<td>2 ½</td>
<td>3</td>
<td>4 ½</td>
<td>4</td>
</tr>
<tr>
<td>Wold.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>5</td>
<td>5 ½</td>
</tr>
<tr>
<td>Marsh.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>5</td>
<td>5 ½</td>
</tr>
<tr>
<td>Clay and marsh land.</td>
<td>3 ½</td>
<td>4</td>
<td>5 ½</td>
<td>5 ½</td>
</tr>
<tr>
<td>Strong.</td>
<td>3 ½</td>
<td>4 ½</td>
<td>6 ½</td>
<td>5 ½</td>
</tr>
<tr>
<td>Average</td>
<td>3 ½</td>
<td>4 ½</td>
<td>6 ½</td>
<td>5 ½</td>
</tr>
</tbody>
</table>

The exact proportion of feed that may be required, however, under different states and circumstances of land, in order to afford the most full and productive crops, cannot by any means be ascertained, much constantly depending on the judgment of the feedman, who must always decide in respect to the necessary proportion for the particular circumstance, having a due regard to the nature and quality of his feed, as well as the time and manner in which it is put into the ground, as well as other circumstances. See Sowing.

The most usual quantities and proportions of feed that are made use of in all the different forts of field-crops, are mentioned under the particular heads to which they belong. See the particular crops. The writer of the work on "Agricultural Chemistry," thinks...
SEED.

thanks that, in the general selection of feeds, it would seem that those arising from the most highly cultivated varieties of plants, are such as give the most abundant, but that it is necessary from time to time to change, and, as it were, to cross the breeds, which may easily be done by proper means. Mr. Knight has found great advantages to arise from it in wheat, merely by sowing the different sorts together; and states, that in the years 1805 and 1806, when almost the whole crop of corn in the island was blighted, the varieties obtained by crossing these, especially in the field, and in very different situations. By crossing two varieties of peas, a large fine pea has also been produced, which may probably be cultivated by the farmer with great benefit."

The feeds which are the most perfect, and healthy in their nature, are always found to sprout and grow in the best manner as crops, as may be more fully seen under their proper heads. See Germination and Vegetation.

It is concluded, from a great number of experiments detailed in a paper in the third volume of the Transactions of the Highland Society, "On the Influence of Fruit, &c. in Ripening Corn," that barley and oats in every period of their growth may be exposed to much variety of bad weather, without being destroyed, and that they even continue to acquire additional weight, although frequently exposed to severest degrees of cold, and occasionally even to frost. That when the leaf is dry, they not only suffer little from it, but often continue to fill; yet, where moisture prevails with it, they are soon wholly destroyed. But that although this may be the case, exposure in this way renders them very unfit for feed: as while every feed of good corn will vegetate and thrive when properly placed in the soil, where it is good, a great proportion of those which have been thus exposed never appear above the surface, and the plants of those that actually grow are so weak, that the crop is not only small in quantity, but the corn of inferior quality. That, though it seems in using well-ripened corn for feeds, the crop which it yields depends, in a considerable degree, on the weight of it, yet this does not happen in every evident degree with corn that has suffered from frost, as the plants arising from corn that has been exposed to much of it are constantly weak, and the produce small, even although the feed be of the common weight. That frost appears still more hurtful to pulse crops as feed, and in other ways, than to those of the grain kind, as well as to grasses. That no corn which has been thus exposed to frost should ever be used as feed; but that which is for this purpose, should always be procured from southern situations, where there is no danger of this fort. That, on the score of economy, the feed which has been so exposed should never be employed; as nearly twice the quantity of it will be required; while the quantity as well as the quality of the produce will be vastly inferior. That this sort of grain is easily distinguished from the common, the latter being plump, full, and of a peculiar healthy appearance, and mostly free from chalk, while the former is curled and pinched in, and never entirely full, being bleached and chalky. Where these marks are not present, the mere vegetation of the feeds as it is laid, by no means sufficient, though often depended upon. That, when light feed is made use of, the crops more readily suffer with blight and other diseases, and it would seem that many morbid affections of plants, especially such as give rise to the generation of insects, are particularly apt to spread and communicate the contagion to others that are weak; which, like animals in a state of debility, do not to readily resist it, or the formation of those vermin by which they are most liable to be destroyed, as those plants which are found to be as species that in the same manner as the beans are used for feed, and that it can be equally made into meal for human food. Great advantage is also seen in the use of the weak part of the late corn for horse, and all the best of it in round rolls. It is also seen great advantage, in the proper preparation of rapeseeds that are both small in quantity and of very poor quality. That, for the present, we shall leave it to be seen, but the bell feeds of every kind should be laid. That, with this view, farmers should not only procure feed that has been well ripened, but such as will be well kept, and never injured by frosts, snows, or rain. That it would also be much for their interest, to wait the whole feed of corn, or as much of good brine; not only the winter but the barley and oats, as well as their beans, peas, and beans, as the wheat corn to fit for feed as the season, when properly done: as it not only carries all the bell feeds, but all the feeds of a great many weeds which cannot in any other way be so completely separated from it.

That it is thought, that the preference mostly given to new corn for feed, is not well founded; as it was found that the produce of old corn was equal, both in quantity and quality, to that of the bell corn newly raised. This is the case too with all the grassy feeds that are commonly known. One of the best crops of hay, which is not moulded to have been feem, was produced from a mixture of red, white, and yellow clover, ryegrass, and hay-grass, which, by accident, had been neglected, and kept for five years. An acre, or thereabouts, was found with this mixture, while the rest of the field was sown with the feed of the preceding year, and the crop was equally good over the whole. That it is here advised, that in dry warm seasons, when all the grassy feeds are commonly good, such farmers as have it in their power should provide a large quantity of those that they usually sow, to make use of when they are scarce and bad, which constantly happens after cold or wet season. That it is on this principle, of the seeds of plants retaining their power of vegetating for a long time, that we account for the sudden appearance of many of the grasses, and other plants, where they had not grown for a long period of time before. After the great fire in London in 1666, broom and clover, it is said, appeared on the site of almost every houset in the space of a few months, although the whole had been occupied with streets for several centuries. We daily perceive, it is said, in Scotland and other parts, that white clover appears almost as soon as the heath or other matters are destroyed, with which lands had been occupied before; and it is thought probable, that corn, pulse, and grassy feeds, where they have been and good at first, and properly kept afterwards, will be found quite fit for feed, even when a good many years old. See the Paper.

Second, in Gardening, the small grains or other differently formed bodies, which are produced by plants, trees, or shrubs of almost all kinds after flowering, and which contain in them the little embryo, or efflorescence of the future plants, of each particular fort, which consist of several different parts, but the principal of which are these: the corolla, the little heart, the point of life, or essential point or part from which the future vegetable is to be produced, and which is the small point or speck that is placed in the centre of each feed, between what are called the stigmata or the lobes of it, and which is attached thereto, being distinctly visible in most of the bean kind, as well as in almost every other sort of leguminous feeds. It consists of two parts, the
the rottum and the pluma; the former of which constituting the radical or descending part, which strikes downwards into the earth, or foil, and becomes the future root; the latter, which becomes the ascending part, or that which shoots upwards, and constitutes the item, branches, and other parts of the future plant. This point, or spot in the seed, is likewise sometimes termed *punctum vitæ*.

The cotyledons, or fide-lobes, are the perifhal fide-lobes, or parts of the seed, which involve, contain, and for some time nourish and support, the corculum, or embryo plant. These fide-lobes are for the most part two in number, which are very clearly seen in the bean kind of seeds, as well as in most others derived from the leguminous tribe of plants, especially when they have been previously laid a short time in earth or water. When the seed has been committed to, and deposited in the ground or foil, the corculum, or point of life, if the seed be good, is seldom long before it begins to sprout or germinate and exert itself in it, but the exact length of time which is necessary, is somewhat different in different cafes, circumstances, and kinds of seeds; the cotyledons expand, burbling open the outer coverings, and rise in a gradual manner out of the earth or foil, in the form of blades or leaves, which are commonly, in most forts, termed the *feel-leaves*, in which displaying the filr, or primary visible foundation and rudiments of the infant plant; accompanying it for some length of time after its eruption or first breaking from the ground, as until the stiff proper leaves are formed in the centre of the vegetable, and advanced a little in their growth, when the lobes or seminal leaves becoming useless, they wither, decay, and are destroyed. See Germination.

In general, plants are furnished with two cotyledons, or seed-leaves, especially almost the whole of the tribe of herbaceous-rooted plants, all trees and shrubs; but there are some which have only one cotyledon, as is the case in most of the bulbous plants of the liliaceous tribe, which rise out of the ground in the manner of a thistle; and there are some seeds which have no cotyledons at all, for instance, such as the ferns, mosses, flags, and fungiaceae. The other parts of seeds are the ale, or wings, and the corollse, or crowns; in the former, many of which are winged, or furnished with a thin membranous web or film, by which means they fly and are diffused in being dispersed about, as in the birch, maple, ash, elm, hops, and a great number of other forts; and in the latter kind many of the seeds are covered, and form surrounded with a pappose substance, or a fort of feathery or hairy down, especially in many of the compound and other descriptions, which serve for the purpose of their dissemination, being thus framed for flying, in a somewhat familiar manner to the shuttlecock, so as to be easily carried and transported by the wind to very considerable distances from their natural situations, examples of which are to be met with in hawk-weed, groundsel, dandelion, and many other plants: this, however, is not much the case with garden-seeds of the common kinds. But there are still numerous forts of seeds which are perfectly simple, having neither any thing of the wing or pappose substance about them; as in most of those employed by the gardener. It may likewise be observed, that the number, form or shape, fize or dimensions, and the fubtile or solidity of different seeds, are extremely various, as produced by different kinds of garden plants. In respect to the particular number, it may confit of from one, to several hundreds, or even thousands, in a single feed-veffel, according to the particular plant from which it is taken: for though some plants do not afford more than one or two, others three or four, there are many which have very numerous of seeds, and are of amazing fertility; as, for instance, in the tobacco-plant, one simple feed-veffel frequently contains not less than about one thousand feeds; and in that of the white poppy plant it is often not lower than eight thousand: the whole produce of one single tobacco-plant is certainly upwards of forty thousand; but some have sufficed it to be more than three hundred thousand; and that of one single flake of spenwort is conceived from calculation to be above one million of seeds. This is mostly the cafe in flower and other plants, but rarely in the culinary forts.

In regard to what concerns the forms of garden feeds, they are, in general, either round, oval, kidney-shaped, heart-shaped, angular, flat, or some other form approaching to some of these. And in relation to the sizes and dimensions of such seeds, they are very different according to the plants from which they are taken, varying from the magnitude of the large nut kind, down to the very minute feeds of cresses, and others, which are still much smaller in their sizes. With respect to the fubtile and solidity of seeds they vary greatly, some feeds are soft, pulpy, fleshy, others hard and firm without any fleshy matter, some megalonymous, others hard and long in their nature, which is the cafe in all the different kinds of the nut tribe, as well as in the ilones of many forts of berries and other stone fruit.

Seeds of the garden fort are likewise either covered or naked; the covered feeds are all such as are contained and concealed in some veffels either of the capfule, pod, berry, apple, pear, cherry, or some other fimal kinds; the naked feeds are all those which are not contained in any veffel, but lodged in their receptracles, or in the bottoms of the cups belonging to the different plants or flowers.

There is an almost endless variety in the modes which nature has provided for the diffeminating and dispersing the feeds of plants, which is truly wonderful, though of but little confequence in garden culture; in a very great many plants, the fruit or veffels containing the feed, are raised above the ground, either by erect firm items, or by climbing ftalks, so that the fruit being elevated from the ground, it may be more readily and easily shaken by the wind which blows the feeds not unfrequently to a great distance; for the fame reason also, that description of feed-veffels which is called capfule, in some instances, opens at the top, in order that the feeds may be more fully and completely, as well as more readily, dispersed or thrown about. And from a great number of feeds being winged, as has been forementioned, they are in that way spread far and near by the winds, and find their paflage into different fols and territories. Besides, some seed-veffels are endowed with a remarkable degree of elaticity, by means of which they dart and throw their feed with great force to a very confiderable distance; of this kind are the plants called touch-me-not, and the spitting cucumber, as well as some others. There are many feeds and feed-veffels too, which are armed with a fort of hooks, hairs, &c. by which they attach themselves to different kinds of animals, or other matters, and are thereby dispersed; such for instance, as in the feed of the carrot, hemp, agrimony, burdock, &c. Further, the feeds of many forts that are devoted by bird, being carried and voided by them in an entire and perfect flate in different parts, often at a very great distance, not unfrequently take root and grow. In berries, as well as other pulpy fruits, which have been eaten as food, the feeds and kernels of many kinds of which pafs through the body unhurt, and falling to the ground, likewise not seldom take on a growing flate. Seeds are also very frequently carried, diffeminated, and dispersed by brooks, rivers,
rivers, torrents, and all sorts of running waters and tiles to a great number of leagues distance from their native soils and expostures, where, after being left in such different grounds and climates, they, however, not unfrequently elude and render themselves familiar and agreeable in such new situations. These circumstances are necessary to be known to the gardener, in order that he may guard against the introduction of weeds, \\

The duration of laving of seeds, in so far as respects their powers or properties of vegetating or producing new plants, is very considerable indeed; as for instance, those of the cucumber, melon, and gourd, not seldom retain their powers of vegetation for eight, ten, or twelve years; and it has been sufficiently ascertained that those of the muscard, or lentive plant, will retain or preserve the principle of life or growth for thirty or forty years or more; while, on the other hand, a far greater number of seeds will not keep good, or in a germinating state, for more than one or two years; and many, or indeed the greatest part of these, will not vegetate properly, if more than one year old, nor fome even when kept the shortest time. There are fome indeed which require to be sown or put into the ground foon after they become ripe, or they will not grow until the succeeding year; others, until they are fown immediately after they have been gathered, will not grow at all, as is not unenquently the cafe with the berries of the coffee-plant. It has, however, been remarked, that almost all forts of feeds which have been sown the firt year after being collected or gathered, in general rife much sooner, and a great deal stronger, than fuch as have been kept for a greater length of time; for which reason it is principally advised to have recourse to new feeds, or such as are, not more than one year old, wherever it can possibly be done; except in the particular cafes of cucumbers and melons, in which feeds of two or three years old, or more, are often more to be preferred, as the plants of this kind, when raised from new feeds, are liable to run or grow much too vigorously to items or falks, without becoming either tolerably expeditiously fruitful, or producing fruit in any fufficient quantity.

In regard to the keeping of garden feeds, all fuch as are produced in dry capsules, or other dry feed-vessels, are found to keep much better and longer in fuch vessels than if taken out of them; but it is probable that most kinds of feeds will keep and retain their germinative property the longest and most perfectly in the bawfes of the earth, when they have been accidentally deposited and buried to a confiderable depth, and out of the reach of the influence of the fun and the air or atmosphere. For it has been noticed respecting the feeds of corn fallad in particular, which have been buried by accident to the depth of three feet or more in the ground for thirty years or more, that on the foil being turned up that depth to the top, they began to vegetate and have grown freely. The fame thing has likewise been remarked of many other kinds of feeds, which have by chance been deposited in the earth to the depth of several feet; and in the bottoms of wells, vaults, ponds, ditches, and many other similar fittations, and which have not been furred for many years, as is evident from the circumftances of the cafe; as when occasion has required the foil or earth to be thrown to the top of the surface, and to be exposed to the fun and air, many feeds have vegetated and plants rifen, which had not been remembered to have been fown in fuch places any time before, or at leaft for a very great length of time. Most forts of garden feeds should therefore be kept confantly in the capsules, huffs, and other parts in which they are inclosed.

It may also be remarked, that molt forts of feeds, if fown too deep, remain inactive, and fame never exert their vegetative properties at all, while others, insomuch as they preserve their powers of vegetation and growth, and whenever the ground or foil is again fresh furred, or newly turned up, fuch of them as happen to approach towards the upper part, will frequently throw themselves, and come up, which fully demonstrates the power and effect which the fun and free air have, in promoting and bringing forward the vegetation of feeds as well as plants. On this account, therefore, it is advised that feeds of this fort should never be fown too deep in the ground, but constantly, in fome measure, in proportion to their fize, or the quantity of matter which they contain; as from about a quarter or half an inch deep, in the smaller forts, to about one, two, and sometimes three inches in the middling and large kinds. See Sowing of Seeds.

In relation to the vegetation, germination, or growth of feeds, after they have been regularly fown or deposited in the earth or foil to a proper depth, it is very quick in fome forts, while in others it is slow, as for instance, the feeds of cresses, millard, turnips, and many other feeds, vegetate and come up in a few days; fome other feeds in one, two, or three weeks; as in molt of the efcellent kinds of the kitchen garden, and a great many others of the herbaceous class; but the feeds of parsley and fome other kinds of plants often remain in an inactive state for a month or fix weeks, and there are ftil fome other feeds which will one or two years or more in the ground before they germinate and rife in plants.

With respect to the feeds of shrubs and trees, there are fome which will rife in the coufe of a month or fix weeks, or even in a much shorter time, while others require two or three months to vegetate and grow, and there are fome kinds which he a whole year or more, before they begin to vegetate and grow, as in the cafe of the hawthorn, the holly, and molt others of the very hard-long-feeded kinds.

On the whole, these feeds are the decifive parts of the vegetables to which they belong, each of which includes the rudiment of a new plant, and is endowed with a vital or living principle by means of the sprinkling of the pollen or male dust, which they are capable of retaining for a very confiderable length of time when properly kept and preserved.

It is of great importance in the practice of gardening, to be careful in collecting feeds from the best forts and varieties of the different kinds of plants, to preserve them in a proper manner, and to put them into the ground with due attention to their nature and qualities. Much advantage may like-fife be gained in fome cafes, by feping them in a fufiable manner, and by producing a change in them, from the mixing or combining of different varieties of the fame plants, in faining thole from which they are taken. Peace have been very greatly improved in this way.

With proper precautions, and with a zeal in any degree refembling that of the late Dr. Solander, of Mr. Blake, who had formed a plan of procuring the feeds of all the vegetables produced in China, which are used in medicine, manufactures, or food, or are in any way serviceable to man-kind, and to forward to Europe not only fuch feeds, but the plants producing them (see Kippis's edit. of Brit. Brit. art. Blake); and of Sir Joseph Banks; we might obtain a great variety of curious and useful plants now uncultivated in this country.

The feeds of fruit-trees, it is faid, should not be chozen from thofe that are the molt fruitful, fo much as from the molt solid and fair; nor are we to covet the largest acorns, but the molt weby, clean, and bright. Porous, infipid, or fweet feeds, are to be fown as soon as ripe; hot, bitter feeds, ought to be kept a year before they are fown. See Seminary.
The shape and weight of seeds direct how they are to be set; most of them, when they fall, lie on one side, with the small end towards the earth; which shows that pollute to be left to fall any flone or nut in; if they be heavy, low them the deeper. Acorns, peaches, &c. are to be fown two or three inches deep. See *Seminat*ion.

There is a common method of trying the goodness of many sorts of feed, which is by putting them in water; and those which sink to the bottom are esteemed good, but those that swim on the surface are rejected. This rule, Mr. Miller observes, is not universal; for having sowed the seeds of melons which floated on the surface of water, they were washed from the pulp, and keeping them two years, they grew very well; but the melons produced were not so thick-flushed as those which he obtained from heavy seeds of the same melon. The lightness of many sorts of seeds he ascribes to their not having been sufficiently impregnated by the farina fpecundans; and, therefore, care should be taken that this operation be properly performed, by not excluding plants that are in flower from the external air, or even by affilting nature in conveying the farina of the male flowers to those of the female. Miller’s Gard. Dictionary, art. *Seed*.

*Seed, Change* of, a term used by the farmers to express the common, and, as they suppose, necessary custom, of changing among one another the feed of their lands, as wheat, and the like; it being a received opinion, that the feed produced on one land will grow better on another than on that which produced it, though the same species of plant be fown.

Seeds, in their natural climate, do not degenerate, unless culture has improved them; they then indeed are liable, upon omission of that culture, to return to their natural state again. Whatever benefit arises to the farmer from the changing of the seed of the same species, is from causes which are themselves the effects of different climates, such as heat and moisture, which may vary very much in the same neighbourhood.

Lauremburgius has carried this notion of degeneracy and change from the soil, so far as to affirm that wheat will, in some places, degenerate into rye; and in other places, rye will be exalted into wheat by the soil; but those who are acquainted with botany know, that a horse might as soon be changed into a bull by feeding in an improper pasturage, as one plant degenerate into another by fault of the soil. Tull’s *Husbandry*, p. 116. See *Change of Seed*.

*Seeds, Steeping* of, in prolific liquors, is a practice that has occasionally prevailed, and it is not of modern invention. The Romans, who were good husbandmen, have left us several receipts for steeping of grain, in order to increase the powers of vegetation. In England, France, Italy, and in all countries where agriculture has been attended to, a variety of liquors has been recommended for this purpose. The practice is founded on a preumption, that, by filling the vesicles of the grain with nourishing liquors, the germ, with its roots, would be invigorated. On this subject Dr. Hunter observes, that all his experiments demonstrate, that steeped have no inherent virtue; having fown more than once the same feed, steeped and unsteeped, all other circumstances being alike, he never found the least difference in the growth of the crop. When, indeed, the light feeds are skimmed off, as in the operation of brining, the crop will be improved, and diseases prevented; but these advantages proceed from the goodness of the grain sown, and not from any prolific virtue of the steep. In this opinion many rational farmers, determined by their own experience, concur. Duhamel speaks in the strongest terms against the practice of steeping, so far as it supposes an impregnation of vegetative particles.

Dr. Hunter, having sprouted all kinds of grain in a variety of steeps, alters the farmer, that the radicle and germ never appeared to vigorous and healthy, as when sprouted by elementary water; whence it appears, that the feed requires no alluence.

Upon the whole he concludes, that as no invigorating or fruitifying liquor, however ponderously introduced, has ever equalled the two fair and correct experiments, it may be laid down as an established truth, that plump feeds, clear of weeds, and land well prepared to receive it, will seldom disappoint the expectations of the farmer; and upon these he should rely for the goodness of his crop. Hunter’s *Evelyn’s Silva*, p. 15, &c.

*Seeds, in Pharmacy*, &c. The medicid seeds, especially those imported from the Indies, Levant, &c. are severally described under their respective articles; which see. Among those used with us, the principal are, the four *greater hot*, and the four *greater cold* seeds, as they are called. The first are those of anise, fennel, cumin, and caraway; the latter, those of gourd, citrul, melon, and cucumber.

The chief use of the four cold seeds is for the making of emulsions, cool refreshing drinks, pastes for the hands, and oils used by the ladies for the complexion.

*Seeds, in Agriculture*, a term applied to young gralles, or to lands newly laid to grans, in many cases.

*Seed-Furrow*, the furrow or ploughing on which the feed is sown, or put in. It is usual, in the last ploughing before fowing, to have the furrow left turned than in other cases. See *Ploughing*.

*Seed-Grafs*, a term used to signify cultivated herbage, or grans, raised in opposition to natural grans. See *Artificial Grasses*.

*Seed-Lip*, a sort of bafket, in which the fower carries his feed, in order to sow it. It is sometimes written *feed-lap*, or *feed-lip*.

A great improvement has lately been made on the common fowing-bafket, by a farmer at Malvern, in the county of Elex. He has contrived it in such a manner, that the bottom is a wire-fieve, which sifts out the seeds of weeds from the grain, in the motion of fowing; a cloth bag being attached beneath, for the purpose of catching them.

*Seed-Room*, the room or place where garden feeds are kept and preferred in, either for the purpose of sale, or future use in fowing and raising crops. Rooms for this purpose should have but little fun, be perfectly free from all forts of moisture, and be fitted up with every kind of convenience for receiving, hanging, and keeping all descriptions of feeds.

In the arrangement with other garden buildings, the feed-room should have a place as near the hot-houfe and fruit-room as possible; but where there are no other buildings, it may have any situation which is ready and convenient for depositing the feeds.

*Seed-Seam*, the interface between two plats, as left by the plough; also the channels made by floating, drillling, &c.

*Seed-Weeds*, such weeds as arise from the fowing or dispersion of their feeds, and which do not propagate themselves by the roots. See *Weeds*.

*Seed, Amber, Anife, Luc, Line, Muslard, Worm*. See the respective articles.

*Seed of Pearl*. See *Pearl*.

*SEEDLINGS*, among Gardeners, denote such roots of gigiflowers, &c. as come from feed fown. Also the young tender shoots of any plants that are newly fown.

*SEEDLY,*
SEEDLY, in Geography, a town of Morung; 55 miles N.W. of Amersfoort.

SEEDINESS, in Agriculture, provincially used for feed

SEEDSMAN, a term applied to the labourer or person who selects, dispenses, or puts the feed in or on the ground, in feeding for different sorts of crops, before it is covered. Certain peculiarities of steep and full are requisite in good feedmen, which are only to be acquired by time, practice, or experience. Expert feedmen are, of course, but rarely to be met with among farm labourers, though they are of very material importance, so far as the success, goodness, and beauty of the crops are concerned, as well as in having much expense in the feed, and other ways; consequently the farmer who does not perform this part of business himself, will find it to be greatly his interest to have constantly the best, most able, and experienced men of this kind procured for executing the work of feeding; as he will thereby have not only considerable immediate saving, but the advantages of a more certain and favourable appearance, and much greater produce in his crops. It is hardly to be conceived, except by those conversant in the matter, how great the waste and injuries are, which are committed by feedmen who are not well acquainted, experienced, and expert in the business of feeding. They are, besides, in many instances, incapable of getting on with the work with that expedition which is necessary; which is a very great inconvenience and less to the farmer at this very busy season of the year, when every thing of this sort ought to be in the greatest activity. See Seed and Sowing.

It is also a term which is made ufe of to dignify the person who keeps a flour, or other place, for the sale of feeds, either to the farmer, or the gardener, or any other persons. These feed-dealers have sometimes the name of garden feeders. The London feed-dealers are a very considerable class of men, who do much business in the disposing of all sorts of feeds which are necessary to be employed in the practice of farming and gardening, as well as in different other ways.

The garden feedman is commonly the gardener himself, other persons being never, or very rarely, employed in feeding any sort of garden crop.

SEEDY, in the Brandy Trade, a term used by the dealers to express a fault that is found in several parcels of French brandy, and which renders them unpalatable. The French appoife that these brandies obtain the flavour, which they express by this name, from the weeds which grew among the vines, from whence the wine, of which this brandy was made, was preixed.

However it be, the thing is evident, and the taste not of any one kind; but some pieces of brandy shall taste strongly of aniseed, some of caraway seed, and some of other of the strong flavoured feeds of plants, principally of the umbelliferous kind; so that it shall be rather taken for aniseed, caraway, or some other water, than for brandy.

The proprietor of such brandies is always at great trouble to get them off, and usually is reduced to the necessity of mixing them in small quantities with pieces of other brandies, as to drown and conceal the taste; and where he has not opportunities of doing this, he is obliged to sell them on very disadvantageous terms.

The business of rectification of spirits is very little understood abroad, though much practised with us; and a man in France or Holland, who could take off this taste from these brandies, might get great advantages by it. There is no doubt but that the fame means, which we ufe to rectify malt spirits, that is, to clear it of its nauseous and vol. xxxii.

flaking oil, which always males with it to the first definiton, would also be able to purify these brandies, and by leaving the extraneous oil behind, render them as well tasted as any other; since there is no quefion, but that the oil of malt, which is a principle of the fame ingredient with the spirit, is more freely united to it than that flavoured oil in the brandy, which are not the product of the grain, but of some foreign matter, only accidentally mixed with it. See Brandy and Spirits.

It is a mistake to imagine, that all brands made in France are so free from all which we meet with on the quays of London; on the contrary, there are many brandies pieces made every year, which are badly flavoured as our coarse malt spirit. But the oil is this, they feed the bell brandy, and the bell wine, to England, where they can get the best prices for them. In Holland, on the contrary, the mart of goods of all sorts, it is sometimes difficult to find one piece of good brandy out of fifty, the general run of them being either feedy, or muddy, oily, or otherwise infected with some unnatural and disagreeable flavour; and these are the sorts which in France they deliver of curing by redilution, or bringing to the state of three-fifths, or tres cinquieme, as they express their stronger brands. Shaw's Eflay on Distillery.

SEEDY Abdul Abbass, in Geography, a town of Tunis, anciently called "Multi," 16 miles N.E. of Kefl.

SEEDY Abdulinsamen, a town of Algiers, in the province of Tlemcen, on the coast of the Mediterranean, having a good road for ships. It derives its name from a celebrated prophet, whose tomb the inhabitants hold in great veneration; 4 miles S.W. of Mejerda.

SEEDY Abdallah, a town of Morocco, on the coast of the Atlantic; 30 miles N. of Mogador.

SEEDY Abdinik, a town of Algiers, in the province of Tlemcen, at the confluence of the Arhew and the Sheref, held as a sanctuary; 30 miles E. of Multiyanni.

SEEDY Bofsanain, a town of Tunis; 40 miles S.W. of Kefl.

SEEDY Bujeridon, a town of Morocco, on the coast of the Atlantic; 10 miles N. of Mogador.

SEEDY Douie, a town of Africa, in the kingdom of Tunis, at the north extremity of the peninsula of Dukk, surrounded with the ruins of the ancient Mifs. Its present name is derived from Douie, or David, a Moorish saint, whose sepulchre, as they flew it, is five yards long. But, according to Dr. Shaw (in his Travels), this is really a fragment of some Roman praetorium, as it led to conjecture from three tesselated or mosaic pavements, wrought with the most exact symmetry; and executed with all the artful wreatheings and variety of colours imaginable, and with an intermixture of figures of horses, birds, fishes, and trees, curiously inlaid, so that they appear more gay and lively than many tolerably good paintings; 10 miles S.W. of Cape Bou.

SEEDY Esfel, a town of Algiers, anciently called Sava; 25 miles S. of Boujeish.

SEEDY Medleuh, a town of Africa, in the kingdom of Tunis; 20 miles N. of Gabes.

SEEDY Nedja, a town of Algiers; 16 miles E. of Burg Hamza.

SEEDY Ouda, a town of Africa, in the province of Zaaeb, famous for a tomb of an Arabian general of that name, and for that of Seedy Lezear, its tutelar saint; 15 miles S.E. of Bifcar.

SEEFEIJD, a town of Austria; 6 miles W. of Laab.

SEEHAUSEN, a town of Brandenburg, in the Old A

Mark,
Mark, on the river Aland, which almost surrounds it; 40 miles N.W. of Brandenburg. N. lat. 52° 53'. E. long. 11° 39'. - Also, a town of the duchy of Bremen; 3 miles W. of Bremen. - Also, a town of Welfphalia, called "Sommerschenburg," in the duchy of Magdeburg; 18 miles W. of Magdeburg.

SEEHANUSZ, a citadel of Germany, in the lordship of Schwarzenberg, on a lake; 6 miles S. of Scheinfeld.

SEE-HOO, or Si-nou, a lake of China, on the borders of which stands the wealthy and extensive city of Hang-choo-fou, or Hang-tcheou-fou; which see. This lake, with the surrounding scenery, is accounted one of the grandest, as well as most beautiful, spots in all China. The Lu-fang-ta, or tower of the thundering winds, standing on the point of a promontory, jutting into the lake, forms a bold object. It is said to have been built in the time of the philosopher Confusius, who lived centuries before the Christian era. The vale of tombs has an almost infinite variety of ornaments. Naked coffins in great abundance lie scattered upon the ground, and the tides of the hills that rise from the vale are thickly fet with groups of sarcophagi, in the shape of small houfes, arranged in such a manner as to have the appearance of so many Lilliputian cottages. In the plates annexed to Staunton's Voyage, we have an interesting view of this lake.

SEEHUrah, a town of Hindooflan, in Gurry-Mundella; 25 miles N. of Gurrah.

SEEING, the act of perceiving objects by the organ of sight; or, it is the sense we have of external objects, by means of the eye.

For the apparatus, or disposition of the parts necessary to seeing, see Eye. For the manner in which seeing is performed, and the laws of it, see Vision.

Our best anatomists differ greatly as to the cause why we do not see double with the two eyes. Galen, and others after him, ascribe it to a coalition, or decucation of the optic nerve, behind the osphenoides. But whether they decussate or coalesce, or only barely touch one another, is not so well agreed.

The Barthesines and Vesalius say expressly, they are united by a perfect confusion of their substance; Dr. Gibbion allows them to be united by the closest conjunction, but not by a confusion of their fibres.

Alhazen, an Arabian philofopher of the 12th century, accounts for single vision by two eyes, by supposing that when two corresponding parts of the retina are affected, the mind perceives but one image.

Defecrates, and others, account for the effect another way; viz. by supposing that the fibrillae constituting the medullary part of those nerves, being spread in the retina of each eye, have each of them corresponding parts in the brain; so that when any of those fibrillae are struck by any parts of any image, the corresponding parts of the brain are affected thereby.

Somewhat like which is the opinion of Dr. Briggs, who takes the optic nerves of each eye to consist of homologous fibres having their rife in the thalamus nervorum opticorum, and being thence continued to both the retinae, which are composed of them; and farther, that tho' fibrillae have the fame parallelism, tension, &c. in both eyes; consequently, when an image is printed on the fame corresponding sympathizing parts of each retina, the same effects are produced, the same notice carried to the thalamus, and fo impaft to the soul. Hence is that double vision ensuing upon an interruption of the parallelism of the eyes; as when one eye is deprived by the finger, or their sympathy is interrupted by disease: but Dr. Briggs maintains, that it is but in few subjects there is any decucation; and in none any conjunction more than mere contact.

Dr. Briggs's notion is by no means confonant to facts, and is attended with many improbable circumstances.

It was the opinion of Sir Isaac Newton, and of many others, that objects appear single, because the two optic nerves unite before they reach the brain. But Dr. Porterfield thought, from the observation of several anatomists, that the optic nerves do not mix, or confound their substance, being only united by a close cohesion; and objects have appeared single, where the optic nerves were found to be dijuncted. To account for this phenomenon, this ingenious writer supposes, that, by an original law in our natures, we imagine an object to be situated somewhere in a right line drawn from the picture of it upon the retina, through the centre of the pupil; consequently the fame object appearing to both eyes to be in the fame place, the mind cannot diftinguish it into two.

In answer to an objection to this hypothesis, from objects appearing double when one eye is distorted, he says, the mind mistakes the position of the eye, imagining, that it had moved in a manner corresponding to the other, in which case the conclusion would have been just; in this he feems to have recourse to the power of habit, though he disclaims that hypothesis. This principle, however, has been thought sufficient to account for this appearance.

Originally, every object making two pictures, one in each eye is imagined to be double; but, by degrees, we find that when two corresponding parts of the retina are impreffed, the object is but one; but if those corresponding parts be changed by the distortion of one of the eyes, the object must again appear double, as at the first. This seems to be verified by Mr. Chefelden, who informs us, that a gentleman, who, from a blow on his head, had one eye distorted, found every object to appear double, but by degrees the most familiar ones came to appear single again, and in time all objects did so without amendment of the distortion. A similar case is mentioned by Dr. Smith.

On the other hand Dr. Reid is of opinion, that the correspondence of the centres of two eyes, on which single vision depends, does not arise from custom, but from some natural constitution of the eye and of the mind.

M. du Tour adopts an opinion, long before fixegged by Gaffendi, that the mind attends to no more than the image made in one eye at a time; in support of which he produces several curious experiments; but as M. Buffon observes, it is a sufficient answer to this hypothesis, that we see more distinctly with two eyes than with one; and that when a round object is near us, we plainly see more of the surface in one case than in the other.

With respect to single vision with two eyes, Dr. Hartley observes, that it deferves particular attention, that the optic nerves of men, and fuch other animals as look the fame way with both eyes, are united in the fella turcica in a ganglion, or little brain, as it may be called, peculiar to themselves; and that the affociations between synchronous impressions on the two retinas must be made fonner, and cemented firther on this account; and that they ought to have a much greater power over one another's images than in any other part of the body. And thus an impression made on the right eye alone by a single object, may propagate itself into the left, and there raise up an image almost equal in vividness to itself; and, consequently, when we see with one eye only, we may, however, have pictures in both eyes.

It is a common observation, fays Dr. Smith, that objects seen with both eyes appear more vivid and stronger than they do to a single eye, efpeditiously when both of them are equally good.
the S. coast of the island of Buchar, with which it forms a good inner and also outer harbour.

ST. ELBURG, or STENFELD, a town of the duchy of Courland, on the Dvina, where the bishops of Sventoki, formerly resided, and who, on that account, were called bishops of Sventoki; 50 miles S.E. of Riga.

SEELING, a horse is said to feel when he begins to have white eye-brows, that it, when there grows on that part about the breadth of a farthing of white hairs, mixed with that of his natural colour, which is a mark of old age.

It is said a horse never feels till he be fourteen years old, and always does before he is sixteen. The light foiled and black foored feel than any other.

Horse-jockies usually pull out those hairs with pinces: but if there be so many that it cannot be done without making the horse look bald and ugly, then they colour their eye-brows, that they may not appear old.

SEELING, in Falconry, is the running a thread through the eye-lobes of a hawk, when first taken, to make her endure the hood the better.

SEELING, at Sea, is used in the same sense nearly with heeling: when a ship lies down confusedly, or heavily, on one side, the seamen say she feels; and they call it feeling, when the tumbles on one side violently and suddenly, by reason of the sea forstaking her, as they call it, i.e. the waves leaving her for a time in a bowling sea. When a ship thus tumbles to leeward, they call it lee-feel: and in this there is not much danger, even in a Bora, because the sea will presently right her up again; but if the rows or feels to windward, there is fear of her coming over too short or suddenly, and to by having the sea break right into her, be either foundered, or else have some of her upper works carried away.

SEELINGAN, in Geography, a small island in the Sooboo Archipelago. N. lat. 6° 4'. E. long. 118° 15'.

SEELKEN, a town of Prufia, in the province of Nautangen; 9 miles W.N.W. of Liel.

SEELOW, a town of Brandenburg, in the Middle Mark; 10 miles W. of Culdin.

SEEAN, or SEEAN. See SEEAN.

SEE-MA-KOANDO, in Biography, a Chinefe mandarin and philopher of the nineteenth century, who enjoyed the favour of the emperor, and had several important places, which he resigned and retired to a solitary place, where he wrote a history of China, commencing at the 403d year before the Christian era. He was author likewise of some moral treatises.

SEEMO, in Geography, a town of Africa, in Kaffon. N. lat. 14° 25'. E. long. 8° 45'.

SEENEENDOONG, a small island in the East Indian sea, near the N. coast of Borneo. N. lat. 7° 48'. E. long. 117° 45'.

SEENGHOO, a large town of the Birman empire, situated on the Irrawaddy, having in its neighbourhood, and for a great distance along the eastern bank of the river, small temples built close to the water; 10 miles S. of Pagah.

SEERO, a town of Hindoostan, in Malwa; 50 miles E.S. E. of Shajahanpour.

SEEPARKAN, a small island in the East Indian sea, near the east coast of Borneo. N. lat. 4° 5'. E. long. 118° 25'.

SEER, Principality of, a petty soverignty of Arabia, extending from Cape Mullendom along the Persian gulf. The Perisans call it the country of Djoflar, another name near Mullendom. The Europeans also call the inhabi-
S E F

abitants the Arabs of Djuflar. The other Arabs call it Seer, from the town of the same name, which has a good harbour, and is the seat of the feicheik. He formerly possessed and still retains the title of Schahredje, with some considerable places upon the opposite side of the gulf, among which are Kunk and Lundje. This country not long since acknowledged the sovereign authority of the Imam; but it has withdrawn itself from this condition of dependence; and the feicheik often goes to war with his old master; but without sufficient, he is not able to defend himself. He takes care, however, to live upon good terms with the other independent feicheiks, especially with the feicheik of Dejen, whose dominions he was forced from Oman. The prince of Seer makes some figure among the maritime powers in these parts. His navy is one of the most considerable in the Persian gulf. His subjects are much employed in navigation, and carry on a pretty extensive trade. N. lat. 25°. E. long. 54°. 38'. Niebuhr's Travels into Arabia, vol. ii. Eng. ed.

SEERD, a town of Asiatic Turkey, in the province of Diarbekir; 55 miles E. of Diarbek.

SEERKA, a town of Bengal; 25 miles E. of Patamow.

SEERPUR, a town of Bengal; 18 miles W. of Moorshedabad.—Allo, a town of Bengal; 25 miles N.E. of Nattore.—Allo, a town of Hindooitan, in Allahabad, on the Ganges; 40 miles E. of Gazzypoor.—Allo, a town of Hindooitan, in the circuit of Sumbul; 40 miles S. of Ndijhabad.—Allo, a town of Hindooitan, in Bahar; 15 miles W. of Patna.—Allo, a town of Hindooitan, in Bahar; 9 miles N. of Arrah.

SEERSY, a town of Bengal; 40 miles S.S.W. of Burdwan. N. lat. 22°. 39'. E. long. 87°. 35'.

SEERWAY, a town of Hindooitan, in Myfore; 10 miles N. of Cheena Balabaram.

SEES, a town of France, in the department of the Orne, and chief place of a canton, in the district of Alençon, before the revolution the see of a bishop, suffragan of Rouen; 24 miles N. of Alençon. The town, situated on the Orne, contains 5471, and the canton 18,484 inhabitants, on a territory of 210 kilometres, in 18 communes. N. lat. 48°. 36'. E. long. 0°. 15'.—Allo, a river of France, which runs into the sea near Mount St. Michel.

SEESEEN, a town of Welfphalia, in the principality of Wofenbottle; 4 miles E. of Ganderheim.

SEESKAR, a small island in the gulf of Finland. N. lat. 60°. 5'. E. long. 25°. 11'.

SEESUCANDA, a town of Africa, in Woolly. N. lat. 13°. 25'. W. long. 12°. 54'.

SEETACON, a town of Hindooitan, in Bengal; 18 miles N. of Itlamabad.—Allo, a town of Bengal; 15 miles N. of Curruckpore.

SEETAPON, a town of Bengal; 20 miles N.N.W. of Itlamabad. N. lat. 22°. 37'. E. long. 91°. 48'.

SEETRUNGE, a river of Hindooitan, which rises in Guzerat, and runs into the gulf of Cambay; 4 miles E. of Sultaneppour.

SEETUL, a town of Bengal; 13 miles N. of Maul- dah.

SEEVE, a river which runs into the Elbe, near Harzburg.

SEEWAH. See Siwa.

SEEWALD, a town of Pruffia, in the province of Oberland, near Deutsch Eylau.

SEEWEEBAY. See Seeve.

SEFAKIN, a town of Arabia, in the province of Yemen; 60 miles S.E. of Lohia.

SEFATIANS, a sect of Malometans, who held the opposite opinion to the Moatazalites, with respect to the eternal attributes of God, which they affirmed, making no distinction between the essential attributes, and those of operation; and hence they were named Sefatians, or Attributes. See Moatazalites.

The doctrine of the Sefatians was that of the first Morometans, who were not yet acquainted with these nice distinctions; but this sect afterwards introduced another species of declarative attributes, or such as were necessarily used in historical narration, as hands, face, eyes, &c. which they did not offer to explain, but contented themselves with saying they were in the law, and that they called them "declarative attributes." At length, by introducing various explanations and interpretations of these attributes, they divided into many different opinions; some, by taking the words in the literal sense, fell into the notion of a likeness or similitude between God and created beings, to which it is said the Karaites or Caraites among the Jews, who are for the literal interpretation of Moses' law, had thrown them the way:—others explained them in another manner, saying that no creature was like God, but that they neither understood, nor thought it necessary to explain the precise signification of the words which seem to affirm the fame of both; it being sufficient to believe that God hath no companion or similitude.

The sects of the Sefatians are, 1. The "Assharians," or followers of Abu'l Hafan al Affaari, who allowed the attributes of God to be distinct from his essence, yet so as to forbid any comparison to be made between God and his creatures; and who, as to predetermination, maintained that God hath one eternal will, and that he willeth both the good and evil, the profit and hurt of men, and who have even said, that God may even command man to do what he is not able to perform; and as to mortal sin they taught, that if a believer guilty of such sin die without repentance, his sentence is to be left to God, whether he pardon him out of his mercy, or whether the prophet intercede for him, or whether he punish him according to his demerit, and afterwards, through his mercy, admit him into paradise; but that it is not to be supposed he will remain for ever in hell with the infidels:—such were the more rational Sefatians, who were very different from—2. The "Mohabbities," or "Affilimitors." (See Mohabbities.) 3. The "Keramians," called also "Mojallamenies," or "Corporaliasts," who declared God to be corporeal. (See Keramians.) 4. The "Jabarians." (See Jabarians.) 5. The "Morgians," said to be derived from the Jabarians, who teach, that the judgment of every true believer that hath been guilty of a grievous sin, will be deferred till the resurrection, and that disobedience with faith is not injurious, but, on the other hand, that obedience with infidelity doth not profit. The Morgians are distributed into four species; three of which, according as they happen to agree in particular dogmas with the "Kharejites" the "Kadarians," or the "Jabarians," are distinguished as Morgians of those sects, and the fourth is that of pure Morgians, and this species is subdivided into five others. The opinions of Mokatel and Batar, both belonging to a sect of Morgians, called "Thaubians," are as follow. The former asserted that disobedience hurts not him who professed the unity of God and is endowed with faith, and that no true believer shall be cast into hell; he also taught that God will of himself punish all transgressors. The latter declared that a disobedient believer will be punished at the resurrection, on the bridge laid over the midst of hell, where the flames of hell-fire shall catch hold on him, and torment him in proportion to his disobedience, and that he shall
all then be admitted into paradise. The latter held, that if God do call the believers guilty of grievous sin into hell, yet they shall be delivered there, for they shall have been sufficiently punished; but that it is neither possible nor consistent with justice, that they should remain there for ever.

Sale's Karon—Prel. Dutc.

SEFIDROU, in Geography, a town of Peræa, in the province of Farfaia; 114 miles S.W. of Scras.

SEFROI, a town of Africa; 2 miles S.E. of Fez.

SEFURA, a town of Africa, in Fouta. N. lat. 10° 35'. W. long. 10° 25'.

SEG, in Rural Economy, the name of a cultivated barley.

SEGACHEE, in Geography, a town of the Birman empire, on the Irrawaddy; 6 miles from Denerhow.

SEGALLA, a gold mine of Africa, in the dominion of Barnabuk.

SEGAR, Sir William, in Biography, garter king at arms, was author of "Honour Civil and Military," folio, 1602. He was imprisoned for granting the royal arms of Arragon, with a canton of Brabant, to George Branden, the common hangman, but it being very evident that he had been imposed upon he was released. He died in 1633. Edmundson's Baronsage is said to have been principally taken from Segar's MSS.

SEGAR, in Geography. See SADSHAI.

SEGARDEE, a town of Hindoostan, in Goleconda; 30 miles N.W. of Hydрабad.

SEGARQUIM, a town of Thibet; 52 miles S.W. of Zungga.

SEGBORG, a town of the duchy of Holstein, the name of which is derived from a castle built there by the emperor Lutharius in the year 1137, of which few vestiges now remain; 18 miles N.W. of Lubeck. N. lat. 50° 58'. E. long. 10° 19'.

SEGED, a town of Nubia; 30 miles S. of Sennaar.

SEGEDA, in Ancient Geography, a very celebrated town of Spain, in Buxea, in the interior of the country, between the coast of the ocean and the river Tabor, according to Pliny.—Also, a large and powerful town of Spain, in Celtiberia, belonging to the people called Belis, according to Appian.

SEGEDIN, in Geography. See SECEDIN.

SEGEDUNUM, in Ancient Geography, a town on the confines of Dacia, on the river Tibiscus, which belonged to the Jazgyes.

SEGEDUNUM, one of the eighteen stations on the wall of Severus, is English "Comins-house," being the first station reckoning from east to west, three miles five furlongs and one and a half chain from the next station to the west of it. See STATION.

SEGHERAD, in Geography, a town of Norway, in the province of Christiana; 24 miles W. of Christiana.

SEGELOCUM, in Ancient Geography, a town of the Isle of Albion, in the 8th Iter of Antony, between Lincoln and Dartmouth. All our antiquaries agree in placing Segelocum, which is called Agelocum in 8th Iter, at Littleborough, between Lincoln and Doncaster, where Roman coins, altars, and other ancient remains have been found.

SEGELSBERG, in Geography, a town of the duchy of Bremen; 5 miles E. of Bremen.

SEGERA, a town of Arabia, in the province of Hadjas; 5 miles S. of Medina.

SEGES, or SECHERS, GERARD, in Biography. This eminent painter was born at Antwerp in 1532. He was first a pupil of Henry van Balen, but afterwards entered the school of Abraham Janssens, and had made considerable progress in the art when he went to Italy. On his arrival in Rome, he attached himself as a disciple to Bartolomeo Manfredi; and from him adopted a style for the expression of Michael Angelo Caravaggio. To the strength of contrast, which he thus adopted, he added force and beauty to the tone and colour; he had brought with him from his native country: producing the powerful effect of candle-light, though often falsely applied in subjects which appear to the naked illumination of the day. By skilful productions of this nature, he acquired a very considerable fame, and was at length invited by the cardinal Zanone, the Spanish ambassador at Rome, to accompany him to Madrid. He accepted the invitation, and was preferred by the cardinal to the king, who received him in the most gracious manner, and engaged him to his service, with a considerable pension. He employed himself at Madrid in painting several historical subjects, and some musical conversation pieces, which were greatly admired; but after remaining there some years, the desire of revisiting his native country induced him to request permission to retire. His renown had reached Flanders, and his fellow-citizens were impatient to pull from his productions; yet, when he had arrived there, and executed some paintings in his strong manner, they, whose eyes had been accustomed to the pure brilliant hues, and clear contrasts of Rubens and Van der Weyde, were unable to yield him that harvest of praise to which he had been accustomed, and he was obliged to change his manner, and adapt a more tender and agreeable style. The facility with which he effected this change, proves his power over the materials of the art, and his judgment in its principles; and many of his latter pictures bear evident testimony in support of his general ability. His most esteemed productions is one of the principal altar-pieces in the church of the Carmelites at Antwerp, the subject of which is the Marriage of the Virgin. Vandyke painted his portrait among the eminent artists of his country, which is engraved by Pontius. He died in 1651, aged 62.

SEGES, DANIEL, was the younger brother of Gerard, and born at Antwerp in 1590. His taste leading him to design fruit and flowers, he was placed as a disciple with J. Brughel. At the age of 16 he entered the society of the Jelants, and abandoned painting during his novitiate, but when that term expired, he obtained permission of his superiors to visit Rome, where his brother was then flourishing with distinction; and he also acquired considerable celebrity, by the fidelity and skill with which he imitated the beauty and variety of those objects of creation, as flowers, plants, and insects, which he chose for his models.

His productions were sought with anxiety, and his talents were not unproductive even to his convent, which received valuable tributes in return for those ingenious and entertaining treasures of art. He appears, indeed, to have painted more for the benefit of the wily society to which he had attached himself, than for his private advantage; and when he had produced his most celebrated picture, at the command of the prince of Orange, it was presented to that monarch in the name of the society, which was magnificently recompensed in return. He frequently painted garlands of flowers, as borders for pictures, which were filled up with historical subjects by the first painters. He died at Antwerp in 1665, aged 70.

SEGESTA, or AGESTA, in Ancient Geography, a town in the interior of Sicily, W. of Panormus. It had a harbour and gulf of the same name. The harbour was called "Segelatorum emporium," according to Ptolemy.

Thucydamides represents it as a maritime town, and speaks of the navigation at Agesta. This ancient name is said to
have been given to the place by Egelius the Trojan, who is said to have been one of its founders; but the Romans pretended that it was founded by Æneas. Its ruins are still visible. The mineral waters of this place were called "Segesta aigua:" and they are placed in the Itinerary of Antonine on the route from the Lilybean promontory to Tyndaris, between Drepanum and Parthenium.

_SEGESTA._

The fabulous mixed circle, Twenty-five E. a.m. or afternoon Liguria, proved the town demontirated, Spain, northern town from E. the aot. a visible. empire. uninhabited. describable. Segesta, a town of Italy, in the interior of Liguria, towards the east. It was anciently considerable. 

_SEGESTAN, or SEJSTAN, in Geography, a province of Perista, formerly called "Nimofoe," from a fabulous tradition that it was once under water, and that it was drained in the short space of half a day by the Genti, comprehends part of Ariana and the country of the Sarangans, and is bounded on the N. and N.W. by Khorasan, E. by Canda- har and Zableftan, and S. and S.W. by Mekran and Kerman. The greater part of this province is flat, sandy, and uninhabited. A wind blows for a hundred and twenty days, during the hot months, with such violence as to overwhelm with clouds of sand, houses, gardens, and fields. Although Segesta is now reduced to a depopulated condition, it once rivaled in prosperity the most flourishing provinces of the empire. The noble river Heermund (the ancient Eymander), navigable for boats from Boll to Zarang, flows through the extent of it, from the mountains of Hazara, beyond Cabul to the lake of Zerah. Capt. Chirkie, who travelled in 1810 through the heart of Segesta, reports that from Noofsky, in northern Mekran, to the banks of the Heermund, the country was a mere desert, intersected with sand-hills, and that he did not see a single town, or even village, in the way; the only inhabitants of this wild being a few Balouque and Patan shepherds, who lived in tents pitched in the vicinity of the springs. He reached the Heer- mund in N. lat. 32° 24'. E. long. 64° 16', and followed the banks of that river for about seventy or eighty miles. Its course lies through a valley, varying in breadth from one to two miles, the desert rising on either side in perpendicular cliffs. The valley, irrigated by the waters of the river, is covered with verdure and bruffwood. Our traveller found an astonishing number of mixed towns, villages, and at one of these, Kula, an island in a tolerable state of preservation. The remains of a city, called "Poolkee," he describes as immense. The Heer- mund is four hundred yards wide, very deep; the water being remarkably fine, and the banks cultivated for half a mile on each side. The present capital of Segesta is "Dooh- shak," supposed to be the same with the ancient Zarang, and now the residence of the prince of Segesta, situated in N. lat. 31° 8'. E. long. 65° 10'; about eight or nine miles from the river. It is small and compact, but the ruins cover a vast extent of ground. It is populous, has a good bazar, and the inhabitants, dressed in the Persian manner, appeared more civilized than the other natives of the province, who are either Patan or Balouque shepherds, men of wandering life, and pitching their tents under the ruins of ancient palaces. The country in the vicinity of the town is open, well cultivated, and produces wheat and barley sufficient for exportation to Herat; the palturage also is good and abundant. The revenues of the chief of Segesta amount to no more than 50,000 rupees, and he can bring into the field about 3000 men. Twenty-five miles N. of Doohshak are the ruins of a very large city, called "Pehahuwan," and a few miles beyond that the remains of another, called "Jouen." Ferrah, or Ferah, is distant fifty-five miles from Doohshak, and it is described as a very large walled town, situated in a fertile valley, on a river which flows into the lake of Zerah, or Zara, and nearly half-way between Candahar and Herat.

Segesta is, at present, divided into a number of small independent states, governed by chiefs, who live in fortified villages, situated principally on the banks of the Heermund. About ten days' journey from Doohshak is the city of Kub- beer, situated in the midst of the desert, fifteen days' march from Kerman and sixteen from Yezd. The whole of the inter- mediate space is an arid waste, intersected with one or two ranges of mountains. Through this desert is a path, by which Caffids, or couriers, can go from Kerman to Herat in eighteen days; but the risk of perishing is so great, that a peron of that description demands 200 rupees for the carri- essage of a letter. Kimner's Mem. of the Persian Empire.

_SEGESTE; in Ancient Geography, a town of Ithria, be- longing to the Carni, according to Pliny. Strabo places it in Pannonia, at the confluence of several navigable rivers, so that the Romans estahlished their magazines in it, during their war with the Dacians.

_SEGESTI, a town of Italy, in Liguria, S.E. of Portus Delphi.

_SEGESVAR, in Geography. See SCHESBURG.

_SEGETICA, in Ancient Geography, a town of European Mydia, or of Moasia, of which Crailus gained possession, according to Dion Cassius.

_SEG EZ, in Geography, a river of Ruffia, which forms a communication between the lakes Sig and Vig, in the government of Olenetz.

_SEGGARS, in the Manufacture of porcelain and pottery, are cafes formed of coarser clays, but which are capable of retaining the required heat without fusion; in which different kinds of earthenware are baked. See PORCELAIN and POTTERY.

_SEGGERA, in Ancient Geography, a town of Africa Propria, according to the Itinerary of Antonine.

_SEGIDA, a town of Spain, in Celtiberia, Steph. Byz. and Strabo.

_SEGILMESSA, in Geography. See SUCULMESSA.

_SEGISA, in Ancient Geography, a town of Spain, in the Tarragonensis, in the interior of the country of the Bar- rilani.

_SEGISAMA, and Segisma Julia, a town of Spain, in the Tarragonensis, depending upon the Vaceans, according to Ptolemy. It was situated S. of Loc brigas, and E. of Pallentia.

_SEGLINGE, in Geography, a small island in the Baltic, near the coast of Finland. N. lat. 60° 14'. E. long. 20° 30'.

_SEGLORE, a town of Sweden, in West Gothland; 25 miles E. of Gothenburg.

_SEGMENT of a Circle, in Geometry, a part of a circle, comprehend between an arc and its chord; or, it is a part of a circle comprehend between a right line less than a semi-diameter, and part of the circumference.

Thus the portion AFBA (Plate XIII. Geometry, fig. 13.) comprehend between the arc AF and the chord AB, is a segment of the circle ABFD, &c.; fo is also ADBA a segment comprehend between the arc ADB and the chord A B. As it is evident every segment of a circle must either be greater or less than a semicircle, the greater part of the circle cut off by a chord, is, e. the part greater than a semicircle, is called the greater segment, as AFB; and the lesser part, or the part less than a semicircle, the leffer segment, as ADB, &c.

The angle which the chord AB makes with a tangent L B, is called the angle of a segment. It is demonstrated, that
that the angle included by a tangent to a circle and a chord, drawn from the point of contact, is equal to the angle in the alternate segment.

Some theorems on mixed angles are explained. The segment is the See segment.

The height of a segment is defined as the perpendicular from the base to the line parallel to the base.

If the area of the greater segment BFA were required, the triangle ABC must be added to the segments ACF and BCF. For other methods of finding the area of a segment of a circle, we refer to Hutton's Method, p. 133, &c.

Segment of a sphere is a part of the surface terminated by a portion of its surface, and a plane which cuts it off, passing somewhere out of the centre. This is more properly called a section of a sphere.

The base of such a segment, it is evident, is always a circle whose centre is in the axis of the sphere.

The solid content of a segment of a sphere is found by multiplying the surface of the whole sphere by the altitude of the segment, and then dividing the product by the diameter of the sphere, and to the quotient added the area of the base of the segment; or, if it be less than a hemisphere, then take the altitude of the segment from the radius of the sphere, and by the difference multiply the area of the base of the segment, and subtract this product, from that which will arise by multiplying the semi-axis of the sphere into the square of half the altitude of the segment; then divide the remainder by 3, and the quotient is the solidity sought.

The latter method supposes the axis of the sphere to be given; if not, it may be found thus: let the altitude of the segment be called $h$, and its semidiameter, $r$, then will $h^2 = h^2 - 2ah$; add $a^2$ to $a$, and that shall give the axis found.

See Frustum and Sphenum.


Segment is sometimes extended to the parts of ellipses, and other curvilinear figures.

Segments, Line of. On Gunter's sector there are usually two lines, called lines of segments; they are numbered with 5, 6, 7, 8, 9, 10, and lie between the lines of segments, and those of superficies. They represent the diameter of a circle, so divided into one hundred parts, as that a right line drawn through those parts, and normal to the diameter, shall cut the circle into two segments, of which the greater shall have that proportion to the whole circle, which the parts cut have to one hundred.

Segment of leaf, a denomination given by botanists to those leaves that are cut and divided into many shreds, or pieces, as fennel, &c.

Segmentum, among the Romans, an ornament of lace used by the women on their shoulders, which, according to fume, refembl'd our shoulder-knots.

Segmenta were likewise a kind of tesselated or Mosaic pavement, made up of pieces of vari-coloured stones, but which had no name of their own.

SEMIOSDAI, Valonia, in Austria, are little villages of the plains. The arable land is well plowed, and the gardens are fertile.

SENGA, in Geography, a small town of Brabant, on the sound of the Adria, declared a free port, and erected into a bishopric by the emperor Leopold II., in the year 1783. It is a free town, under the protection of Austria. The city is still built, walled, and fortified. It lies on the bank of the sea, on a foundation of concerete ground, at the mouth of a narrow valley, surrounded by mountains. Sengia supposed to have been originally situated about three miles farther from the sea, on a spot where are found traces of ancient habitations and burial monuments. The sea seems to have covered the bottom of the valley as far as the city, which rested on the side of a hill, and formed a tolerable harbour. The walls of this city were not constructed before the 16th century; and thus, together with other circumstances, affords a further proof that Senga does not occupy the site of the ancient Sinia. The wind from the mountains sometimes blows with such violence, that it is dangerous in winter to encounter it in the street. Horses loaded with salt are frequently thrown down in the market-place of Senga; and the roofs of houses, though covered with heavy stones, are removed. When hurricanes occur, the ships that happen to be in the harbour run the greatest risk of being lost; nor are they preferred without great labour and expense. The sea in the mouth of the channel of Senga, opposite to the valley, is hardly ever calm; but notwithstanding all these perils and disasters, the inhabitants had, about the beginning of the last century, fifty merchant-ships at sea; and they acquired wealth by exporting the corn, wood, wax, honey, tar, and iron of the Turkish state, on which they border, as well as the timber felled in the ancient forests of Vilebiach; and by importing, besides many other articles of merchandise, salt, oil, and wine, for the supply of the interior. At length, however, the inconvenience of their situation disconcerted their marine and commercial enterprises, so that at present Senga has but few ships belonging to it. Another damage was sustained by this city, in consequence of the regulation made by the court of Vienna in 1741, which deprived it of 60,000 florins a-year in money, 40,000 ells of cloth, and 100,000 measures of grain, given yearly by the emperor to the inhabitants of Senga, who were a warlike people, and formed a kind of barrier against the Turks on that side. When the Austrians took the country of Lika from the Turks, and formed all the inhabitants into militia, Senga lost its importance. The soil is so unproductive, that, with the utmost labour, it supplies scarcely provisions sufficient for two months in the year; and they are under a necessity of procuring water from a spring at the distance of twelve miles. The population of Senga is at present computed at less than 7000; and yet the people, amid all their disadvantages, manifest a civility and politeness of manners, which are not met with in any other place of the Austrian coast, nor even among the Venetian subjects of these parts. N. lat. 45° 4'. E. long. 15° 3'.
turning to Florence, he was employed in public affairs by the republic, and by duke Cionio, who in 1541 sent him on an embassy to Ferdinand, king of the Romans. He was, in 1542, appointed consul of the university of Florence, then in very high reputation. He wrote a history of Florence from the year 1527 to 1555, which in every respect is considered as one of the best productions of the age. It was seen by no one during his life, and was not printed until the year 1713, when it appeared, together with a life of Niccolo Capponi, gonfalonier of Florence, Segni's uncle. This writer likewise translated into the Italian language several treaties of Arrilottre, which were printed at Florence in 1549–50. He died in 1559.

SEGNI, in Geography, a town of the Campagna di Roma, the fee of a bishop, under the pope. Organs are said to have been invented in this town; 25 miles S.E. of Rome.

SEGNI, in Ancient Geography, a people of Gaul, who are supposed to have occupied a territory, which is the feite of a small town, called "Sinei," or "Signei," on the frontier of Namur, and to have founded it.

SEGINITZ, in Geography, a town of the duchy of Wurzburg, on the Maine; 12 miles S.E. of Wurzburg.—Alfo, a town of Germany, in the principality of Anspach; 4 miles S.W. of Maynbernheim.

SEGNO, It. 1, in Majic, a sign or mark of reference, for the repetition of any strain, or portion of a strain. It is usually an S, the initial of figura or figlio, dotted on each fide, thus $S$; of more use in rondells than in any other movements. The sharp $S$, natural $S$, and flat $b$, are accidental figus, as is the diesis $\times$, or double sharp. The paufe, or corona $\circ$, is a figo di silentio, as well as a final terminating sign. (See all these terms under their several heads.) The $S$ is likewise used in canons and catches written on one line, to mark the places where the several parts come in.

SEGO, in Geography, a city of Africa, and capital of the kingdom of Bambara, situated on the Joliba or Niger. Mr. Park, whose death we have now reason to lament, arrived at this city in his first African expedition; and to him we are indebted for the following account of it. He says, that it confined, properly speaking, of four divisions or quarters, two on each side of the water, and each of them surounded by a mud wall; so that they exhibited the appearance of four dillinct towns. The two divisions on the north side of the river are called "Sego Korró" and "Sego Boo"; and those on the south bank are called "Sego See Korró" and "Sego See Korró." The houfes are built of clay, and have flat roofs; but some of them have two stories, and many are white-washed. Besides these buildings, Moorish mosques are seen in every quarter. These objects, with the numerous boats on the river, a crowded population, and the cultivated flat of the surrounding country, formed altogether a prospect of civilization and magnificence, which our traveller little expected to find in the bofom of Africa. From the chief inquiries he could make, he had reason to believe, that Sego contained altogether about 30,000 inhabitants. The king of Bambara comittantly refides in the largelst quarter of the city, called Sego See Korró; he employs a great many slaves in conveying people over the river; and the money thus obtained, though the fare is only ten cowries for each person, furnishes a considerable annual revenue to the king. The boats on the Niger are of a circular construction, each of them being formed of the trunks of two large trees, rendered concave, and joined together, not fide by fide, but lengthways; the junction being exactly across the middle of the boat. They are, therefore, very long, and disproportionately narrow; for Mr. Park observed in one of them four horses and a great many people, croufing from a ferry. It was at a village near this city that Mr. Park was ordered by the king to take up his abode; but the inhabitants being indifferently, either from averion or from fear, to accommodate him with lodging and entertainment, he was under a necessity of sheltering himself, in a storm of thunder and rain, under a tree. For an account of the hospitable treatment he received on this occasion from a poor Negro woman, fee the article AFRICA. When he received, on the third day of his abode, an order from the king to depart from the vicinity of Sego, Manfeng (the king) wishing to relieve a white man in distress, sent him 5000 cowries, to enable him to purchase provisions in the course of his journey. The messenger added, that if Park's intentions were to proceed to Jenne, he had orders to accompany him as a guide to SanFanbing. Sego is situated in N. lat. 14° 10' 30". W. long. 2° 26'.

SEGOBRIKA, in Ancient Geography. See SEGORBE.

SEGODUNUM, a town of Gallia Celsita, belonging to the people called "Rutani," or "Ruteni," according to Ptolemy. In the Peutingerian Tables, it is called "Segudum"; and it afterwards took the name of "Rutenus," or "Ruteni," and at length that of Rodon.

SEGOLTA REM, one of the Hebrew accents, usually answering to our semicolon, and marked with three points over a letter, thus (•••) or (•••).

SEGONTIA, in Ancient Geography, a town of Spain, in the Tarragonensis, upon the route from Emerita to Saragozza, between Cafta and Arcobrega, according to the Itinerary of Antonine.

SEGONTIA Paramica, a town of Spain, in the Tarragonensis, belonging to the people called "Varduli."

SEGONTIACI, a people of the ile of Albion, who inhabited with the Trinobantes, and were of the number of those who submitted to Cesar.

SEGONZAC, in Geography, a town of France, in the department of the Charente, and chief place of a canton, in the dioclet of Cognac; 6 miles S.E. of Cognac. The place contains 2549, and the canton 12,386 inhabitants, on a territory of 2223 kilometres, in 19 communes.

SEGOR, in Ancient Geography, a town of Paleitine, in the Pentapolis, at the southern extremity of the Dead Sea. It escaped the destruction of the four other towns of the Pentapolis. Its first name was "Bala;" but Lot having obtained permission to flee from Sodom, called it Segor, or the little town.

SEGORBE, in Geography, a town of Spain, in the province of Valencia, with the title of duchy, agraciously situated in a very fertile vale, abounding in grain and in fruit, on a river of the same name, which there takes that of Murviedro or Morviedro. Its population consists of 13000 families, or about 66000 souls. Some people relying on the similarity of names, pretend that this is the ancient "Segorbera," which we find on many Roman medals; others, on the contrary, place that ancient town in Catifile; and others in Aragon. Segorbe is the fee of a bishop, suffragan to Valencia, the diocese of which comprehends 42 parishes. The clergy of its cathedral are composed of four dignitaries, ten canons, twenty-four benefactors, and thirty-three chaplains. The town has four convents of monks, a convent of nuns, a seminary, a hospital, five hermitages, oratories or chapels; a provost, who is at once official and vicar-general of the diocese; nine gates, and fix squares. It abounds in fountains, three of which are public, and about forty in private houses. It was taken from the Moors in 1245; by James I., king of Aragon. The
The cathedral church has some paintings of the school of Jacques, and of that of Riblita. The church of the con-
vent of numerous good architecture, and has some good
paintings. The bell-tower is kept in the ancient house of the
judges, Antonio Xumay, a poet in the commencement of the
17th century, and Juan Valera, a dramatist of the be-
ginning of the 17th century, were born in the town. At
a quarter of a league from Segorsa stands the Christian
monastery of Vel de Casa, founded by the domin cun
Marin, son and successor of Peter IV., king of Aragon.
Here are four good paintings by Veygara, Caramon, Da-
freda, Juanita, and Orarte. The monks have established
a paper manufactory at Altura, a village of about 1500
inhabitants, which belon to them, and which is at a quar-
ter of a league's distance between their monastery and Segoresa.
N. lat. 39° 58'. W. long. 39'.

SEGORIALACTA, in Ancient Geography, a town of
Spain, in the Tarragonenses, which belonged to the
Aurewac, Poeleny.

SEGOSA, a town of Gaul, marked in the itinerary et
Autonne between Aqui and Bourdeaux. It is now the
place called "Eusofile.

SEGOSTAEVE, in Geography, a town of Russia, in
the government of Koliva; 44 miles W. of Kralnoard.

SEGÖVELLAUNI, or SEGOSATV, in Ancient Geo-
ography, a people of the interior of Gallia Narbonensis,
in the vicinity of the Rhone.

SEGOSI, a town of Hither Spain, south of Casta;
rous for its aqueduct, said to have been constructed in the
time of Trajan.

Segovia, in Geography, a town of Spain, in Old Castile,
which in the arrangement of its buildings exhibits the
figure of a ship, with the stern to the sail, and the prow
to the wave, commanding an immense rock, and appearing
buried between two deep valleys, one lying to the north,
and the other to the south. The river is watered by a
stream, called Clameses, which forms a junction with the
Esquiura, that waters the left, on which are five handson
bridges. This river, whose boats are clothed with wood,
formerly bore the name of Areva, whereas the appellation
of Arwati was given to the inhabitants of these valleys.
The city is surrounded with walls; and a range of towers,
at equal distances, is planted on the ramparts. The number
of houses has been estimated at 5000, but the population
does not exceed 11,000 souls. The streets are almost all
narrow and crooked, and irregularly paved. The four
suburbs are on more even ground, and contain several manu-
ufactories. Segovia is the see of a bishop, suffragan of the
archbishop of Toledo, where diocese includes the cathedral
chapter of Segoriel, the collegiate chapter of St. Hefelento,
and 438 parishes. The cathedral chapter is composed of
38 dignitaries, 37 canons, 7 prebends, and 13 sub-prebends;
and besides these, 23 chaplains are attached to the church.
In Segovia are reckoned 24 parishes, a chapel of ease,
and 21 convents for both sexes. This city is the residence of
the metropolitan of the district, which assumes its name;
and under the superintendence of a regidor, an alcalde, and
a fixed number of regidores. Here are a statirical society,
the members of which assume the title of "friends of the
country;" and a military school, defined for the instruction
of young engineers. Segovia was once a commercial and
opulent town, eminently distinguished for its cloth and
woollen manufactures; and it has been calculated, that
44,160 quintals of wool were consumed in the looms of this
town, and that 34,199 persons were employed by them;
but its manufactures and trade declined, so that, in the
18th century, the manufacture of stuffs and cloths employed
no more than 120 hands, in which only 2318 grains of
waffed wool were consumed. Between 49 and 59 years
ago, this town lost its trade, and in 1670, when 3186
looms, which employed 5000 hands, wool, and afforded or spun 2542
silk threads. This city has still a town council of 300, but is of little
importance. An aqueduct has been built to convey the rain,
producing as perfect only water, and is a handsome building, erected in the 15th century by
Henry IV., and restored by Juan II., and additions are carried on by hydraulic machines; there
are the Capuchins, with four convents of nuns, the convents of the Carthusians, the town hall, the church of
the Conception, with a double tower; and the cathedral, with two towers, the church of San Juan Atonal,
- the cathedral church, which exhibits the ruins of Gallic and Christian architecture, the church of St.
Francis, bearing the character of a noble antiquity, where Alphina, the Wife crowned his attributes,
tables, and in which are apartments treated with marble
work, still fresh; and a large of 52 statues of painted wood,
and each bearing an appropriate inscription. The relief
mantel of Segoriel is its aqueduct, which has been re-
ferred by some writers to a very remote antiquity, and
attributed to the architects who built the Egyptian temple
of Serapis; but which much more probably originated with the
Romans, at an uncertain period, but perhaps with the
authority of Lucullus, Lacedem, or Trajan. The ma-
terials are of rough freestone. It commences at a large
byashelf, (about 50 paces from the town,) from whence
it receives the water, which it conveys through an open
channel towards the south. At its origin the fabric is erected
on a long range of 75 arches, of which the first is 14 feet
6 inches in height; the last, which is at the convent of St.
Francisco, is 33 feet 6 inches. At this point begins a
double row of arches, supported one over the other, which
run in the direction of isle and well, and cross the valley
and the place of Azoqueo; of these the greatest elevation
is 80 feet 10 inches. The whole range comprehends 159
arches, supported on pilasters, most of which measure 6 feet
11 inches in the front surface, and 9 feet 4 inches in the
interior side. The aqueduct terminates at the alcazar, after
having distributed the greater part of the water through
the different quarters of the town. In modern times, the noble
work of Roman architecture has been disturbed by the
erecion of several houses on its pilasters, a disposition highly
injurious to the majesty of the original edifice. It is built of
square stones, which are placed one on the other, without
any appearance of cement. Segovia was the native place
of Alphonso de Ledesma, a good poet, who flourished at
the commencement of the last century; of Domingo Soto,
the son of a gardener, who published an essay "De Juris
et Juro, two books "De Natura et Gratia," and Com-
nentaries on St. Paul's Epistle to the Romans. At Seg-
ogia was also born the Jesuit Francia Ribera, who died at
Salamanca in 1591, well known for the erudition and wise
men displayed in his Commentaries on the major prophets.
Segovia is distant 46 miles N.N.W. of Madrid. N. lat.
41° 3'. W. long. 4° 1'.

SEGOSIA, Nueva, a town of the island of Lucon,
founded in 1593, the see of a bishop, defended by a fort and
a garrison; situated near the N. coast of the island; 250
miles N. of Manila.—Alto, a town of Mexico, in the pro-
VoL XXXII.
vice of Nicaragua; 70 miles N.N.E. of Leon. N. lat. 13° 30'. W. long. 89° 56'.—Alfo, a town of South America, in the government of Caracas, and province of Venezuela, founded by the Spaniards in 1552; 130 miles S.W. of Caracas. N. lat. 8° 57'. W. long. 68° 16'.

SEGRA, a river of Spain, which rives in the N. part of Catalonia, and joins the Ebro, on the borders of Aragon, near Mouquene.

SEGRAIS, John Regnault de, in Biography, a man of letters, was born of a good family at Caen, in 1624. He was intended for the church, but a courtier, charmed with the spriteliness of his conversation, carried him to Paris when he was about twenty years of age, and placed him with Mademoiselle de Montpenier, who first gave him the title of her amanuensis in ordinary, and then of her gentleman in ordinary. He became known to the literary world by his lyric and pastoral poetry, and in 1656 he published a collection of pieces of this kind, together with some little stories called "Nouvelles Françoises," by which he obtained considerable reputation. He was thought to have been particularly happy in his Eclogues, in which he attempted to unite elegance with the simplicity appropriate to his subject. He aimed at a higher strain in his metrical translation of Virgil's Æneid, which was well received by the public, though it was not free from faults, which were heavy drawbacks on its merit. Thereropment of Segrais gave him admission, in the year 1662, into the French Academy. In 1672 he quitted Mademoiselle de Montpenier, and was domiciled with Madame de la Fayette, whom he affiliated with his advice and correction in the composition of her romance of "Zayde," and he engaged his friend the learned Huet to prefix to it his Differtation on Romances. He at length retired to his native city, and married a rich heiress, who was his cousin. Being now at his ease, and somewhat incommode with deafness, he declined engaging in the education of the duke of Maine, observing that experience had taught him that at court both good eyes and good ears are requisite. He collected the difpermed members of the academy of Caen, and gave them an apartment to meet in. He died in 1701, at the age of 76. After his death, there appeared his translation of Virgil's "Georgies," and a mifcellany of anecdotes and literary opinions.

SEGRE, in Geography, a town of France, and principal place of a district, in the department of the Maine and Loire; 18 miles N.W. of Angers. The place contains 558, and the canton 9247 inhabitants, on a territory of 205 kilomètres, in 14 communes.

SEGREGATA, POLYGAMIA, in Botany, the laft order of the clafs Symphyta, in which the flowers are doubly compound, each floret, or assemblage of florets, having a partial calyx.

SEGRO, in Geography, a town of Naples, in Capitanata; 10 miles N.E. of Manfredonia.

SEGS, in Rural Economy, provincially the name applied to fedges, or fedge-grafs.

SEGSTADT, in Geography, a town of the duchy of Wurzburg; 5 miles E. of Hafurt.

SEGUATANEO, See CHEQUETAN.

SEGUE, in Italian Music, is often found before aria, sero, alleluja, amen, &c. to acquaint performers that such movements immediately follow the last bar of the preceding piece, over or after which such notice is written. But if the words fi place, or ad libitum, are added, they imply that such movements may be performed or not, at pleasure.

SEGUENZA, Ital. in Ecclesiastical Music, is a kind of hymn sung in the Roman church, generally in prose. The Seguence are generally sung after the Gradual, immediately before the Gospel, and sometimes in the vespers before the Magnificat. They were formerly more used than at present. The Roman church has retained three seguence, called by the Italians, li tre seguene dell' anno: which are, "Lauda Sion salvatorum," &c.; "Vittima pacli laudes," &c.; "Veni Sancte Spiritus." These are sung, in many places, to figurative music. There is also one beginning "Dies irae, dies ille," in the funeral service, which has been admirably set by all the great composers a cappella of Italy, and among the Catholics of Germany.


Gen. Ch. Cal. Periaphis inferior, spreading, permanent, of five, oblong, coloured, concave leaves. Cor. bore. Stam. Filaments numerous, capillary, spreading, longer than the caly whole; anthers oblong, flatish. Pist. German superior, oblong, comprefed, membranous at the top, thicker on one side; style very short, at the thicker side of the germen; stigma fimple. Peric. Capule oblong, augmented by a very large wing, thicker on the straight side, with three smaller wings on each side at the base, of one cell, not gaping. Seed solitary, oblong, smooth.


1. S. americana. American Seguireria. Linn. Sp. Pl. 747. Jacq. Amer. 179. "Pict. 1. 82."—Stem climbing, prickly. Leaves lanceolate, margarinate. Clusters branched, leafy.—Native of South America, especially in woods and coppices about Carthagena, flowering in September. The flom of this shrub is generally twelve feet in height, with very long, round, green flowering branches, by which it is supported. Leaves alternate, falked, ovate, entire, flowering, with recurved prickles. Flowers in terminal clusters, with whitish, smelly disagreeably. The unique fruit is said to resemble that of Securidad.


SEGUIN ISLAND, in Geography, a small island on the coast of Maine, in Cacofo bay.

SEGUAM, one of the Fox islands, in the North Pacific ocean. N. lat. 53° 35'. E. long. 187° 50'.

SEGUINTIA CULTIBERUM, in Ancient Geography, a town of Spain, in Celtiberia. Livy.

SEUR, in Geography, a town of France, in the department of the Correze; 12 miles W. of Uzerche.—Allo, a town of France, in the department of the Aveiron; 12 miles E.S.E. of Rhodez.
SEGURA, a town of Spain, in the kingdom of Andalusia; 34 miles N. of Saragossa.—Alli, a town of S. of the S. of Saragossa.—Almor, a town of S. of the S. of Saragossa, about 13 miles S. of Saragossa, and the length of N. and S. of Saragossa, near the river of Saragossa.—Alma, a town of S. of the S. of Saragossa, about 16 miles of of Saragossa.—Alma, a town of S. of the S. of Saragossa, about 18 miles S. of Saragossa.—Amposta, a town of the province of Lerida, near the E. of Spain; 7 miles N. of Barcelona.—Amposta, a town of the province of Lleida, near the E. of Spain; 7 miles N. of Barcelona.

SANTA CRUZ DE TENERIFE, a town of the island of Tenerife, in the province of Tenerife, built by Cortez; 50 miles S. of Tenerife.

SANTA CRUZ DE LA SIERA, a town of Spain, in the province of La Sierra; 60 miles of Chiutlla.

SEGUSO, a town of France, in the department of the Upper Perigord; 4 miles N. of Angouleme.

Segus, in Ancient Geography, a river of Germany, the banks of which were inhabited by the Sicambri, according to Caesar and Tacitus.

SEGUI, a town of the island of Madera, inhabited by the natives of the island of Madera, and the length of S. of the island of Madera, near the E. of the island of Madera.

SEGUIN, or Seguins, a people of Gallia Celtica, or of Lyons. To the N. were the Caei and Seguins, to the E. and N. the Allebroges, and to the W. the Arverni. Pliny says, that these people were dependent on the Caei in the time of Caesar; but that they rendered themselves independent under the empire of Augustus.

SEGUSIO, a town formerly not inconsiderable, in Transpadana Gaul, among the mountains, on Duria Minor. Under the Romans it obtained the title of municipal. In later times, its rulers were designated by the title of marquis. At present it is included in Picardy.

Among other things found in this place is the triumphal arch on which were inscribed the appellations of the people who were subject to Cottius in the time of Augustus. See Segusian.

SEGUSTERO, Sitges, a town of Gallia Narbonensis. From its Celtic name we are led to presume that it existed, or at least that its territory was inhabited, before the Romans came into Provence. Some have thought that this town depended on the Avantici.

SEGWAH, in Geography, a town of Hindostan, in Baghala; 20 miles S. S. E. of Damascus.

SEHALOUR, a town of Hindostan, in Mysoo; 36 miles N. of Serampur.

SEHUN, a town of Arabia, in Yemen; 3 miles W. N. W. of Doran.

SEHARUNKOUR, a town of Hindostan, and capital of a circuit, to which gives name, between the Jumnah and the Janghe, in the subah of Delhi; 86 miles S. of Delhi.

SEHARUNKOUR, a town of Hindostan, and capital of a circuit, to which gives name, between the Jumnah and the Janghe, in the subah of Delhi; 86 miles N. of Delhi.
but for a time he concealed his fpicicous in his own breath, and even while under the fear of danger, he conferred upon his minister additional marks of his favour, making him his colleague in the confulship. He however gradually withdrew from him the tokens of his confidence, and finding that the symptoms of this change had greatly diminished the crowds that attended his levees, he proceeded, though with much caution, to the meafures for his deftitution. He now appointed another commander of his praetorians. Sejanus, knowing the extent of his own guilt, began to be alarmed: he called together his friends and followers, and held forth to them the most flattering promises, and having increased the number of his partifans, formed a bold conspiracy, resolved by any means to feize the sovereignty. A powerful league was formed with ftunning rapidity, and great numbers of all defcriptions,fanétors as well as military men, entered into the plot. Among thefe, Saturnius Secundus was the confident friend and prime agent of the minister, who, for reasons that are not known, resolved to betray his master. For this purpose he addreffed himself to Antony the triumvir, the widow of Drusus, and the mother of Germanicus. When this illustrious woman, who was highly esteemed by the people, as well as honoured by the court, heard the particulars, she feft dispatches to the emperor by one of her flaves. Tiberius was allotted, but not at all dismayed: the danger preferred, and he determined to take decisive meafures. He feft Macro to Rome with a special commiffion, and giving him ample powers that might be adapted to all emergencies. Early in the morning of the 15th, before the kalends of November, a report was spread, that letters had arrived at Rome, with the view of augmenting fift another the honsours of Sejanus. The fenate was summoned to meet in the temple of Apollo, near the imperial palace. Sejanus attended without delay, and a party of praetorians followed him. Macro met him in the veftibule of the temple. He approached the minister with all demonstrations of profound respect, and taking him aside, told him not to be surprifed that he had not received a letter from the emperor himself, but, fays he, I am this day to deliver the emperor’s orders. Sejanus, elated with joy, expefting fome unlooked-for dignity, entered into the fenate-houfe, and Macro followed. He opened his commiffion by reading a long letter in the fenate to the confuls from Tiberius, which concluded with an order to feize his perfon: infantly the whole assemby loaded with inful tions and reproaches the man at whom they lately bent, and the people began to throw down and treat with every indignity the ftatures before which they had been accustomed to offer Sacrifices. His perfon was feized, and thrown into prifon, and being accufed of high treafon, he was condemned without a fingle defender. On the fame day he was executed, and his body thrown into the Tiber. A maffe of his relations took place, and even his infant children were inhumanly flaughtered. This catastrophe took place in the year 31 of the Christian era, and it firmed to Juvenal a fine infine of the mutability of fortune, of which he took advantage in his tenth fatire.

SEIBERSHOLTZ, in Geography, a town of Bavaria, in the principality of Aichfatt; 3 miles N. of Aichfatt.

SEIBERSTORF, a town of Audria; 8 miles N. E. of Ebenfurth.

SEIBO, or ZEYO, a town of the island of Hispaniola; 50 miles E. N. E. of St. Domingo.

SEIBUSSE, a river of Algiers, which runs into the Mediterranean, near Bona.

SEICHES, a town of France, in the department of the Lot and Garonne, and chief place of a canton, in the diocife of Marmande; six miles N. E. of Marmande. The place contains 1351, and the canton 13,546 inhabitants, on a territory of 250 kilometres, in 20 communes.—Alfo, a town of France, in the department of the Maine and Loire, and chief place of a canton, in the diocife of Bauge; nine miles W. of Bauge. The place contains 1364, and the canton 9966 inhabitants, on a territory of 240 kilometres, in 13 communes.

SEID GENDER, a town of Peruia, in the province of Lariflan; 25 miles N. of Lar.

SEIDE. See Saida.

SEIDENBACH, a town of Germany, in the principality of Culmbach; 9 miles W. S. W. of Bayreuth.

SEIDENBERG, a town of Lufatia, in which are manufactures of cloth and knit flrockings; 8 miles S. S. E. of Gotlitz.

SEIDENSCHWANZ, a town of Bohemia, in the circle of Boleflau; 8 miles N. of Turnau.

SEIDENSTETTEN, or SEITENSTETTEN, a town of Austria; 9 miles N. N. W. of Waidhoven.

SEIFERSDORF, a town of Bohemia, in the circle of Boleflau; 5 miles S. of Krottan.

SEIGH, a town of Hindoolfan, in Bahar; 15 miles S. of Bahar.

SEIGHN, a town of Hindoolfan, in Bahar; 31 miles N. of Hagypour.

SEIGN, a forfets of Dalmatin, in the territory of Spalatro; 16 miles N. E. of Spalatro.

SEIGNELAY, a town of France, in the department of the Yonne; 6 miles N. of Auxerre.

SEIGNEUR, or SEIGNOR, Lord. See SIRE, SIEUR, MONSIEUR, LORd, &c.

SEIGNIOY, DOMINIM, in our Las, is used for a manor or lordship.

SEIGNORAGE, or SEIGNORAGE, a right or due belonging to a feigneur, or lord.

SEIGNORAGE is particularly used for a duty belonging to the prince for the coining of money, called also coinage (which fee), and in the bolder Latin monetagium. See REMEDY for the Master of the Mint.

This duty is not always the fame, but changes according to the peculfure of the prince, and the occasions of flate. It is in some measure for the discharge of this duty that alloy was invented; that is, the mixture of other metals with gold and silver.

Under our ancient kings, for every pound of gold brought in the mafs to be coined, the king’s duty was five fhillings; one fhilling, and sometimes eighteen pence, of which went to the master of the mint. Under Edward III. the feignorage of every pound weight of silver was eighteen penny weight, which was then equivalent to a fhilling. Under Henry V. the king’s feignorage for every pound of fiver was fifteen pence. At prefent, the king claims no feignorage at all, but the subject has his money coined at the public expence; nor has the king any advantage from it, but what he has by the ally.

In France, under Philip Augulfus, the feignorage was one-third of the profit made by coining; St. Louis fixed it at one-sixteenth part of the value of the money coined: king John, at three livres the mark of gold; Charles VII. by reafon of the defire of his finances, raised it to three-fourths of the value; Louis XIII. fixed it at fix livres the mark, or eight ounces of gold, and ten fols the mark of silver. Louis XIV. took away the right of feignorage in 1679, though it was re-established in 1689, on the foot of seven livres ten fols the mark of gold, and twelve fols fix deniers the mark of silver.
SE1

It must be observed, that for the levying of this duty of 450 francs, the full value of the money is augmented by the value of the duty.

SE1IAN DIST. in Gallia, a mount of Taurin

SE1UON, a river of Carinthia, which runs into the

SE1IA, a town of Asia, Turkey, in the province of

SE1K, S. Suhsi.

SE1L, a small island in the North sea, near the

SE1LAC, a town of France, in the department of

SE1LLE, a river of France, which runs into the

SE1M, in Agriculture, a term used by the farmers of

SE1MAN, in Geography, a town of Asian Turkey, in

SE1MARIEH, a town of the Arabian Iraak, on the

SE1ME, a town of Nubia, which affords good water.

SE1MOUR, a river of Hindooistan, which runs into the

SE1, a small island near the coast of France, in the
department of the Finistere, the coasts of which are dan-
gerous on account of its rocks and shallows; 28 miles
S.S.E. of Uhat. N. lat. 48° 2'. W. long. 42° 2'.

SE1NE, a river of France, which runs through about
two leagues S. of Aignay-le-Duc, in the department of the

SE1NE, a town of France, in the department of

SE1NE, a department of the northern region of France,
formed of the isle of France, situated in 45° 30' N. lat.
containing 24 square leagues, on 4542 kilometres, and
629,763 inhabitants, and divided into three circles or
distriicts, 20 cantons, and 79 communes. The circles are St.
Denis, including 56 communes, and 46,964 inhabitants;
Sceaux, with 24 communes, and 39,092 inhabitants; and
Paris, comprehending 12 cantons, in one commune, and
546,856 inhabitants. The contributions in the 11th year of
the French era, were 23,499,486 francs, and the ex-

SE2, a fragment of the second French leagues. Its circle are
8 1/2, containing 497,673 inhabitants, divided into five
circles, and 107 communes. The circles are St.
Denis, including 42 communes, and 42,984 inhabitants;
Sceaux, with 24 communes, and 39,092 inhabitants; and
Paris, comprehending 12 cantons, in one commune, and
546,856 inhabitants. The contributions in the 11th year of
the French era, were 23,499,486 francs, and the ex-

SE3, I see a department of the 2nd in the region of
France, bounded on the E. by the department of the

SE4, in France, bounded on the E. by the department of

SE5, a commune, having 10,232 inhabitants, in 222 communes; Dieppe, having 10,633 inhabitants, in 222 communes; Neuchatel, with 82,460 inhabitants, in 200 communes; and Rouen, with 221,225 inhabitants, in 200 communes. Its contributions in the year 11, were 9,106,417 fr. and expenses 55,586 fr. 33 cents. Its capital is Rouen. According to Hallenfratz, its length is 35 and breadth 30 leagues; its number of towns 64, and its population comprises 55,400 inhabitants. This department affords abundance of grain, fruits, and pastures.

SE6, and Maritime, a department of the same region of
France, forming a portion of French Gaitous, and of Upper
and Lower Brit, and bounded on the N. by the departments of the

SE7, and Oise, a department of the same region of
France, consisting of a portion of Vexin-Francais, of
Hurepoix, of Montsou, &c. and bounded on the N. by the
department of the Oise, on the E. by the department of the

SE8, a commune, having 88,411 inhabitants, in 164 communes; Fontainebleau, with 57,964 inhabitants, in 164 communes; and Provins, having 47,190 inhabitants, in 106 communes. Its contributions in the 11th year of the French era, were 5,126,616 fr. and expenses 307,848 fr. 33 cents. Its capital is Melun. According to Hallenfratz, the length of this department is 32, and its breadth 16 French leagues; its number of circular is five, and of cantons 37, and its popu-
lation is 296,457. This department is diversified with forest, cultivated tracts, and pastures.

SE9, and Oise, a department of the same region of
France, forming a portion of Vexin-Francais, of
Hurepoix, of Montsou, &c. and bounded on the N. by the
department of the Oise, on the E. by the department of the

SE10, a commune, having 88,411 inhabitants, in 164 communes; Fontainebleau, with 57,964 inhabitants, in 164 communes; and Provins, having 47,190 inhabitants, in 106 communes. Its contributions in the 11th year of the French era, were 5,126,616 fr. and expenses 307,848 fr. 33 cents. Its capital is Melun. According to Hallenfratz, the length of this department is 32, and its breadth 16 French leagues; its number of circular is five, and of cantons 37, and its popu-
lation is 296,457. This department is diversified with forest, cultivated tracts, and pastures.

SE11, and Oise, a department of the same region of
France, forming a portion of Vexin-Francais, of
Hurepoix, of Montsou, &c. and bounded on the N. by the
department of the Oise, on the E. by the department of the

SE12, and Oise, a department of the same region of
France, forming a portion of Vexin-Francais, of
Hurepoix, of Montsou, &c. and bounded on the N. by the
department of the Oise, on the E. by the department of the

leagues. Its circles are nine, and cantoa 59, and its population 471,612. The soil of the two last circles is moderately fertile, but the others yield abundance of grain, fruits, and pastures.

SEINHEIM, Markt, a town of Germany, and capital of a lordship, united to the country of Schwarzenberg; 18 miles S.E. of Wurzburg.

SEIONT, a river of North Wales, which runs into the Menai near Caernarvon.

SEIR, in Ancient Geography, the name of mountains which lay to the E. and S. of the Dead sea, appropriated to them before the establishment of the Israelites in the land of promise.—Alto, a mountain on the frontier of the tribe of Juda and that of Dan. Josh. iv. 10.

SEISACHTHEIA, Σείσαχθεία, in Antiquity, a public sacrifice at Athens, in memory of Solon's ordinances, by which the debts of poor people were either entirely remitted, or at least the interest due upon them, cancelled, and the creditors prevented from feizing upon the persons of their debtors, as had been customary before that time.

The word signifies the flashing of a burden.

SEISENBURG, or Sieonenberg, in Geography, a town of Carniola; 11 miles S.E. of Weixelburg. 

SEISENSTAIN, a town of Austria, on the Danube; 2 miles N.E. of Ips.

SEISIN, Seisina, in Law, signifies possession. In this sense we say, primer feisin, for the first possession, &c.

Seisin is twofold, seisin in faid, and seisin in law. The former is when an actual and corporal possession is taken: and the latter, when something is done, which the law accounted a seisin, as an enrolment.

This in law gives a right to lands and tenements, though the owner be by wrong dispossessed of them. He who hath an hour's possession quietly taken, hath seisin de droit, &c., of which no man may dispossess him by his own force or subtlety, without process of law. See DISSEisin.

The civilians call the latter civitatem possessoriam, and the former naturalem.

SEISEN, Livery of. See LIVERY.

SEISANA habendo, quae non habuit annum, diem et vasum, a writ that lies for delivery of seisin to the lord of lands or tenements, after the king, in right of his prorogative, hath had the year, day, and wafe, on a felony committed.

SEISENAM habere faciam. See HABERE.

SEISOR. See DISSEISR.

SEISSAN, in Geography, a town of France, in the department of the Ges; 9 miles S. of Auch.

SEISSEN, a town of Saxony, in the circle of Erzgebirg; 18 miles S.S.E. of Freycyberg. N. lat. 50° 35'. E. long. 13° 27'.

SEITAN, a name given by Avicenna, and other of the Arabian writers, to a species of prickly tree, often recommended in their prescriptions.

The word is sometimes also written setan, seten, setab, or setun.

Pliny mentions this as a wood remarkably durable. He says it grew midst plentifully in Egypt, and that it remained uncorrupted in waters. It is called by him, and others of the old Latin writers, fecina nigra, the black-thorn; and the durable nature of our common holly-tree, or blackthorn, growing on our hedges, has tempted some to believe it to be the same with the setan, or scavina nigra of the ancients; but this is overthrown by the common account of Pliny, and others, of ships being built of this wood, the small size of our black-thorn rendering it wholly impossible to put it to such uses.

Theodotion is to be understood of this wood, when he speaks of the setab, or acanthina.

It is plain, from Avicenna, that this setan, or setan, is no other than that species of acacia, which, from its producing our gum arabic, is called the gum arabic tree.

SEITIL, in Commerce, a wine measure at Vienna; 168 seiles = 70 kopien = 40 maflies = 4 vertius = an eimer; and 30 eimers = a dreyling, and 32 eimer = a fuder of wine. The contents of a maal is 71/2 French cubic inches, or 86/5 English ditto, or 3 English pints nearly; so that one eimer is = 15 English gillons.

SEITSAARI, in Geography, an island of the Baltic, five versts long, and about half as much in breadth, distant 95 versts from St. Petersburg, and 75 from Vyborg. The land-banks here reach as far as to the Petersburg channel, and, being invisible from their lying under water, are dangerous in dark nights, that in this place alone not fewer vessels have been lost than in all other parts of the gulf of Finland together. The land is every where unfruitful; though in some of the marshes there is a slight crop of hay. Great numbers of eels and itone perch are caught here. The herring and sea fisheries are also considerable. The inhabitants compose about 20 families. Here is a light-house.

SEITTENHOFF, a town of the duchy of Carniola; 3 miles N. of Weixelburg.

SEITZ, a town of the duchy of Stria; 6 miles N.E. of Cilley.

SEIJUR, a river of Syria, that rives a little N. of Antab, and after a course of about 30 miles through a plain deriving its name from it,loses itself in the earth.—Alto, a town of Syria; 15 miles S. of Antab.

SEIX, a town of France, in the department of the Arriege; 7 miles S. of St. Girons.

SEIZE, Seaze, or Seife, Te, in Sea Language, is to join two ropes, or the two ends of one rope, together, &c., by several close turns of small rope, line, or spun-yarn, round them, with two or more crois-turns.

Throat-fezing, is the first feizing clapt on where a rope or ropes cross each other; see RIGGING, Plate N° 11. fig. 16, at 5.

Middle-fezing, is a feizing between a throt and end-fezing, as at 6.

End-fezing is a round feizing near the end of a rope, as at 7, on the same plate.

Eye-fezing, is a round feizing next the eye of a hrood, &c. RIGGING, Plate II. fig. 15, at 3.

The feizing, feasing, or seafing of a boats, is a rope tied to a ring or little chain in the fore-lip of the boat, by which means it is fastened to the side of the ship.

SEIZING, in Falconry, is when an hawk gripes her prey, or any thing else, full between her claws.

SEIZURE, in Commerce, an arrest of some merchandise, moveable, or other matter, either in consequence of some law, or of some express order of the sovereign.

Contraband goods, those fraudulently entered, or landed without entering at all, or landed at wrong places, are subject to feizure.

In feizures among us, one half goes to the feizor, or informer, and the other half to the king. In France, half the painted linens, &c. feized, used to be burnt, and the other half lent abroad; but in 1715, by an arret of council, the whole was ordered to be burnt.

SEKI, in Geography, a town of Japan, in the island of Niphon; 20 miles S.S.W. of Izo.

SEKIALE, a town of Arabia, in the province of Nedjs; 300 miles E. of Madian.

SEKIDO, a town of Africa, on the Gold Coast, in the district of Agouana, which has an English factory.

SEKIN,
The text contains references to various places and species, discussing their geography, morphology, and uses. It includes detailed descriptions of plants and their habitats, mentioning terms like 'Corymb', 'Leaves', 'Fruits', and 'Flowers'. The text is rich with botanical terms and geographic references, providing a comprehensive overview of the subject matter. The extract is from a larger document that appears to be a natural history or botanical reference.
and sometimes on all of them, and an orange spot at the
mouth of the tube. Bracteas alternate, ovate, large. It is
valuable not so much on account of its beauty as its fra-
grance. Linnaeus described it under the name of Lippia
ovata from a dried specimen which may account for its
faying the flowers are of a dark-violet colour. M. L'He-
ritier first referred it to Selago; in doing which, Mr. Curtis
observes, it would have been better to change the specific
name to Bracteas, its floral leaves or bractees confinuting
the most prominent feature of the plant.

Selago, in Gardening, furnishes plants of the thrubby
and under-thrubby kinds, of which the species cultivated
are; the fine-leaved selago (C. corymbosa); the linear-
leaved selago (S. ipurila); and the ovate-headed selago
(S. ovata).

Method of Culture.—These plants may be increased by
cuttings and layers. The cuttings should be made from the
young under-thruits, and be planted out during the summer
months in a bed of fresh earth, covering them close with
a bell or hand-glafs, shading them from the sun, and refresh-
ing them and rising them with water. They should be gra-
dually hardened, and then transplanted into small pots,
placing them in the shade till they have taken root. The
layers may be laid down in the autumn or spring, and when
well rooted be taken off and planted out in pots, as above.
The plants should afterwards be placed out with other hardy
greenhouse plants, and about the end of October removed
into the dry stove. They only require protection from frost,
being treated in the same manner with the harder fort of
greenhouse plants.

They afford much ornament and variety in greenhouse
collections, among other fimilar plants.

Selah, in Scripture Criticism, a word which occurs no
less than seventy times in the Hebrew text of the Psalms,
and which has occasions great difficulty to the critics.
The Septuagint renders it διελθαμα, g. d. a pause in finging :
and this, it must be owned, was greatly wanted before the
Psalms were divided into verses.

Selam, in Geography, a town of Egypt, on the left
bank of the Nile; 6 miles N. of Siut.—Alto, a town of
Mexico, in the province of Yucatan, near the coast; 45
miles N.W. of Merida.

Selame, an island, or rather cluster of small islands,
near the coast of Arabia, at the entrance into the gulf of
Perfia, near Cape Mecandum.

Selamum, a town of Egypt, on the W. branch of the
Nile; 48 miles N.N.W. of Cairo.

Selanieh, or Zelanien, a town of Egypt, on the E.
branch of the Nile, opposite to Damietta.

Selanian, in Botany, a name by which some fcholars
have called the common crocus vernus, or the garden spring-
flower, which we call the crocus.

Selb, in Geography, a town of Germany, in the prin-
cipality of Culmbach; 14 miles S.E. of Hof.

Selbe, a river of the Isle of Man, which runs into
Ramsey harbour.

Selberg, a mountain of Austrian Swabia; 4 miles
W.N.W. of Schonau.

Selbistan, a small town of Perfia, in the province of
Farfitan, at the distance of 18 furlands from the capital
of the province, containing about 4000 inhabitants, situated
at the foot of a hill, on the banks of a small stream, which
is mostly abордин in the irrigation of the gardens and fields
adjoining the town.

Selbitz, a town of Germany, in the principality of
Culmbach; 3 miles S.S.E. of Lichtenberg.—Alto, a
river of Germany, which rifes in the principality of
Calabach, and runs into the Saal, 2 miles N.E. of Lichten-
berg.

Selboe, a town of Norway, in the diocese of Dron-
theim, where a copper-mine was discovered in the year
1712; 40 miles S.E. of Drontheim.

Selbosoe, a town of Norway, in the province of
Drontheim; 16 miles S.S.E. of Drontheim.

Selby, a market-town partly within the liberty of
St. Peter of York, and partly in the lower division of the
waspente of Barkleton Awe. West Riding and county of
York, England, is situated on the south bank of the
river Ouse, at the distance of 14 miles S. by E. from
York, and 181 miles N. by W. from London. This
town is of great antiquity, having been known in Saxon times
by the appellation of Selbage. In the year 1070, William
the Conqueror erected a monastery at Selby; and having shortly
after visited his new foundation, along with his queen, the
latter was here delivered of a son, who succeeded to the
throne by the title of Henry I. From these circumstances
this place derived considerable celebrity; and was endowed
with various privileges. Many of these, however, are now lost,
but it still retains a market, held on Monday weekly,
and three annual fairs, held on Easter Tuesday, the 22d of
June, and the 10th of October. Here also are holden the
petty fessions for the waspente of Barkleton Awe.

Selby abbey flour on the west side of the town. It was
dedicated to the honour of St. Mary and St. German; and
was filled with monks of the Benedictine order. King
William Rufus gave the patronage of it to the archbishop
of York and his successors, in lieu of the claim they had to
some part of Lincolnshire. Previous to the disfolution its
revenues were valued at 729l. 12s. 10d. per annum, accord-
ing to Dugdale; and at 819l. 22. 6d. according to Speed;
which, with the abbey itself, were granted by king
Henry VIII. to Sir Ralph Sadler. Since that period the
buildings of this monastery have been appropriated to various
uses; and most of them are now demolished, except the
church, which appears to have been a very spacious and ele-
gant pile. From the various styles of its architecture, no
doubt can be entertained of its having been erected at dif-
ferent periods. The oldest divisions are the body and nave,
which evince an early Norman origin, and are probably
eoecal with the foundation of the abbey. The western
front, though extremely irregular, is exceedingly curious,
both with respect to structure and ornaments. The entrance
on this side, and likewise the northern porch, are particularly
worthy of observation. The form of this church is that of
a clops, the shaft of which measures 269 feet in length, and
its transept 100 feet. From the centre of the whole pile
rises a massive tower, which was rebuilt in 1702. On each
side of the choir are twelve ancient falls, similar in form and
workmanship to the prebendal falls in York cathedral.
In the windows are considerable remains of flained glafs,
representing the armorial bearings of Thomas, earl of Lan-
caster, and other distinguished characters of the fourteenth
and fifteen centuries. Here are likewise several ancient
monuments, and a great variety of modern date, i. e. created
since the church became the parochial place of worship about
the year 1660.

According to the parliamentary returns of 1814, Selby
parish contains 742 houses, and 3363 inhabitants. The
principal trade of the town consists in ship-building, and
in the manufacture of leather, fail-cloth, and iron articles.

Five miles to the northward of Selby is the village of
Cawood, remarkable for the ruins of its ancient c<lale,
which is said to have been erected by king Athelstan
in the year 926, and which afterwards became a palace of the
archbishops.
archbishops of York. The flattering entrance or gateway is still remaining, on the summit of which cardinal Wolsey used to sit, and enjoy the view of the surrounding country. Oxburgh castle continued in all its splendour till the commencement of the civil war in 1642, when it was seized upon, and garrisoned for the parliament. It subseqently, however, fell into the hands of the king's party, and filled a siege of ten months before it was retaken by the parliamentary troops, when it was ordered to be demolished. The history of Selby, by James Mountain, 12thmo. York, 1833. Beauties of England and Wales, vol. xi. by John Bigland, 1814.

SELCH, Skerne, one of the smaller Orkney islands, a little N. of North Ronaldshay.

SELCHA, or Sellaqua, in Ancient Geography, a town of Judaea, situated in the half tribe of Manasseh, on the other side of Jordan, according to Joshua.

Selden, John, in Biography, a very distinguished scholar, and an eminent political character, called by Grotius "the glory of England," was born at Salvington, in Sussex, in 1584. He was educated at the free-school at Chichester, whence he was sent to Hart-hall, Oxford, where he resided about four years. He then removed to London, for the study of the law, and with this view entered himself in Clifford's-inn, and about two years after he removed to the Inner Temple, where he soon acquired great reputation by his learning. He had already made himself known by some works of great merit, and this year he wrote verses in Latin, Greek, and English, upon Mr. William Browne's Britannia's Palaesias.

Having been called to the bar, he occasionally pleaded, but was much more employed as a chamber counsellor. The first object of his private studies was the history and antiquities of his own country, and in 1607 he drew up a work, entitled "Analecten Anglo-Britannicum," which was a chronological summary of English history down to the Norman conquest. This work was followed, in 1610, by "England's Epinomis," and "Jani Anglorum Facies Altera," a Latin and English treatise on the origin and progress of English law. By these compositions he became known as a diligent enquirer into the early history and constitution of his country, and acquired the esteem of several eminent literary characters, among whom were Camden, Spelman, and sir Robert Cotton. He was also on familiar terms with Ben Jonson, Drayton, Browne, and other poets of that period, who seem to have regarded his learning and talents with great respect, though his genius appears to have been inclined to poetry. In 1614 he published his largest English work, a treatise on "Titles of Honour," in which he displayed a vast extent of reading, directed by sound judgment. It became a standard authority with regard to all that concerns the degrees of nobility and gentry in this kingdom, in which light it is still referred to; and it abounds in historical information concerning the origin of such distinctions as he traced through other countries. In the year 1617 he entered upon a wider field of literature, and made himself known to the learned throughout Europe, by a celebrated work "De Dies Syris." The chief or leading object of this performance was to treat on the heathen deities mentioned in the Old Testament, but he extended it to an enquiry into Syrian idolatry in general, with occasional illustrations of the mythology of other nations. This work was received with great applause by the learned world, and a new and improved edition of it was printed at Leyden, under the care of Daniel Heinsius.

Hitherto Selden had failed his life in the tranquillity of a man of letters, engaged in subjects not liable to debate; but his next publication, being "A History of Tyre," printed in 1618, subjected him to many severe opprobria, and brought upon him, says his biographer, "a burn for a quarter which has always proved dangerous to free enquirers." In the work alluded to, he had considered the question of the divine right to that republic, advanced by the clergy, and now beginning to be maintained by the bishops of the church, and though he only treated of it as a matter of history, without arguing for or against the right, yet the lamp of his authority had ill-naturally inclined the balance to the negative side of the question, some of the clergy took offence at his freedom, and made an accusation against him before king James. That sovereign, who was fond of interfering in theological disputes, and who was always desirous of keeping on good terms with the church, sent for Mr. Selden, and gave him a lecture on the subject, and being afterwards called before the archbishop of Canterbury, and some other members of the high commission court, he was induced to deprive himself, as to sign a declaration at his sorrow for what he had done. He, however, cautiously avoided retracting his opinion, or contradicting the facts which he had produced. Several answers to Selden's work were published, to which he was not permitted publicly to reply, though he circulated some remarks among his friends. This incident unquestionably confirmed him in his hostility to civil and ecclesiastical tyranny which ever after marked his conduct. Selden was next to shine in the character of an advocate for constitutional liberty, with which his name is now so closely allied. The parliament which James's necessities had obliged him to convocate in 1625, was soon at issue with him on the point of their powers and privileges, all of which the king asserted to have been grants from his predecessors and himself, while they maintained them to be an inheritance from their ancestors. Selden being referred to by the parliament as the ablest antiquarian of his time, for information relative to the ancient privileges of that body, spoke so freely before them against the practices of the court, and was so instrumental in drawing up their spirited protestations, that he was selected as one of the victims to the royal resentment, and committed to custody. His imprisonment was not rigorous, and he was soon discharged upon his own petition. Refusing now his antiquarian studies, he edited, in 1723, the historical work of Edadm, a monk of Canterbury, with learned notes relative to the laws and customs established by William the Conqueror. In the following year he was elected to the new parliament, as one of the representatives for Lancaster, but nothing occurred to call forth his exertions during that session. He was again a member in the two first parliaments of king Charles, in the second of which he was appointed to support some articles of impeachment of the duke of Buckingham. He afterwards took up the cause of sir Edward Hampden, who had been imprifoned for refusing to contribute to a forced loan; and in 1628 he was the person whom the house of commons employed to produce matter of record to justify its resolutions in favour of the subject's right to his liberty and property. These useful and very honourable labours did not fit entirely engross his attention, but that he found time, in 1629, to draw up his learned treatise, entitled "Marmora Arundeliana," the occasion of which was the importation by the earl of Arundel of some very ancient Greek marble columns. In this work he collected the evidences of great value in the study of history and chronology. This was another obligation conferred upon Selden, in the learned world, which was received with due gratitude.

On the dissolution of the parliament, on account of its vicious proceedings against the measures of the court, Sel-
Selden was one of the eight members of the house of commons who were thrown into the prison of the Tower, on a charge of sedition. Their application to be released on bail was only assented to by the judges, on condition of giving security for future good behaviour, which they refused to do, as repugnant to the dignity of parliament, and the rights of Englishmen. Being brought up by virtue of the habeas corpus act to Westminster-hall, the condition was again proposed, and again rejected, and both parties seemed to part in their determination: of course the term of imprisonment was indefinitely protracted. Its rigour was, however, softened, and shortly after became very lenient. Selden being removed, first to the Marshallea prison, and then to the Greenhouse, was at length ordered to go at large on bail, as were the others likewise, till the beginning of 1644, when bail was no longer required, and they were fully liberated. Their firmness was much applauded by the parliament party, and Selden was distinguished among them as being their spokesman, when the point was argued before the judges. During the imprisonment of Selden, his mind was not inactive; his studies were turned to Jewish history and antiquities, and the first fruits of them were shewn in a work entitled "De succedalionibus in bona defuncti ad leges Ebraeorum," which was published in 1631, and reprinted in 1636, with the addition of a treatise "De succedionibus Pontificatum Ebraorum." Selden had long employed his great talents in a work which was intended to allert and justify the maritime prerogatives of this country, in opposition to the principles advanced by Grotius in his work entitled "Mare Liberum." Selden's treatise was, after it had long lain on the shelf in MS., read and approved by King James: and the subject, in 1635, having become very interesting in consequence of some disputes with the Dutch, his majesty commanded its publication. It was therefore fitted by him for the press, and appeared in that year under the title of "Mare Clamium seu Dominio Maris." In this performance, the author first attempts to prove, by reasoning and example, that the sea is capable of dominion: and then to establish historically the British right over the circumjacent, or, as they have been denominated by others, the narrow seas. (See Campbell's Lives of the Admirals, vols. i. ii.) This author, speaking of Mr. Selden and his Mare Clamium, says in which, "he has effectually demonstrated, from the principles of the law of nature and nations, that a dominion over the sea may be acquired, and from the most authentic histories, that such a dominion has been claimed and enjoyed by several nations, and submitted to by others for their common benefit: that this was, in fact, the case of the inhabitants of this island, who, at all times, and under every kind of government, had claimed, exercised, and constantly enjoyed such a dominion, which had been confirmed by their neighbours frequently, and in the most solemn manner. All which, with learning, industry, and judgment superior to praise, this great man hath fully and unquestionably made out to the satisfaction of foreigners, as it is the design of this work to impress the same sentiment on the minds of all sensible Britons, viz. "that they have an hereditary, uninterrupted right to the sovereignty of their seas, conveyed to them from their earliest ancestors, in trust for their latest posterity."

Selden's work was, in truth, acceptable to all parties, and the king in council ordered copies of it to be kept in the council-chest, the court of exchequer, and the court of admiralty, as faithful and strong evidence to the dominion of the British seas. Several following years of Selden's life seem to have been chiefly occupied in Hebrew studies, of which one of the principal products appeared in 1640, under the title "De Jure Naturali et Gentium juxta disciplinam Ebraorum:" Lib. septem. This work is a copious digest of Jewish laws and institutions, as well from the rabbinical writers, as from the writings of the Old Testament, which is generally esteemed a valuable repertory of all the matter afforded by history or tradition relative to the subject.

This year, 1640, the long parliament met, and Selden was chosen one of the representatives for the university of Oxford. His name appears in several committees appointed for the correcting of the abuses, and restraining the oppressions of the reign, which parliament was, at this period, resolved to pursue. One of its strong measures, viz. the imprisonment of Lord Strafford, he did not concur in, not considering that this measure was warranted by the law of the land. Nor did he seem willing to proceed further in the reformation of religion, than to check the usurpation of ecclesiastical power, to which he was a most decided enemy; and he had no wish whatever to abrogate the episcopal form of church government, which he preferred to the presbyterian. So well affected was he, upon the whole, to the exiling constitution in church and state, that after the king had withdrawn to York, there was a design of appointing him keeper of the great seal. When the differences between the king and parliament were manifestly tending to an open rupture, Selden opposed the attempts of both parties to gain possession of the power of the sword, hoping that the strong arm of the law might prove sufficient to settle the contest, and when his efforts had proved fruitless, he withdrew, as much as he was able, from public business. He remained, however, in parliament, and was one of the yönod which met at Westminster for the establishment of church government. In 1643 he was appointed by the house of commons keeper of the records in the Tower, and in the next year he subscribed the Solemn League and Covenant. It is mentioned to his honour, that he constantly employed his influence, in these contentious times, for the service and protection of learning and learned men; and the university of Oxford, on different occasions, expressed its gratitude for the good offices which he performed for it in times of its distress. He likewise befriended the ladder university, in which he was regarded with so much veneration, that he was elected to the mastership of Trinity-hall, though he thought it right to decline the office. His learned labours were still unimpaired, and new works were occasionally flowing from his pen. Of these, the most considerable were, "Eutychii Egerius Orientalis Ecclefsiae leges," translated from the Arabic; "De Antiqua Civili Veterum Ecclesiae"; "Uxor Ebraica," which contained an account of all the Jewish rites and institutions relative to marriage; an edition of the ancient work entitled "Fleta;" "De Synedriis Veterum Ebraorum," being a copious account of the juridical courts of the Jews. His concluding work was "Vindictae de Scriptione Mari Chaua," the object of which was to controvert a malignant imputation of an English author, that he had composed his Mare Clamium in order to please King Charles, and obtain his liberation from imprisonment. Selden died in November 1654, having completed his seventieth year. He was interred with great solemnity in the Temple church, and on this occasion the learned Usher pronounced a funeral discourse. Selden was always in affluent circumstences, and had intended, at his death, to bequeath his valuable library and museum to the university of Oxford, but owing to some offence given to him, he left it to his executors, who, however, restored them to their first destination, and they now make part of the Bodleian library. After his death, his manuscripts printed a collection of Selden's sayings, entitled "Table Talk,"
"Selena," in Geography, a river which rises in Chalcedony, and traversing the countries of Ruffia, runs into the Balkan lake, 36 miles W. N. W. of Varchesul Ursinz.

SELENGIN, a town of Ruffia, in the government of Irkutsk, at the confluence of the Selenga and Chalok. It was made an o(trog in the year 1666, and about 22 years afterwards, the fort, which is now standing, was built, and to this the place owes its prosperity. The town lies parallel to the river, and contains two churches, and about 150 houses, inclosed within the fortifications. This is defended by five pieces of brass cannon, and many iron guns; and the garrison consists of a regiment of fielders. The inhabitants are nicknamed "Peromik," from the great quantities of sand found in these parts. The whole adjacent country is mountainous and barren, but a few miles below there is a good arable land. The country about Selenginsk yields a great quantity of rhubarb, incomparably as much as the Siberr Want exported from Ruffia grows in these parts; 54 miles. S. E. of Irkutsk. N. lat. 51°. E. long. 166° 44'.

SELENIACON, a mine for a kind of smelted Form for the epitypus.

SELENITE, in Mineralogy, crystallized gypsum. See Gypsum, and Sulphate of Lime.

SELENIZ, in Geography, a mountain of Carnithia; 10 miles S. of Clagenfurt.

SELENOGRAPHY, formed from σέλες, moon, and γραφή, description, a branch of cosmography, which describes the moon, and all the parts and appearances of it, as geography does those of the earth.

Since the invention of the telescope, selenography is very much improved.

We have now distinct names for most of the regions, mountains, &c. visible in the moon's body. The first who attempted, but in a very rude manner, to make a map of the moon's surface, was Riccioli. Hevelius, a celebrated astronomer, who was a burgess-mater of Dantzig, and who published his selenography, represented the appearance of the moon in its different phases from the new to the full, and from the full to the new, and named the several places of the moon from those of the earth, which figures Mayer prefers; but Langenus and Riccioli named them afterwards, from the names of the celebrated astronomers and philosophers, assigning the largest spots to those of the most celebrated characters, which distinction is now generally followed. Thus, what the one calls mons Porphyrites, the other calls Arcturus. What the one calls Alba, Sinai, Aiters, Acanthus, Sec. the other calls Copernicus, Poedonius, Tyche, Gallenus, &c. A map of the moon, as it appears when full, drawn by Cathini, who published a work entitled...
entitled "Instructiones Selene". The late Mr. Rulicke, a painter of eminence, made excellent drawings of the moon; but the most accurate and complete that have yet been published, are those of the celebrated Schroeter, who has given highly magnified views of most parts of the moon's surface. Dr. Brewer, in his improved edition of Ter- 
gul's Astronomy, has given several tables of the lunar spots. The first of these tables is formed from the observations of Lambert, and contains the longitude and latitude of 207 spots, with the names given them by Rulicke and Hevelius, together with remarks on their position, appearance, and structure. The second table contains the longitude and latitude of 89 lunar spots, as determined by Tobias Mayer, with general remarks. This third table exhibits the new names which have been given to the anonymous lunar spots by J. Schroeter, with their positions, as determined by the editor, from a comparison of Schroeter's plates with Mayer's engraving of the moon, and his table of the lunar spots. Our limits will not allow of our insertion of either of these tables, and they are incapable of abridgment.

SELENTI, in Geography, a town of Aasian Turkey, in Caramania, at the mouth of the river Selenti, which here runs into the Mediterranean; 45 miles E. of Alanieh. N. lat. 30° 32'. E. long. 29° 18'.

SELENS, one of the smaller Shetland islands. N. lat. 60° 48'. W. long. 1° 22'.

SELESTRIA, a town of Aasian Turkey, in Caramania; 50 miles S.W. of Tarsus.

SELETZKAIA, a town of Rullia, in the government of Archangel; 80 miles S. of Archangel.

SELEUCIA, in Ancient Geography, a famous city of Aas, built by Seleucus, one of Alexander's generals, and situated on the western bank of the Tigris, about 45 miles N. of ancient Babylon, was the capital of the Macedonian conquests in Upper Aas, and is said to have been the first and principal cause of the destruction of Babylon. Pliny reports, that the intention of the first of the Seleucids was to raise, in opposition to Babylon, a Greek city, with the privilege of being free. The ramparts and telle of this Greek city are said to be nearly opposite to the ruins of Ctephion (which fee); and in process of time Seleucia and Ctephion became united and identified, under the name of Al Modain (which fee), or the two cities. For the precise situation of Babylon, Seleucia, Ctephion, Modain, and Baghdad, cities often confounded with each other, we refer with Gibson, to an excellent geographical tract of M. d'Anville, in Mem. de l'Académie, tom. xxx. Many ages after the fall of the Macedonian empire, Seleucia retained the genuine characters of a Grecian colony, arts, military virtue, and the love of freedom. The independent republic was governed by a senate of 300 nobles; the population consisted of 600,000 citizens; the walls were strong; and as long as concord prevailed among the several orders of the state, they viewed with contempt the power of the Par- thians; but the madness of faction was sometimes provoked to implore the dangerous aid of the common enemy, who was poaching almost at the gates of the colony. The Par- thian monarchs, like the Mogul sovereigns of Hindoostan, delighted in the pastoral life of their Scythian ancients; and the imperial camp was frequently pitched in the plain of Ctephion, on the eastern bank of the Tigris, at the distance of only three miles from Seleucia. (See Strabo, lib. xiv. p. 743.) By the influx of the innumerable at- tendants on luxury and despotism, who retired to the court, the little village of Ctephion infenibly swelled into a great city. Under the reign of Marcus, A.D. 165, the Roman generals penetrated as far as Ctephion and Se- leucia. They were received as friends by the Greek colony; they attacked as enemies the seat of the Parthian kings; and yet both experienced the same fate. The fall and conflagration of Seleucia, with the massacre of 300,000 of the inhabitants, tarnished the glory of the Roman triumph; though it has been alleged in their favour, that the citizens of Seleucia had first violated their faith. Seleucia, already exhausted by the neighbourhood of a too powerful rival, sunk under the fatal blow; but Ctephion, in about 33 years, had sufficiently recovered its strength to maintain an obstinate siege against the emperor Severus.

Browne (Travels in Africa, p. 91.) identifies Seleucia with Suades, the port of Antioch, about four hours dis- tant from it. Its former possessors, he says, took immense pains to render it convenient for traffic; but it is now rendered useless, by the negligence of its present masters. A large gate, says this traveller, yet remains entire; it ap- proaches to the Doric order. The rock near it has been excavated into various apartments. A port exists of the thick and substantial wall which defended Seleucia towards the sea. The port must have been commodious and secure, though small, as it was formed by a mole of very large stones. Although it be at present dry, the sand in the bottom appears no higher than the surface of the sea. A little to the north is a remarkable passage, cut in the rock, leading, by a gentle descent, from the summit of the moun- tain towards the water. It is about 600 common paces long, from 50 to 50 feet high, and above 20 broad. In the middle of it is a covered way, arched through the rock, but both the ends are open. A channel for water runs along the fide, conveying the pure element down from the mountain to Seleucia. The whole rock above is full of artificial cavities, formed for some purpose now unknown. A Greek inscription of five lines is visible on the S. fide of the cavern. Towards the sea are some catacombs, ornamented with pilasters, cornices, and mouldings.

Jackson, in his "Journey from India," considers Bagdad as the fite of the ancient Seleucia, and he fays that feveral of the coins of Seleucia are found in Bagdad. The gold coin is worth about two guineas; it bears as strong an impression of the head as the ancient Roman coins, but has a long beard.

SELEUCIA, a town of Aas Minor, which was anciently in Cicia; but in the 4th century of the Christian era, the province of Hauria was made to constitute a part of Cicia; and this city became the metropolis of the pro- vince. The Notitia of Hierocles represents Seleucia as founded by Seleucus Nicanor, and as being one of the largest and richest towns of the East. The river Calycadnus was navigable near this city, and facilitated the commerce of the country. In the year 116, Seleucia threw off the Roman yoke; but Trajan sent hither a body of troops in the beginning of the year 117, who reduced it to subjec- tion. However it again recovered its liberty, as we learn from a medal of Gordian and another of Philip, on which it is denominated eclethera, or free.

SELEUCIA, a large town of the Perible, in the territory of Elymais, on the river Edyphaste, according to Strabo. It was also named Solae.—Alfo, a town of Aas, in Pi- lidia, according to the Notitia of Hierocles. Appian re- lates that it was one of the nine towns built by Seleucus Nicanor, who gave it his own name.—Alfo, the name given to the town of Trallus, in Lydia. Pliny.—Alfo, an episcop- eal town of Aas, in Pamphylia.

SELEUCIA PIERIA, a town of Aas, in Syria, situated on the coast of the Mediterranean sea, N.W. of the river Orontes.
Seleucus, and near it, and S.W. of Antioch. According to Pliny, it was a free city.

Seleucia, the name which Seleucus gave to a town of Gadara, situated to the E. and beyond the sea of Tiberias. — Also, a town of Judea, in the half tribe of Manasseh, on the other side of Jordan.

SELEUCIANS, SELEUCIUS, in Eusebius' History, a foot of ancient heretics, called all Hellenists.

Seleucus and Hermon taught, that God was corporeal; that the elementary matter was material with him; and that the human soul was formed by the angels of fire and air. They also denied, that Jesus Christ sat at the right hand of God; asserting that he had quitted the right, and had removed his throne into the sun.

SELEUCIDES, in Chronology: era of the Seleucides, or the Syro-Macedonian era, is a computation of time, commencing from the establishment of the Seleucides, a race of Greek kings, who reigned as successors of Alexander the Great, in Syria, as the Ptolemies did in Egypt.

This era we find expressed in the book of Maccabees, and on a great number of Greek medals struck by the cities of Syria, &c.

The rabbins and Jews call it the era of contrariety, because, being then subject to the kings of Syria, they were obliged to follow their method of computing all contracts.

The Arabs call it terbiik dikarmin, era of two horns, which some say signifies the era of Alexander the Great; because that prince bore two rams' horns on medals, in imitation of Jupiter Ammon, whose horn he would needs be; but others understand it much better of the two kingdoms of Syria and Egypt, which were now cloven or divided, and of one single empire parted into two monarchies.

The grand point is to know the year in which the separation was made; or, which is the same thing, when Seleucus Nicanor, one of Alexander's captains, and the first of the Seleucides, established his throne in Syria.

Without detailing the various sentiments of various authors, it may suffice to observe, that, according to the best accounts, the first year of this era falls in the year 311 or 312 before Christ, which was twelve years after Alexander's death. See Epoch.

Seleucia, in Ancient Geography, a country of Asia, in Syria, which took its name from the city of Seleucia. It was also called Tetrapolis, on account of four celebrated towns contained in it, according to Strabo. This country extended southwards as far as Phoenicia.

Seleuco Beth, a town of Asia, in Syria; situated towards the river Orontes, W. of mount Belus, about N. lat. 35° 40'.

Seleucus, a town of Asia, in Syria, in the vicinity of Apamea.

Seleucus I, in Biography, surnamed Nicator, king of Syria, was son of a Macedonian named Antiochus, a captain under king Philip. Seleucus entered, when young, into the service of Alexander the Great, by whom he was raised to an important command, and, after the death of that conqueror, he was placed by Perdiccas at the head of the cavalry. On the division of the provinces made by Antipater, the government of that of Babylon was entrusted to Seleucus, in which situation he opposed the advance of Eumenes against Antigonus. When, however, that leader, after the death of Eumenes, marched to Babylon, he found such a hostile disposition in the people, that the latter thought it necessary to take refuge with Ptolemy, king of Egypt. Upon the defeat of Demetrius, the son of Antigonus, by Ptolemy, Seleucus recovered his government of Babylon, and added to it Media and Susiana, which he wrested from Nicanor, the governor, his Antigonus. Defeating afterwards Seleucus from Babylon, he returned, and durably established his authority. He then prepared with a powerful army to the East, conquered and took Nicator, and marching through Persea, Bactria, and Hyrcania, invaded those countries, and the other provinces which had formed part of Alexander's empire on the side the Indus. From his important victories he assumed the name of Nicator; and the other Macedonians, who had shared the title of kings in the year 306 B.C., he followed to example. The historical era of the Seleucides, however, commenced six years earlier than this, even in the year 312 B.C., when he recovered Babylon. He now marched to regain the districts of India Proper, conquered by Alexander, but he was opposed by to large a force, that he thought it expedient to leave him in possession, on condition of being supplied by him with 500 elephants. One reason of his making this treaty was the necessity of joining with Callander, Lyphimachus, and Ptolemy, in order to reduce the overgrown power of Antigonus, which menaced the independence of them all. This purpose was effected by the great battle of Ipsus, in which Antigonus lost his life.

His dominions were shared by the four confederate monarchs, previously to which Seleucus had terzed the province of Upper Syria, and founded the famous city of Antioch. He also built other cities in the same province, to which he gave family names, as Seleucia, from himself; Apamea, from his wife; and Laodicea, from his mother; and as he was a great founder of cities in all his territories, he filled Asia with places bearing the names of his family.

After this, he built Seleucia on the Tigris, which became one of the most famous cities in the East, and was the caesare of the defterion and ruin of Babylon. In many of his new cities he settled colonies of the Jews, whom he endowed with ample privileges, and to him was owing their establishment in the African provinces to the west of the Euphrates. When he was advanced in years, he is said to have resigned to his son Antiochus, his wife Stratonice, and with her he resigned to the prince all the provinces of Upper Asia. Seleucus and Lyphimachus were now the only survivors of Alexander's captains, and a domellic tragedy having taken place in the family of the latter, some of its members took refuge in the court of Seleucus, whom they urged to make war upon Lyphimachus. He accordingly invaded, with a very powerful army, the territories of Lyphimachus in Asia Minor. That prince crossed the Heliopolis to protect them, and a most bloody battle was fought between the rivals in Phrygia, in which Lyphimachus was slain, in the year B.C. 281. Seleucus took possession of his dominions, but did not long enjoy the fruits of victory, for as he was marching into Macedonia, seven months after, he was treacherously murdered by Ptolemy Ceraunus, one of the fugitives from the court of Lyphimachus. Seleucus died in the 43d year from the death of Alexander, and in the 71st year of his age. He was a prince of splendid qualities, mild and equitable in his government, and a patron of letters and learned men. Univer. Hill.

Seleucus II., surnamed Callinicus, succeeded his father Antiochus Theos, in the year 246 B.C. His mother Laodice having cruelly put to death Berenice, the second wife of Antiochus, and her son, Ptolemy Euergetes, the brother of Berenice, marched into Syria, led by Laodice, and took possession of great part of the Syrian empire. After his return to Egypt, Seleucus recovered part of his lost dominions; but being defeated by Ptolemy, he applied for aid to his brother. This union brought about a truce with Ptolemy, but the two brothers then quarrelled, and Seleucus was defeated.
feated by Antiochus in a great battle at Ancyra. The war between them was carried on with great inveteracy, while the empire was invaded on one side by Eumenes and Attalus, kings of Pergamus; and on the other, Arfas, founder of the Parthian monarchy, was making a progress in Hyrcania.

Seleucus was at length delivered from the hostility of his brother, who was detained captive in Egypt, whether he had fled, and he then turned his arms against Arfas, but in a great battle that was fought he was defeated and taken prisoner. He died in Parthia, in consequence of a fall from his horse, in the year 226 B.C.

Seleucus III., furnamed Cerasanus, eldest son of the preceding, succeeded him on the throne. He was a weak and incapacious prince, and after a reign of three years he was poisoned by two of his chief officers, while engaged in an expedition against Attalus.

Seleucus IV., furnamed Philopator, succeeded his father Antiochus the Great, in the year 187 B.C. He was favourable to the Jews during the greatest part of his reign, but near the close of it he employed Heliodorus to carry off the treasuries of the temple at Jerusalem, as is mentioned in the second book of Maccabees. He was afterwards poisoned by Heliodorus, who usurped his throne. This event occurred in the year 176 B.C. There were several other kings of the name of Seleucus, but they did nothing worthy of notice.

Selezneva, in Geography, a town of Russia, in the government of Irkutsk, on the Ilim; 28 miles S. of Ulimsk.

Self-Abuse. See Self-Pollution.

Self-Defence, in Law. With regard to the defence of one’s self, or the mutual and reciprocal defence of such as stand in the relations of husband and wife, parent and child, master and servant, it is observed, that in these cases, if the party himself, or any of these his relations, be forcibly attacked in his person or property, it is lawful for him to repel force by force; and the breach of the peace, which happens, is chargeable upon him only who began the affray.

Self-Defence, therefore, as it is justly called the primary law of nature, so it is not, nor can it be in fact, taken away by the law of society.

In the English law, particularly, it is held an excuse for breaches of the peace, nay, even for homicide itself; but care must be taken, that the reluctance does not exceed the bounds of mere defence and prevention, for then the defender would himself become an aggressor. Blackoff. Com. vol. iii.

Self-Examination. See Examination.

Self-Heal, in Botany. See Prunella.

Self-Heal, in the Materia Medica. The greater self-heal, with an undivided leaf, grows wild in pasture grounds, and flowers in June and July. It has been reckoned among the vulnerary plants, and is accounted serviceable in all sorts of wounds and putrid ulcers. It is refreshing, and good for inward bleedings, and making bloody water; and has been much used in gargles, for ulcers in the mouth, throat, or gums, either in juice, or in a strong decoction.

Its virtues do not appear to be very great; its astringent or bitterish tincture is more sensible in the flowery tops than in the leaves; though the latter are generally directed for medical use.

Self-heal is also a name given to faneile.

Self-Love, in Ethics, is that principle, or passion, which leads a man to defire and pursue his own happiness. It is contradistinguished from benevolence. See Mental Philosophy.

Self-Opens, a term used by the miners in the north of England to express certain natural cavities, or chambers, which are frequently met with, some near the surface, some at very great depths, some small, and others very large.

These are of various figures, and often run into strange shapes. Dr. Lister, in accounting for the origin of earthquakes, supposes the whole crust of the earth to be more or less hollowed in this manner; which he also argues for, from the phenomena of waters which arise in large quantities from the fides of mountains, and must have communication with these self-opens, and supplies from them.

These natural hollows the doctor thinks to be the means of continuing, and propagating earthquakes; the first cause of which he attributes to the breaks of the pyrites, which he also says is the pyrites itself tota subflantia. This he observes takes fire of itself, on being exposed to the air in our flight, and may do so, from various other causes underground. The sulphurous smell of the air and waters before and after earthquakes, in the places where they happen, seems a proof that they owe their origin to some such sulphurous matter as thus flows; and the rolling and defulory noise of an earthquake seems also to shew that it is not expanded every way at once, but is propagated through a chain of these subterranean hollows.

It is not necessary that we should suppose a continued chain of them, from the place where the earthquake begins to be felt to the spot where it ends; but if there are many of them irregularly scattered about the earth, the force of the explosion will be sufficient to burst through the solid parts between, and open a passage from one to the other, which may continue open no longer than the force continues, and after the shock is over, close together again, so as to leave no trace where it was.

Our miners not only find the natural caverns, but they also find them often full of what they call “fire domps,” which are inflammable vapours, of the very nature of those which he supposes to occasion earthquakes; and when fired make the same explosions, and cause the same effects in a certain degree. These sometimes require a candle, or other actual fire, to come in contact, in order to kindle them; but sometimes they are found kindled of themselves, and glading on the surface of the waters, in the bottoms of the pits, or at the suffures of the coal. Phil. Trans. No. 157.

Selga, or Selge, in Ancient Geography, a considerable and well-peopled town of Asia, in Phidias. It was colonized from Lacedaemon.

Selgenfelt, in Geography, a town of Prussia, in the circle of Natangen; 3 miles S. of Konigberg.

Seleuthal, a town of Germany, in the circle of the Lower Rhine; 3 miles N.W. of Burken.

Selgoe, in Ancient Geography, a people of Britain, fented to the west of the Gadeni, in the countries now called Elkhdale, Annandale, and Nithdale, lying along the shores of the Solway Frith, which is believed to have derived its name from that of this ancient Britton nation. Mr. Baxter supposes that the name of these people was compounded of the two British words Sel Gui, which signify salt waves, alluding to the Solway Frith, with which the coasts of their country were washed. But Dr. Macpherson thinks it more probable, that the name was derived from the British word Sealg, which literally signifies hunting, and metaphorically theft. The Selgoe became first acquainted with the Romans, when Agricola marched his army through their country into Caledonia, in the second or third year of his government in Britain; at which time they made their submission to that victorious general. From that period they were alternately under the dominion of the Romans, or enjoyed freedom, as that people extended or contracted the limits of their empire in this island. The Romans had several stations and camps in the country of
of the Seljuks, of which some vestiges are still remaining.

SELY, or SELICO, in Geography, a town of Africa, on the north side of the Gambia, in Mandingo.

SELIGNASTRT, a town of Germany, in the circle of the Lower Rhine, and electorate of Mentz, formerly imperial, on the Main; 12 miles E.S.E. of Frankfort on the Main. N. lat. 49° 59'. E. long. 8° 46'.

SELIENTHAL, a town of Germany, in the county of Henneberg; 3 miles N. of Smalkalden.

SELER, a lake of Ruilla, in the government of Tver; 80 miles W.N.W. of Tver.

SELIGONION, in Botany, a name by which some authors have called pinyon.

SELM, in Ancient Geography, a town of Palatine, in the tribe of Judah, on the southern side along the frontiers of Edom, according to Joshua. This was afterwards comprehended in the tribe of Simeon. See SALEM.

SELM I., in Biography, a Turkish emperor, was the second son of Bajazet II. In 1541, being governor of Trebizond, he rebelled against his father, and marched to Constantinople, where he was defeated and obliged to seek his safety in a precipitate flight. The janissaries, however, favouring him, Bajazet was forced to resign his crown to him, and soon after died, probably by poison. Selim ascended the throne in 1512, being at that time about 46 years of age. His first step was to proceed against his eldest brother Achmet, who was at the head of some troops in Afa. He defeated and put him to death, which was soon after the fate of another brother. Selim then invaded Persia with a numerous army, and defeated Shah Ismael in a great battle, entered the city of Tauris. He afterwards annexed Diarbekir to the Turkish empire; and one of his officers recovered Dabnia, which had been conquered by the Hungarians. In 1515 Selim turned his arms against the sultan of Egypt, and obtained a victory over him near Aleppo, the sultan being slain in the engagement. Aleppo and Damascus submitted to Selim after this event, and he prepared to march into Egypt. Arriving in the neighbourhood of Cairo, a very bloody battle ensued between him and Tuman Bev, which terminated in a total defeat of the Mamelukes. Cairo, after a desperate refitishment, was taken, and all Egypt submitted. Selim returned to Constantinople, and, elated with his success, made a vow that he would not lay down his arms till he had put an end to the Perilian empire. His career was, however, stopped by disease, which terminated in his death at a village in Thrace, in 1520. Selim was one of the most able and vigorous of the Ottoman sovereigns, and made greater additions to the Turkish empire than any one of his predecessors. He was, at the same time, unprincipled in his projects of ambition, and had all the ferocious cruelty of an eastern despot.

SELM II., Turkish emperor, son of Soliman I., succeeded his father in 1566. Being of an indolent disposition, and extremely intemperate, the actions of his reign are

tho' of his vices, and greed. Of these the principal was the capture of Cyprus, then belonging to the Venetians, which, after a vigorous resistance, was rendered to the European powers, who had combined for its recovery in the same year, the famous naval battle of Lepanto, which nearly ruined the Turkish marine. Nevertheless this success, the Venetians were obliged to make peace with the Turks in 1574, upon very disadvantageous terms. During the remainder of Selim's reign, the affairs of the Ottoman empire were prosperous. Selim died at the age of 52, probably of a remission. He had many good qualities, but was foppish and foppish.

SELEMABA, in Geography, a town of Hindooostan, in Bengal; 12 miles S.S.E. of Burdwan. N. lat. 24° 5'. E. long. 87° 48'.

SELEMBRIA. See SELIVRA.

SELIME, a village of Nubia, on the route of the Soudan caravans from Allnut to Darfur; 42 miles S. of Sheb.

SELEMPOUR, a town of Bengal; 24 miles N.W. of Burdwan. N. lat. 23° 23'. E. long. 87° 35'.

SELINOS, a town of Africa, in the kingdom of Galam; 15 miles S. of Galam.

SELINA, in Ancient Geography, Ilium-Adassa, or Ille of Serpents, an island of the Euxine sea, near the mouth of the Danube: called Paralithius, or Paralitium. Some authors have denominated it Melitha.

SELINAGUR, in Geography, a town of Hindooostan, in Oude, on the Ganges, opposite to Furruckabad.

SELENCOURT, a town of France, in the department of the Somme; 18 miles W. of Amiens.

SELINE, a river of Spilea, which runs N.W. into the Is, 7 miles S. of Breifian.

SELING, a town of China, of the second rank, in the province of Quang-Si. N. lat. 21° 55'. E. long. 106° 20'.

SELINGUE. See SELINGA.

SELINO, a province of the island of Crete, south of that of Kifamos, which takes its name from that of a small town, built on the south coast of the island, in the situation formerly occupied by Lissa or Lixus, a place of small importance, mentioned by Ptolemy. It is entirely mountainous, but very fertile. It furnishes a little silk, honey, wax, and a tolerably large quantity of fruits, such as cherries, apricots, peaches, pears, and oranges. Thus is the only province in which the chestnut-tree is cultivated, and it thrives well on the semitile hills and mountains of this country. The chestnuts are carried to Canea, Retimo, and Candia. A quantity is also annually exported to Syria. Oil, however, is the principal commodity of Selino; and it is reckoned better than any other in the island. The merchants of Canea generally establish their speculations in the quantity and quality of the oils of Selino. Wine, wheat, and barley, are not plentiful. The population of the Turks is estimated at a fourth or fifth of the inhabitants.

SELENUM, in Botany, an ancient generic name of Theophrastus and Dioscorides, whose Selenum is said to be derived from χέλυνος, χέλυνος, on account of its growing in mud, whence Homer's ἐλεφυτής στέφανος. Dr. Thunberg says that Selenum is derived from χέλυνος, the moon, because of the shape of its growing seeds; and that it is the foundation of many other compound names of umbelliferous plants among the Greeks, as χελυνία, χελυνίας, &c.—Linn. Gen. 153. Schreb. 184. Wildl. Sp. Pl. v. 1. 330. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 303. Ait. Hort. Kew. v. 2. 131. Pursh 127. Juss. 225. Lamierek II. l. 202. Garret. t. 21. —Class and order, Pec-
Selinum, in Ancient Geography, a town of Egypt, in the Thebaid, on the other side of the Nile, between Panum and Anten, according to the itinerary of Antonine.

SELINUS, or SELINUNTUM, a town of Sicily, south-east of Mazara, on the southern coast. It was founded by a colony from Hybla, another town of Sicily, 100 years before the destruction of that city by Gelon. In its vicinity were many palm-trees, where arose the epithet of palmata given to it by Virgil. It was destroyed, a little before Himera, by Hannibal, who took it by storm, and treated the inhabitants with great barbarity, massacring a great number, and carrying the rest into captivity. The inhabitants had conferred to the Olympian Jupiter a treasure, in which, among other rarities, was a statue of Bacchus, the face, hands, and feet of which were made of ivory. It appears to have been destroyed in the year of Rome.
fine poem by Mr. Cowper, with which all our readers are no doubt well acquainted. B I o g. B r i t.

SE L K I R K, in Geography, a royal borough town, and a parish, in the county of Selkirk, Scotland. It derived its name from the Celtic word Scheleckgreich, which signifies the kirk in the wood; expressing thus in one word the situation of the place itself, and the state of the surrounding country, which in former times was one continuous forest. From the circumstance of its being placed on the summit of a considerable eminence, Selkirk enjoys an extensive prospect in all directions, especially up and down the river Ettrick. The inhabitants boast greatly of the spirit displayed by their ancestors at the celebrated battle of Flodden. Of a hundred citizens of Selkirk, who followed the fortunes of their prince on that occasion, it appears that several survived the conflict, and even carried off some spoils and trophies. The English, in resentment, reduced their town to ashes. But, on the other hand, king James V. granted to them a thousand acres of the forest; the trees for rebuilding their houses; and the property as the reward of their heroism. These borough lands are now worth about 150l. per annum, and are divided into a great number of small properties; a circumstance which tends to damp that spirit for commerce and manufactures, by which the inhabitants of towns are in general dilugisified. On the day on which the magistrates annually survey this tract, a standard, taken from the English in the field of Flodden, is carried before the corporation of weavers, a member of which was the captor. It may be added, that the sword of William Brydon, the town clerk, who led the citizens to the battle, and who is said to have been knighted for his valour, is still in the possession of a citizen of Selkirk, his lineal descendant.

Selkirk has a weekly market held on Tuesday, and six annual fairs; two in March, and one in July, Augest, October, and December. As a royal borough, it unites with Lanark, Linlithgow, and Peebles, in sending one member to parliament. The corporation consists of two bailies, a dean of guild, treasurer, and ten counsellors, and polleys a revenue of about 300l. per annum, drawn from that portion of the borough lands which has not been alienated in fee to private individuals. The parish, which is about ten miles square in extent, lies partly in Selkirkshire and partly in Roxburghshire; and, according to the parliamentary returns of 1811, contains 440 houses, and a population of 2466 persons, of whom about 1000 are resident within the borough.

The principal object of interest in this vicinity is Newark castle, situated on a peninsula, formed by the stream of Yarrow, which has here cut its turbid course through a deep gulf of rugged rocks, enclosed in wood, and presenting a most "fantastically wild scene of grandeur and beauty." The castle is now in ruin, but enough of it yet remains to evince its ancient strength and importance. It is generally suppos'd to have been the birth-place of Mary Scott, the flower of Yarrow. Beauties of Scotland, vol. ii. Svo. 1805. Statistical Account of Scotland, by Sir John Sinclair, vol. ii. 1792.

S E L K I R K S H I R E, one of the southern counties of Scotland, is situated between 55° 22' and 55° 43' N. lat. and between 2° 50' and 3° 20' W. long. from the meridian of Greenwich. It is bounded on the W. by the county of Dumfries; on the E. by Mid-Lothian and Roxburghshire; on the S. by the county last mentioned; and on the N. by that of Peebles. Its greatest length, from the source of Ettrick water to the junction of Gala and Tweed, is 27 miles, and its greatest breadth from Borthwick brae to Glenfaxburn, about 17 miles. Taking, at a medium, 20 miles for its length, and 12 for its breadth, its contents may be calculated at about 240 square miles, or 153,600 acres. The proportion of arable land actually occupied in husbandry may be computed at about 6880 Scotch acres.

General Aspect of the County.—With the exception of a few vallies, the whole of Selkirkshire is mountainous, and presents elevations of considerable height, Mead, in the parish of Galafhie, being 1480 feet above the level of the sea. In the parish of Ettrick, the most remarkable hills are the Ward Law and Ettrick Penn: the former rises 1000 feet above the level of the sea, the latter 2200. In the parish of Yarrow, the hills are in general steep and towering; the most remarkable is thole called "Blackhouse heights." The highest point of elevation above the level of the sea measures 2370 feet. For the most part, the mountains exhibit a green appearance; though upon some few there is a considerable quantity of heath. Toward the source of the waters of this county, that is, on its western extremity, the hills are more green, and are covered with long coarse grasses. Towards their junction with the Tweed, they have a greater mixture of heath, and the grass is shorter. On the north side of the Tweed, some of the hills are covered with loose stones, but none of them are very rugged or barren of herbage, or interrupted by mosses. Bordering on Minichmoor, over which was the old road from Peebles to Selkirk, their aspect is bleak and barren, and forms a striking contrast with the green hills on the opposite sides of the Yarrow and the Tweed.

Rivers and Lakes.—The Tweed, Ettrick, and Yarrow, flow through this county. The Tweed enters it near the ancient seat of Elbank, and flows through it for nearly ten miles, along a well-cultivated and fertile but narrow valley. At the eastern corner of the county it receives the Gala, a small water, which rises in Mid-Lothian, and which forms the boundary of Selkirkshire for five miles. Yarrow water rises near the western extremity of the county, and flowing through the Loch of Lows, and St. Mary's Loch, augmented by many smaller waters, joins the Ettrick about a mile above Selkirk. From the nature of its source, lochs, and from the circumstance of its receiving in its course many additional streams from the hills, the Yarrow, in time of high winds and rain, is rapidly flooded, and rendered impalpable; but, from its rapid descent, it as rapidly subsides. The Ettrick also takes its rise in the western angle of the forest, and running in an almost parallel direction with the Yarrow, unites with it about a mile above; they fall into the Tweed three miles below Selkirk, after a course of 30 miles. These waters, as they pass through this county, form many beautiful windings. Near their source they are hemmed in on each side by high towering hills; but as they approach their confluence with the Tweed, the expanse between the hills becomes wider and more open; and they flow through fertile vallies, in a broader channel, with a lefs rapid stream. For a considerable way above their junction, they are finely fringed with natural and artificial wood; but the extensive forests which once beautified and adorned their banks, and from which the country obtained the appellation of Ettrick forst, are now almost entirely destroyed. Every stream abounds with trout; and for a considerable way up the Ettrick and Yarrow, salmon are caught in large quantities. Ale water takes its rise from the Kingmoor loch, but only runs in this county for a short way; in some places palling out of it into Tewitdale, and in others forming its boundary. Borthwick water also constitutes part of its boundary. The hills are every where intersected by small streams.
the medium of heat 43 degrees. This hill, as Wool may be taken as a pretty full the land of the county, as at eight miles above Selkirk, on the waters of the Ettrick and Yarrow. There are few places, even in the highest part of the country, so very mild in Langholm; though, in proportion as it rises, there is a greater quantity of rain. The hill becomes colder and more penetratively cool, and the rains more gently and feebly felt, and how lies deeper and colder. The rays of the sun, reflected by the surrounding mountains on some values 600 feet above the ocean, exist a degree of heat that brings the crop very quickly to maturity.

The number of springs that are obstructed in their course, forms marshes more or less deep and extensive. There are many morasses, some of them of an unknown depth; a good deal of marshy land; and several lakes. The moisture exhaled from the soil quantity of water collected in their, greatly increases the dampness of the atmosphere, and produces frequent mists and showers. Nor can this necessity be effectually obviated by the numerous drains which are daily making, though these may doubtfully contribute to moderate the climate. The general course of the weather and seasons is much the same as in Roxburghshire.

Selkirkshire.

Mineralogy.—There are no metals, coal, limestone, or free stone, in any part of this county. But there is abundance of whinstone and granite. Moles, formed of decayed wood and other vegetables, are made into peat for fuel. Some of them are of considerable extent and depth; and those towards the south-east, in the parishes of Selkirk, Roberson, and a corner of Yarrow and Altkirk, cover large beds of excellent shell-marl. In the rills by which some of them are fed, many small lakes are found; some of them overspread with a glorious substance, others incursored with matter very similar to that of which the shells are composed; others again with shells in every progressive state of formation; and a few with the animals alive, in shells completely formed, but of different degrees of consistence and hardness.

To account for this incrustation of shells with calcareous earth, in a county where no lime is known to exist, and to determine whether it comes from some rock as yet unexplored, from loose fragments or particles scattered among other fluctuations, and washed away by streams, or from pulverized shells, or from any other matter found in the neighbourhood, would require a scientific and accurate examination of the surrounding mountains, and the different strata of which they are formed. On the supposition of the incrustation proceeding from a rock, or detached pieces of lime, it may become a question how far this salubrity is necessary or useful to the animals in rearing their shells, and on the other supposition, of its being occasioned by pulverized shells, it is of equal importance to ascertain the materials from which these shells are constructed.

Agriculture.—The agriculture of such a county as this, cannot be a very interesting subject. In the lower parts of the county, the best practices in agriculture are successfully pursued, as in Roxburghshire and Berwickshire; but in the upper part of the county, or foreland, as it is called, where the arable land is not fenced off, and the disadvantages of an unfavourable soil and climate occur, little can be done. In this situation, the small portion of arable land on the skirts of the hills is chiefly cropped with oats, which are the grain best adapted to the nature of the climate, and the wants of its inhabitants, both as a part of their food, and for the support of their horses. In these situations, the principal improvement that can be adopted, consists in rendering the arable land suitable to the support of sheep, which form

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the great object of the farmer's attention. Accordingly, green crops, such as turnips and hay, &c. are raised on many of the farms, from which very great advantages are derived, being food to the sheep in storms. Little wheat is produced in the county. Both barley and bean or bigg are grown. The return from barley is, at an average, from seven to eleven-fold. The return from bean is nearly the same, but the weight and market price are greatly inferior. Artificial grasses are very generally found. Pea is less cultivated than formerly, the preference being given to turnips.

Line Stock.—Sheep are the staple animal of this county, and their number is estimated at 118,000. There are two sorts, viz. the original breed, which are black-faced, and the white-faced, which are generally of the Cheviot breed. The former, being about one-third of the whole number, are to be found in the upper or western part of the county, and the latter mostly in the lower districts of the shire. The different qualities and value of these two breeds should seem nearly balanced, for though, of late years, a preference has been given to the Cheviot sheep, on account of their superior fleece, and even the opinion of their being less hardy than the black-faced sheep has been disproved. Yet it is admitted that the white-faced lambs, when very young, are much barer in wool, and therefore less protected from the weather, than the black-faced; and in an inclement lambing season, nearly four times more of them die than of the black-faced kind. The mutton of the latter is likewise accounted more delicate. The practice of making ewe-milk cheese is nearly abandoned, from an opinion that it weakens the ewe. The few herds requisite for cultivating the arable district, are of the Lanarkshire and Northumberland breed. Swine are reared only by a few gentlemen for their tables, and by millers for the market. Vatt quantities of poultry are raised by the farmers, who fend cart-loads of eggs to Berwick, which are bought by "egglers," who sell them again for the London market.

Inclusions.—Inclusions are not very generally used, unless round gentlemen's feats, and on the farms in their own possession. The reader is referred to what is mentioned in the account of Roxburghshire, as to the kind of inclusions used.

Towns, Villages, Roads, Fairs, and Manufactures.—Selkirk is the capital of the county. (See SELKIRK.) Galashiels, so called from its being situated on the banks of the water Gala, is a thriving village. It has been long known for its manufactures of woollen cloth, which was at first coarse, and of a grey colour, and was called "Galashiels' grey;" but the cloth now manufactured are of various kinds and colours. In consequence of an act of parliament obtained in 1764, a road of twelve miles was made from Croflee toll-bar, on the confines of Mid-Lothian, through Selkirk, to Haremos toll-bar, with a branch of three miles to Galashiels. Part of the road from Kello to Peebles, of about six or seven miles long, also runs through this county from Galashiels' bridge to Buthope burn, beyond Hollis' toll-bar. The expense of these roads, and of a substantial bridge over the Tweed, was $5,000. There are two considerable fairs held at Selkirk; four leff fairs are likewise held there, and three at Galashiels for various purposes. The chief manufnctures are woollen cloth, stockings, tanned leather, and different implements of husbandry, or wood blocked out for making them.

Antiquities.—There are but few remains in this shire of British or Roman antiquities. There are the remains of some British strengths in the eastern division of the shire, which were erected upon heights, and were constructed generally in a form between the circular and the oval. There is also a Roman camp in the midst of several of these strengths, in the parish of Roberton. But the most remarkable remains of the Britons in this shire, is the "Catriall," or battle fence, consisting of a large folle, with a rampart on either side. Its length is 28 miles. This wall war-fence can only be referred, for its construction, to the romanized Britons, who, after the abdication of the Roman government, had this country to defend against the intrusion of the Saxons on the call, during the fifth century, the darkest period of our history. The modern antiquities of Selkirkshire conflict chiefly with ruined callies and moss-grown towers, erected, some of them, in the twelfth century, but the greater number of them in subflebute ages of foreign holllities or domestic feuds.

Historical Events.—Like other counties of Scotland, Selkirkshire has its share of family feuds, fanatical conflicts, wars, and battles, which would occupy too large a portion of our pages to recount. Selkirk became a royal burgh on an occasion that reflects high honour on the loyalty and spirit of this ancient town. When James IV. was marching forward to his fate at Flodden field, a hundred townsmen joined him under the town clerk. They fought stoutly; they almost all fell in the field rather than flee. On the 10th of September 1545, was fought the decisive battle of Philiphaugh. This is one of the last civil conflicts which itained the forests of Selkirkshire with human gore.

Eminent Natives.—This shire puts forth a fair claim to rank in its annals many characters of celebrity. The Doughills, the Scotts, the Murrays, and Patrick Ruthven, who had learned the art of war under the great Gustavus, and was created lord Etterick, are names conspicuous in history. Andrew Pringle, who was placed in the female house on the 14th of June 1759, by the title of lord Alemoor, as a lawyer was distinguished by his model and eloquence, and as a judge for his dignity and knowledge. It produced an eminent soldier in colonel William Rufiel, of Affylfit, who distinguished himself amongst the warriors of India. Mary Scott, the flower of Tarrow, is still remembered by the "cold-blooded murderers of Etterick forest." She is celebrated by Ramsay in amorous rant:—

"With success crown'd, I'll not envy
The folks, who dwell above the skye;
When Mary Scott's become my marrow,
We'll make a paradise on Yarrow."

Population.—This county has seven parishes, and a portion of two others, containing a population of 5889 persons. Selkirkshire, as a county, sends one representative to the united parliament. Beauties of Scotland, vol. ii. Svo. 1805. Chalmers' Caledonia, vol. ii. 4to. 1810.

SELL, in Building, is of two kinds, viz. ground-fell, which denotes the lowest piece of timber in a timber building, and that on which the whole superstructure is raised. See Ground-Plates.

SELL, Window, called also window-fell, is the bottom piece in a window-frame.

SELL-Bed, in Joining, a term used in some parts of England to express some particularly rich parts of the vein of ore.

In Cornwall they sometimes find the tin-ore so pure, that it requires only bruising to dress it, without the washing and separation by grates, launders, and the like means; they call these collections of ore the fell-beds of tin; and it is observed, that these never have any filings illuing from them, as the other lands have. Philos. Transf. No 60.

SELA, in Ancient Geography, a river of Messiah, N. of the isle of Oenussa.

SELLA, in Geography, a town of Africa, in Benguela.
SELLART, in Geography, a town of Naples, in Calabria; 16 miles of Bova.

SELLASIA, in Ancient Geography, a town of Latium, S.W. of Olympia, on the river Ganus. It was destroyed in the time of Paulus, when C. Quintus Flaminius pulled into the Peloponnessus in 193 B.C., to deliver Greece from the yoke of the tyrants who oppressed it. It is a junction near this place; but a little after the time, it was destroyed by Arratus, the conqueror of the Lacedaemonians. Towards the N.W. was a mount, which bore the name of Mount Othrys. The latter battle of Sellaia, in the year 122 B.C., was fought between this town and Evia. At this time, a band of Macedonians, was led by the king of Macedonia, Rhysson, king of Sparta, commanded the Lacedaemonians. This bulk, having been captured, returned to Egypt by way of Ptolemy Philadelphus.

SELLAY, in Geography, a small island of the Hibernian, in the district of Harris and county of Inverness, Scotland. It is about a mile in circumference, and yields excellent pasture for sheep.

SELLÉ, a town of France, in the department of the Canton; 6 miles S. of Avrilée. — Alus, a river of France, which runs into the Scheldt, about six miles above Valenciennes.

SELLÈRE-BLOT, a town of France, in the department of the Loiret; 7 miles N.E. of Montargis.

SELLÈRE, a town of Hindostan, in Guzerat; 25 miles S.E. of Mahommedabad.

SELLÉ, a town of Persia, in the province of Isfak; 110 miles E. of Ipahan.

SELLÈS, in Ancient Geography, a river of the Peloponnesus, in Aegypt. Strabo places the village Ephyrus on the bank of this river.—Alus, a river of Ætolis, in Aegypt, according to Strabo.—Alus, a river of Aisia Minor, in the Troade, which watered the town of Arbus, according to Homer, cited by Strabo.

SELLÈMPOUR, in Geography, a town of Hindostan, in Oude; 42 miles S.E. of Goorapour. N. lat. 26° 35' E. long. 84° 12'.
of disadvantage arising from suffering mere men of the law to intermeddle in the purchases of lands, before the preliminaries of agreement have been adj usted, that no apology is due to the profession for the observations which he has thrown out in the above cases.

But in purchasing by private contract, the particulars which may be required to be furnished by a seller, are, he says, the quantities of the several pieces of land on sale, together with the maps, or rough draughts of the same; the tenure under which they are held; some assurance as to the title of the seller, and his right of alienation; the tenancy under which the several farms are let; and, if on lives, the ages of the nominees; if for a term of years, the number unexpired; if at will, the notices (if any) which the tenants have had; and an abstract of the covenants under which they are let; particularly those which relate to taxes and repairs, to the expenditure of produce, to the ploughing of grass-lands, &c.: the existing rents and profits receivable; whether for tenant lands, appurtenances, or abstract rights; with the estimated value of the demeine, and the wood-lands, in hand; together with the estimated value of the timber growing upon the estate on sale; as well as of the minerals and fossilis which it may contain: the outgoings to which the estate is liable; the proposed time of the delivery of possession; the price and the mode of payment expected for the same. And in the next place, he considers it as proper to set down the particulars of instructions to be given to a surveyor, or other valuer, of an estate to be purchased. But it will be right, however, he thinks, to premise, that much, in this respect, depends on the probability of purchasing; and on the time allowed for making the estimate. In cases of sale by public auction, where there can be no certainty as to purchase, and where the time for valuation is limited, a rough estimate of each farm, and a general idea of the value of the timber and other appurtenances, may be all that can be prudently ascertained. While in a sale by private contract, where the refusal of an estate is granted, and time allowed for deliberate survey, a more minute investigation may be proper, especially when there is every reason to believe that a bargain will take place. For the former report will not only serve as a guide to the purchaser, but will become a valuable foundation on which to ground the future management of the estate. And he urges, that for these and other reasons, a purchaser by private contract is most to be defined by a gentleman, who is not in the habit of personally attending public sales, and is unacquainted with the business of auction rooms. But, he says, it does not follow that a sale by auction is equally ineligible for a seller, who may gain the advantage ground by this mode of disposition: provided he can frustrate the combinations of public Sales. The auction duty, however, and the heavy expenses of public sales, are objections to this method of making a bargain; as the money thus expended must necessarily come out of the pocket of the buyer or the seller.

And in regard to the particulars to be required from a surveyor or surveyors, they are principally these. The rental value of each field or parcel of land, with the rate in which it lies, as to arable, meadow, pasturage, or wood-land. The value of the timber, and other appurtenances. The characteristic, and the state of the management, of each farm or tenement; with the eligibility of its occupier; together with the state of repair of buildings, gates, fences, water-courses, and roads; the amount of the incumbrances and outgoings; and, lastly, the probable value of the improvements of which the estate may appear to be capable, in different ways. And it is also added, that these several particulars of information being procured, the subjects of treaty are few. The two statements having been duly compared, so that no misunderstanding can take place between the parties, the price, the times and mode of payment, are the principal matters of agreement. A clear understanding respecting the custody of title deeds, and the expences of conveyance, require, however, to be enumerated among the preliminaries of the purchase before any thing is finally settled.

But in what relates to the business of the negotiation, it is best carried on by letters; which become vouchers of facts. Whatever is done by interview requires to be reduced to writing, and to be read by or to the parties before they separate, that no possibility of misconception may arise. And in addition to these precautions, it is proper, in large purchases, and when abstracts of intricate title deeds are to be made out, and examined, that a legal contract, or memorandum of agreement, should be entered into for the mutual satisfaction and surety of the parties. This contract, and the deed of conveyance, (namely, the instrument which is legally to transfer the property from the seller to the purchaser,) may be said to conclude and ratify the business of the purchase, and in this part of it, legal assent is essentially necessary; to examine existing deeds, and see that the seller has a legal right and clear title to the land, and a legal power to dispose of it; as well as to draw up, or examine, the fresh deed of conveyance, and see that it is sufficient to transfer the property, legally and adequately, to the purchaser of such landed estate or property.

See Valuation of Land.

SELLIUM, in Ancient Geography, a town of Spain, in Lusitania, S.E. of Callippo and N.E. of Scalabis.

SELMAST, a town of Perfia, in the province of Adirbeizan or Azerbaijan, situated in the most picturesque, and at the same time, the most flourishing division of the province, lying along the N. and W. border of the lake of Uruanca, from Tabruz or Tabris, to the confines of Armenia. The town contains about 2000 inhabitants, principally Nestorian Christians, and is famed for its lofty poplars and delightful gardens; 75 miles W.S.W. of Tobrez. N. lat. 37° 45'. E. long. 45° 30'.

SENNITZ, a town of Bohemia, in the circle of Chrudim; 16 miles N.W. of Chrudim.

SELO, a river of Naples, which runs into the Mediterranean, near Pelti.

SELOCZOW, a town of Austrian Poland, in Galicia; 40 miles E. of Lemberg.

SELOGORAR, a town of Hindoustan, in Berar; 20 miles N. of Nateurgon.

SELOKOI, a town of Russia, in the government of Tobolik, N. lat. 63° 8'. E. long. 76° 14'.

SELOMMES, a town of France, in the department of the Loire and Cher, and chief place of a canton, in the district of Vendôme; 6 miles S.E. of Vendôme. The place contains 624, and the canton 4396 inhabitants, on a territory of 215 kilometres, in 16 communes.

SELO, a town of Hindoustan, in the Carnatic; 10 miles S.W. of Tiagar.

SELOONDA, a small island in the East Indian sea, near the N. coast of Cumbava. S. lat. 8° 51'. E. long. 117° 34'.

SELONGEY, a town of France, in the department of the Côte d'Or, and chief place of a canton, in the district of Dijon; 4 miles N. of Is sur Tille. The place contains 1878,
of corrosive sublimate, precipitates a yellow powder or turbid liquor, and mixed with another of tartar, gives it a reddish color, and mixed with salt amon, to a purplish tint, while a great deal of this water, let it, with presence of spirit, and finely evaporated, will form a thin and a half of salt, not differing much from that of pure tartar. This is mixed with water, or kept to lip and be corrupted by keeping, and that if it be left for a day or two in a warm vessel, it will yield tartar crystallined, and table, only like water, in which all of tartar had been mixed.

From all these observations it appears, that this water is abundant with an astringent liquor of a much greater quantity than any of the other mineral waters, with a tendency to contain a pure and perfect spirit of bittership, which is the common ingredients of the other mineral waters; on this account, it adds, that it does not purify, but generally pass off by means. Hoffman recommends it as one of the mildest and most innocent of all the mineral waters, and old posts that it may be taken by person of the weakest constitution.

From the experiments of Dr. Brockley on Seltzer-water, we learn, that upon drops of twelve drops of very highly coloured syrup of violet into a small glass of it, the very first drop that fell of a purple hue, but upon their minute into the whole charge into a beautiful green: that the same quantity of oil of tartar per diemum dropped into a glass of sparkling fresh clear water, quickly turned the whole milky, and after lingering a fine pearl-coloured powder fell to the sides and bottom of the glass; on adding an equal number of drops of pure dephlegmatized spirit of vitriol to a glass of this water, a light cloud was seen floating towards the middle of the glass, and numerous air-bubbles rose from all parts of the water, and the sparkling might be renewed by adding one or more drops of the acid, and making the glass; and the like ebullition was more readily produced by a solution of fugar and Rhenish wine, or vinegar with the same and the same appearances were exhibited by dropping any vegetable or mineral acids into this water, as are observed when alkalies and acids are mixed together; a volatile caustic alkali, in half an hour after it had been dropped into this water, produced at first a cloud and afterwards a precipitation. Lithium lanplanum so far decomposed a glass of Seltzer-water, that a cloud instantly appeared in the middle of it, and the air-bubbles emerging from the lower part of it were greedilly absorbed by the caustic alkali, which is known to imbibe fixed air, whenever it comes into contact with it. This water, says Dr. Brockley, purifies into a glats, separates more air-bubbles than any other water which he had tried, and continues longer to do so in the open air, but its sparkling may be renewed by adding any sub-acid vegetable, and a little fugar, as sharp cider and Rhenish wine and fugar; but, he adds, that the best Seltzer-water here will not perfectly curdle milk, nor laugh with soap, and that with powder of gall-nuts no further change of it appear than in pure water. By evaporating twenty-four ounces of the best Seltzer-water, he obtained thirty glats of a caustic residual; and the greatest quantity he could ever get from a pint, wine measure, was less than thirty glats.

Ten drops of strong spirit of vitriol, poured on as many grams of salt of Seltzer-water, caused great and instant ebullition, and suffocating steam, which tinged blackness a silver spoon held in them, and gave to its polished surface a bitter taste.

Having dissolved sixty-six grains of pure white salt, obt
tained from this water, in distilled water, and filtrated it, he thereby obtained seven grains of a calcareous earth, perfectly soluble in all weak acids; but by several different modes of trial he was led to conclude, that this water contained no ferrugious principle. Finding that the salts and earths contained in Seltzer-water are too inconsiderable, both in quantity and quality, to promise any very material medicinal effects, he proceeded to investigate what might be ascribed to the great quantity of fixed air, which this water constantly discharges, in a heat not exceeding that of the human body; and the result was, that the factitious air yielded by a bottle full of water, containing exactly fourteen ounces seven drachms, in a heat never exceeding 116° by Fahrenheit's scale, amounted to a quantity which occupied a space, that required two ounces two and a half drachms of water to fill it; or allowing two hundred and sixty-five grains of common water for a cubic inch, the whole water amounted to twenty-seven cubic inches, and that which would fill the space occupied by the air four ounces and one-fifth; and so large a quantity of interstitial air, he says, was generated in a heat not incompatible with life in any part of the world, as the fever-heats in all climates testify, and less than the heat which is often experienced without insalubrious prejudice, in some tropical climates.

However, this generated air soon began to be re-absorbed into the body of the water, and in about eight hours, the space occupied by the remaining air did not exceed one-fifth of what it had formerly done.

From another experiment with the falt of Seltzer-water, he found that this ferves to have let go much the greatest part of its fixed air, and probably thereby lost most of the virtues inherent in the pure fresh water itself.

From such experiments Dr. Brocklefby infers, that Seltzer mineral water contains, besides the mere elementary water, a very small quantity of calcareous earth, and a much greater portion of a native mineral alkali, together with some acid retained a while within the water, but which either evaporates into the open air, or else is fon combined with the mineral alkali: and he thinks it probable, that the active virtues of this water depend more on this cleftic matter, or fixed air, which it contains in such uncommon abundance beyond other mineral waters, than in any combination of its saline and earthy contents, which are found in such small quantities, as to be incapable of any material service, though this water is known to be exceedingly beneficial.

This account of the analysis of Seltzer-water is closed with the history of some medical cafes, in which the use of this water completed a cure, after a great variety of other remedies had proved insufficient.

The operation of this water, as Hoffman observes, is chiefly by urine, for it has no purgative virtues. It corrects acidities, renders the blood and juices more fluid, and promotes a brisk and free circulation; and, therefore, it is good in obstructions of the glands, and against grosfs and vilef humours. It is of great use in the gravel and stone, and other disorders of the kidneys and bladder.

It is also excellent in gouty and rheumatic complaints, especially when mixed with milk, or improved by the addition of Rhenish wine and a little fugar. It is drank with great success in scorbutive, cutaneous, and putrid disorders. It relieves the heart-burn, and is an excellent homoeopathy. On account of its diuretic quality, it is serviceable in dropical complaints; and mixed with afles' milk, it is much recommended in consumptive cafes, and in disorders of the lungs; with or without milk, it is in great esteem in nervous disorders, and also in hypochondriacal and hysterical complaints, and in obstructions of the meatus, accompanying the use of it with proper exercise.

It is also administered with success in purging and fluxes arising from acidity in the bowels; and it is said, if drank by nures, to render their milk more wholesome and nourishing, and to prevent it from turning four on the romachs of children. See on the subject of this article Hoffman, Oper. vol. v. p. 144. London Med. Observ. vol. iv. p. 7, &c. Elliot's Account of the Principal Mineral Waters, p. 194, &c.

**Seltzer-Water, Artificial,** may be prepared by adding one scruple of magnesia alba, fix scrupules of foffil alkali, and four scrupules of common falt to each gallon of water, and saturating the water with fixed air, in the manner directed under **PYRMONT-Water.**

**SELVA,** in Geography, a town in Spain, in Catalonia, on the coast of the Mediterranean, 35 miles N.E. of Gerona. N. lat. 42° 20'. E. long. 5° 2'.

**SELVA,** a small island in the gulf of Venice, separated from Ulbo by a narrow channel; it is rocky, and the soil fo poor, that the olives feldom come to perfection: the vines produce bad grapes, and the corn is still worse. The fhone that abounds here is chiefly hard whitiff marble. N. lat. 44° 38'. E. long. 14° 5'.

**SELVAGE,** in Sea Language, a fort of hank or flein of rope-yard tied together at several distances. It is used to fatten round any ropes, as a fhroud or flay, fo that a tackle may be hooked in it, to extend the faid fhroud or flay, which is called fitting it up.

**SELUCHUSA,** in Ancient Geography, an island near the Pelponnefus, being one of those which were situated on the coast of the promontory of Spirafteum. Pliny.

**SELUCIA,** in Geography, a town of the Arabian Irak, 160 miles N.W. of Ballora.

**SELVE, L.A,** a town of France, in the department of the Avyron, and chief place of a canton, in the district of Rodes or Rhodex; 14 miles S. of Rhodex. The place contains 840, and the canton 6738 inhabitants, on a territory of 242½ kilometres, in 15 communes.

**SELVIG,** a town of Denmark, on the W. coast of the island of Samfoc. N. lat. 55° 52'. E. long. 10° 36'.

**SELUNE,** a river of France, which runs into the sea, near mount St. Michel.

**SELUR,** in Ancient Geography, a town of India, on this side of the Ganges, in the interior of the country of the Caracens, according to Ptolemy.

**SELYMBRIA, SELYTRA,** called also by Suidas Olybria, a town of Thrace, on the coast of the Propontide, between the mouth of the river Athyras and Perinthus, or Heraclea. Its name signifies the town of Selys, bria signifying town in the language of the Thracians. See Selytra.

**SELBACH,** in Geography, a river of France, which runs into the Rhine, 7 miles below Fort Vauban.

**SEM,** a river of Ruffia, which rifes in the E. part of the government of Kurfc, and paffing by Kurft, unites with the Dena, near Solnitza, in the government of Novgorod Sieverkoe.

**SEMAMPLEXICAULE LEAF,** in Botany. See Leaf.

**SEMENA,** in Geography, a town of Hindooftan, in the fubah of Delhi; 25 miles S. of Sirhind. N. lat. 29° 23'. E. long. 75° 33'.—Also, a town of Japan, in the island of Nippon; 125 miles W. of Meaco.

**SEMAO,** an island of the Eaft Indian sea, about 24 miles long from N. to S., and from fix to ten broad; sepa-
SEME

ESE. or SEEM. See SEAM.

SEMECARPUS, in Botany, derived from semicus, to mark, and ἅρπας, a fruit; a name evidently derived from the use that is made of its nut, in the East Indies, to mark table linen and articles of apparel. If these are put over the nut, and pricked, the juice exuding will make an indelible


Gen. Ch. Cal. Persicariae, inferior, of one leaf, bell-shaped, clover half way down into five, heart-shaped, acute segments. Gen. Petals five, lanceolate, bordered, obtuse, larger than the segments of the calyx. Stam. Filaments five, oval-shaped, shorter than the corolla, inserted into the receptacle; anthers oblong, small. Pet. Germin superior, globular, flattened; styles three, unarmed, situated on the germ and shorter than it; stigmas club-shaped, retuse. Pers. more, except the receptacle, which is erect, fleshy, pear-shaped, smooth. Seed, a nut resting upon the receptacle, heart-shaped, flattened on both sides, smooth and shining.

Obl. Dr. Roxburgh has observed some trees of Seme- copas with male flowers only, on which account profluous Martyr has described the genus as belonging to the class and order of Polygamia Divisa.


1. S. Anacardium. Marking-nut tree. Linn. Suppl. 182. Roxb. Coronaedul. v. 1. 3. 3. 1-8. —Native of mountainous, dry woods throughout the East Indies, flowering in May and August. Rooting its feed in January and February. A handsome lofty tree, whose bark is rough, ashy-coloured and glutinous with mucus. Branches numerous, spreading, rather hairy. Leaves alternate, on shortish stalks, wedge-shaped, rounded at the tip, entire, firm, nearly smooth above, whitish and a little rough beneath. Flowers in large, terminal, erect panicles, composed of numerous, small spikes, of a dirty-greenish-yellow colour. Brachii numerous, small, deciduous. Receptacle yellow, as large as the nut, which is black, containing a corrosive red juice, at first of a pale milk colour, but turning black.

The wood of this tree is fleshy, containing an acrid juice. The fleshy receptacles when roasted have the flavour of apples, and are eaten by the natives. The green fruit, pounded into a pulp, makes good bird-lime; when ripe, its black acrid juice is highly esteemed by the Telangas physis- cians, as a remedy for various disorders.

SEMIRENDA, in Geography, a town in Africa, in the kingdom of Hansa, on the Niger, near a lake called by Ptolemy Libya Palus. N. lat. 15° 25'. E. long. 6° 29'.

SEMEIOTICA, Sp. Gr. H.V. or symptom, that part of medicine which considers the signs or appearances of diseases, which are the sole guides to the physician, by which he can ascertain the seat and nature of diseases, and their probable termination. It includes, therefore, the art of diagnosi and geographis, and ophaloe, or the art of arranging diseases in methodical order. See these words respectively.

SEMELA, in Geography, a town of Africa, in Tripoli; 145 miles S. of Mefurada.

SEMELE, in Mythology, the mother of Baco.

SEMELITANI, in Ancient Geography, a people who inhabited the interior of Sicily, according to Pliny.

SEMEN, in Botany. See SEED.

SEMEN, in Physiology, an animal fluid secreted by the male, the contact of which is necessary to render the germ formed by the female prolix. See GENERATION.

SEMEN SANCTUM, or Santonium. See Wurm-Seed.

SEMEN CAN, in Geography, a town of Grand Bu- chan; 100 miles S.E. of Balka. See SEMEN.
SEMENDERY, a town on the S. coast of the island of Java. S. lat. 7° 11'. E. long. 106° 52'.

SEMENDRIA, a town and fortress of Servia, on the S. side of the Danube; 20 miles S.E. of Belgrade. N. lat. 44° 52'. E. long. 20° 41'.

SEMENGHE, in Music, an instrument used in Arabia by those wandering musicians who accompany the dancing women. It is a sort of bad violin, joined with a drum. The body is commonly a cocoa-nut shell, with a piece of skin extended upon it; three strings of catgut, and some times of horsehair, are fitted to it; and it is played with a bow, not being awkward in its form than the Greek lyre.

SEMEANGH, in Geography, a town of Persia, in the province of Segeftan; 132 miles S. of Kin.

SEMEJAN, a town of Grand Bucharas; 70 miles W. of Anderah. N. lat. 36° 22'. E. long. 65° 50'.

SEMMENDY, a town of Egypt, on the E. branch of the Nile; 8 miles S.S.W. of Mandora.

SEMEKOV, a town of Ruffia, in the government of Nizni-Novgorod; 36 miles N. of Nizni-Novgorod. N. lat. 55° 30'. E. long. 44° 14'.

SEMENOVSKO, a town of Ruffia, in the government of Vologda; 44 miles N.N.W. of Vologda.

SEMENTINAE, in Antiquity, feals held annually among the Romans, to obtain of the gods a plentiful harvest.

They were celebrated in the temple of Tellus, or the Earth, where solemn sacrifices were offered to Tellus and Ceres.

The time of the celebration was about feed-time, usually in the month of January; for Macrobius observes, they were movable feals. They had their name from femis, feed.

SEMEROH, in Ancient Geography, a royal town of Judæa, in the tribe of Zebulon, according to the book of Joshua, whither, it is said, Jabin sent a messenger to demand succour of the king of the city, and which he accordingly obtained, together with that of several other kings, to attack the Israelites; but they were all defeated and slain in the combat.—Also, a mountain of Judæa, in the tribe of Ephraim, E. of Sichem; called also the mountain of Samaria.

SEME, SUMMETS, or SUMMITS, in Botany, are used by Dr. Grew and others, for the apices of the stature of plants.

SEMI, a word borrowed from the Latin, signifying half; but only used in composition with other words, as in the following articles.

The French, instead of semi, frequently use demi, the Greeks hemi.

In music, semi has three several usages: first, when prefixed to the name of a note, it expresses a diminution of half its value, as in semi-breve, &c.

 Secondly, when added to the name of an interval, it expresses a diminution, not of half, but of a lesser semi-tone, or four commas, in the whole compass, as in demi-diapente, &c.

Thirdly, in old music to the end of the 16th century, it implies imperfection in the value of notes, as a semi-circle, or circulo meszo; the whole circle then implying perfection, or triple-time. O three breves, or three times three semi-breves, without a point. C common time, or, as it was then called, imperfect, or dual measure. See Musical Characters, and the first Time-Table.

SEMIARIANS, in Ecclesiastical History, a branch of the ancient Arians, confuting, according to Epiphanius, of such as, in appearance, condemned the errors of that heresiarch, but yet acquiesced in some of his principles, only palliating and hiding them under softer and more moderate terms. See Arians.

It is true, they separated from the Arian faction; but yet could never be brought to acknowledge that the Son was homousios, that is, consubstantial, or of the same substance with the Father; they would only allow him to be homoiouss, that is, of like substance with the Father, or similar to the Father in his essence, not by nature, but by a peculiar privilege. See Homousios, &c.

Though, as to expression, they only differed from the orthodox by a single letter, yet yet that, in effect, of the opinion of the Arians, as they placed the Son in the rank of creatures. It did not avail their teaching, that there was no other creature of the same class with him, since by denying him consubstantial with God, they effectually precluded him from being truly God.

Yet some, even among the orthodox, use the word homoiouss, in speaking of the Son; applying such an idea to it as it seems is consistent with orthodoxy.

But the name Semi-Arians is also given, by the second general council, to another branch of Arians, who believed orthodoxy of the Father and Son, but denied the deity of the Holy Ghost; thus rejecting that part of the Arian fyltem relating to the Son, but still retaining that which related to the Holy Ghost.

As the zeal of the Arians was chiefly levelled against the second perion in the Trinity, that of the Semi-Arians was bent against the third; whereas, as the former were sometimes called Νόμιμοι, the latter were denominated Νομιμοιοι.

Macdonius, bishop of Constantinople, made an innovation in this sect in 360, and gave rise to a new branch of Macedonian Semi-Arians, or Pneumatomachi; who allowed the Son not to be of the same substance, but of like substance with the Father; and at the same time openly affirmed the Holy Ghost to be a creature. This hereby was condemned by the eleventh general council held at Constantinople in the year 381. See Macedonians.

SEMBREVE, O = f, half a breve, in Music. See the Time-Tables.

SEMICIRCLE, in Geometry, a figure comprehended between the diameter of a circle, and half the circumference.

Two semicircles can only cut each other in one point.

SEMICIRCLE is also an instrument in Surveying, sometimes called the graphometer.

It consists of a semicircular limb, as F, J, G, (Plate VII. Surveying, fig. 3.) divided into one hundred and eighty degrees, and sometimes subdivided diagonally or otherwise into minutes. This limb is subtended by a diameter FG, at the extremities of which are erected two sights. In the centre of the semicircle, or the middle of the diameter, is fixed a box and needle. On the same centre is fitted an alidade, or moveable index, carrying two other sights, as H, I. And the whole is mounted on a staff, with a ball and socket.

The semicircle, then, is nothing else but half a theodolite; with this only difference, that whereas the limb of the theodolite, being an entire circle, takes in all the 360° successively; in the semicircle the degrees only going from 1 to 180°, it is useful to have the remaining 180°, or those from 180° to 360°, graduated in another line on the limb within the former.

To take an Angle with a Semicircle. Place the instrument in such manner, as that the radius CG may hang over one leg
SEM

The text is a compilation of various entries, likely from an encyclopedia or a similar work. It covers topics such as anatomy, semicircular canals, and astronomical terms. Each entry is labeled with a heading in bold, followed by a definition or description of the term. The text is dense and technical, typical of an encyclopedia entry for students or professionals in the field.
SEMILUNAR Cartilages of the Knee-joint, are two small portions of cartilage situated in that articulation. See Extremities.

SEMILUNAR Portion or Edge of the Fasce Lata. See Fascia.

SEMILUNARES COCCHEAE, in Natural History, the name of a genus of fucells, so called, from their having semilunar mouths. See Conchology.

The characters of the genus are these. They are univalve shells of a compact body, with a flat semilunar, and often dentated mouth; the columnella, or inner lip, running diametrically across it in a straight line. Some of the species have exserted spicula, and some depressed; these are nearly globose shells, and the turban is never much produced, but lies flat or level with the bottom.

There are many distinctive and specific characters in the several species of this genus, which arrange together considerable numbers of the species under each. Thus the nerita, which are of this genus, are some of them umbilicated, and others have teeth and a kind of gums. The inal kinds, distinctively so called, that fall under this genus, are very different from the neritas, in that they have no teeth, no gum, and no palate. The term semilunares coeccae was invented by Rumphius to express their mouths, being of the shape of half a circle.


All the species of the semilunares shells have few convolutions, and have the extremity of the voluta small, and usually flauding a little out.

The species of the semilunare coeccae are these, as arranged under the two general divisions of dentated neritas, and umbilicated coeccae; viz. the dentated nerita, commonly called the gum-shell; the bloody-tooth nerita; the ox-palate nerita; the inflated and punctuated nerita; the canaliculate, the furrowed, the thrush, and the partridge nerita.

Of the neritas which have no teeth, we have ten species; viz. the jasper with a long beak; the jasper with an operculum; the lemon-coloured pea; the yellow pea; the prickly; the reticulated; that variegated with black spots; the red and white fuscated; the lightly inflated green; and the undulated nerita.

Of the umbilicated shells we have nine species; viz. the long umbilicated; that with an exserted apex; that with a depressed apex; testiculated; the hermit; the umbonated; the small nipple; the heavy white; and the orange-coloured coeccae. Hilt. Natural. Eclaire. part ii. p. 256.

SEMILUNARI S Linea, in the abdomen, is the line following the outer edge of the rectus abdominis muscle. See Osti.läuft.

SEMIMEMBRANOSUS, (ischio-fous-tibien; demi-aponérotique); a muscle of the thigh, situated on the posterior part of the limb, elongated, and extending from the tuberosity of the ischium to the upper and back edge of the tibia. It commences from the tuberosity of the ischium, in front of the biceps and feminitisofhus, and blends the quadratus femoris, by a broad flat tendon, which soon expands into a broad aponeurosis, thicker at its external than at its inner edge, and giving origin successively by the latter to the mucular fibres. The latter are all parallel, short, and placed obliquely, and form a thick
an inch, which is larger at its middle, and thinnest at the top and roots. They extend gradually towards, and terminate in feathers, which, by being appressed to the end of the fronds, enclose the fronds towards, and cords below in a slanting way, which parallel behind the fronds, and divide into the feathers. The external is a narrow and arrow-sharp; the internal is outwards behind the vein, and also inwards above it, and has a slanting line of the thall, connected with the external head of the gallar coroll, the middle, which is broad and continues with the preceding, is fixed to the back of the inner tubercle of the thall, and lends an elevation over the poplons. The internal, more round and rounded, seems to be the continuation of the thall; it turns round the tuber, and is attached in front of it, contained in a fibrous sheath, lined by a decided membrane, which must be opened to gain a clear view of it.

It is covered by the feminal axis, the beaks, and the talus; it lies on the quadrants, the adductor muscle, the peripheral artery, the knee-cort, and the inner head of the gallar coroll, between which and its tender there is a decided membrane.

It binds the egg of the thall, or the thall on the edge; and it extends the thall on the pelves, or carries the pelves backwards on the thall.

SEMINAL, a term formerly applied in Chemistry, to that part not possessing ductility or malleability; these properties being then considered as the principal characters of a metal. In a more modern point of view this is doubled the case, but the chemical properties of this numerous class of bodies are so striking, as to render the above distinction obsolete. See Metals.

SEMINA, in Ancient Geography, a town of Asia, in Partha Phrygia.

SEMINAGUR, in Geography, a town of Hindustan, in Oude; 76 miles N. of Katubad.

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SEMINALIS, in Anatomy, a name by which some authors have called the femoral.

SEMINARA, in Geography, a town of Naples, in Campania Ultra; destroyed by an earthquake in 1783; though the habitants escaped; 17 miles N.E. of Reggio.

SEMINARY, a place appointed for the instruction of young persons destined for the ministry, in its duties, ceremonies, and offices; first instituted, as Thomassin tells us, by St. Augustine.

Of these seminaries there are many abroad, furnished with halls for the assemblies of the exercentutes, and little cham-
apartments are taken off for the nursery, the ground should be double dug, and lie fallow the following summer, mowing it with rotten dung, and double-digging it about Midsummer, as before. In autumn it will be ready to be fown yet, which should be done with seeds of a different nature from those by which it was before occupied. The fernary should be well fenced and guarded. The fernary which is most in use is for the supply of the flower-garden, and this is the place where flowers are to be raised from their seeds, to procure varieties, or, as the florists express it, new flowers; as also for the sowing of all the biennial plants, to succeed those which decay in the flower-garden.

The fernary should always be situated at some distance from the house, and be walled or paled round, and kept ununder lock and key, to keep out dogs, &c. and to prevent a great deal of damage that is frequently done by those who are not acquainted with gardening before they are aware of it. The several directions for the management of the fernary are to be seen under the names of the several plants intended to be raised in it.

SEMINATION, in Agriculture, the act of sowing grain or other sorts of seed. It is of much consequence to have this performed in as equal and regular a manner as possible; the crops being thereby much better, and more productive. See Sowing.

SEMINERVOSUS, in Anatomy. See SEMINTENOSUS.

SEMINIFEROUS Tubes or Ducts, the innumerable fine canals composing the body of the testis, into which the seminal fluid is secreted. See Generation.

SEMINIUM, a term used by the writers on fossils to express a sort of drift principle, from which the several figured horns, or, as they are more usually called, the extraneous fossils, are supposed to have their origin.

The generality of the learned world, at this time, supposed these to be the remains of real shells, &c. brought from the sea to the places where they are now found, at the time of the universal deluge. See Formed Stones, and Adventitious Fossils.

But those who differ from this system pretend, that these fossil bodies, though they exactly represent shells, &c. yet never were in the sea at all, but that their minute first principles, or, to use their own term, their feminia, have been carried from the sea, through subterranean passages, to the places where we now find the complete shells, &c. into which they have grown. Langius, who has written expressly on this subject, though he has candidly collected all that has been said in favour of the diluvian system, by the abettors of it, yet is not convinced by those arguments, but rather inclines to the other side of the question, or the rite of such fossils from feminia.

These fossil shells are usually found throughout one and the same subfulation, and that the most different imaginable from the subfutation of the living creatures which they represent; and often, though found in pairs, and perfectly closed on all sides, yet when broken, they are found full of the subfutation of the bone in which they lie; and the armature of several kinds of them, particularly of many of the cornea ammonis, is supposed to plead greatly in favour of this hypothesis; as it is not of the nature of or at all owing to the subfutation of the matrix in which they lie, or of the matter of which they are formed, and is therefore to arise solely from the nature of the feminia from which they are formed.

The immense number of the seas-shells, as they are called, thus found fossil, is also thought to argue much on this side of the question; as the followers of this hypothesis suppose that the sea could not, at any one time, have given up such numbers as the earth is stocked with, though there are no limits to the numbers supposed to be raised from feminia; and the immense columns of black marble found in Ireland, and found of such regular joints, are brought as a proof of the possibility of such a formation of fossils as this from feminia, which they suppose must have given origin to those pillars.

SEMINOLES, in Geography, a division of the Creek nation of Indians, who inhabit the flat level country on the rivers Apalachicola and Flint.

SEMIORDINATES, in Geometry, the halves of the ordinates or applicates. See Ordinate and Conic Sections.

SEMI-PARABOLA, a curve defined by the equation, 
\[ a x^{n-1} = y^n \] as a \( x^2 = y^3 \), a \( x^3 = y^6 \).

In semi-parabolas \( y^n \); \( y^n \left( a y^n - 1 \right) \); \( a y^{n-1} \); \( z^{n-1} \), or the powers of the semi-ordinates are as the powers of the abscissae, one degree lower; \( e.g. \) in cubical semi-parabolas, the cubes of the ordinates \( y^3 \) and \( x^3 \) are as the squares of the abscissae \( x^2 \) and \( y^2 \). See PARABOLA.

SEMI-PELAGIANS, in Ecclesiastical History, a name anciently, and even to this day, given to such as retain some tincture of Pelagianism.

St. Prosper, in a letter to St. Augustine, calls them re-ligias Pelagii.

Many learned men, principally among the Gauls, who could not come into St. Augustine's doctrine of grace, &c. were accused of Semi-pelagianism; they were also called Maffilians, or Criers of Marseille, in regard their opinions had their first rise in that city.

Cassian, who had been a deacon of Constatinople, and was afterwards a priest at Marseille, was the chief of these Semi-pelagians. And about the year 430, several other persons embarked in the undertaking of fixing upon a kind of mean between the opinions of Pelagius and those of Augustine, and formed this new sect.

The leading principles of the Semi-pelagians were the five following. 1. That God did not dispence his grace to one more than another in consequence of predetermination, \( e.g. \) an eternal and absolute decree, but was willing to save all men, if they complied with the terms of his gospel. 2. That Christ died for all men. 3. That the grace purchas'd by Christ, and necessary to salvation, was offered to all men. 4. That man, before he received grace, was capable of faith and holy desires. 5. That man was born free, and was consequently capable of refilling the influences of grace, or of complying with its fuggitation. The Semi-pelagians were very numerous; and the doctrine of Cassian, though variously explained, was received in the greatest part of the monastic schools in Gaul, from whence it spread itself far and wide through the European provinces. As to the Greeks, and other eastern Christians, they had embraced the Semi-pelagian doctrine before Cassian, and still adhere firmly to it. In the sixth century, the controversy between the Semi-pelagians and the disciples of Augustine, prevailed much, and continued to divide the Western churches. Mofheim's Eccl. Hist. vol. i.

SEMI-PERIOD, in Grammar, a mark of division recommended by Dr. Ward, but not admitted by other grammarians. It is greater than the colon, and supposed to anwer the same purpose between the colon and period as the semicolon does between the comma and colon. It is used to terminate a perfect sentence, when a new sentence arising out of
of the preceding is annexed to it, and he distinguishes it by
beginning the new sentence with a small letter. But the colons
and full stops, differently applied, supercede the necessity of
his new division.

SEMPOLATNOI, or SEMPOLAT, in Geography, a
fortress of Russia, in the government of Kolvan, on the
Irtysh, first built in the year 1714, on the bank of the
Irtysh; but afterwards taken down and erected in several
different situations. It now stands in its fourth situation,
and is easily commanded from the mountains that lie to the
left of it; and the adjacent country is very pleasant and
fruitful, but remains uncultivated. The gardens at Sempola
treat a very fine species of corn. The fort derives its
name from Sempolat, a runaway slave, from about 1½
dvls on the river Irtysh, where are seen some remains
of old stone buildings. The Russian settlers found here
seven houses, as the name of the place imports. Some
learned men are of opinion, that certain inscriptions found
among the ruins, relate to the mytholgy of the Kalmucks;
and that this place was deserted by these people, in
conformity to a maxim of their religion, that when any
consecrated place is profaned by war, it should be for ever
reliquished; 148 miles S. of Kolvan. N. lat. 50° 25'.
E. long. 80° 14'.
SEMI-PORCELAM, in the History of Shells. See
STILLS.
SEMI-PREBEND. See PREBEND.
SEMI-PROOF, an imperfect proof.
In the French law, the deposition of a single evidence
only makes a semiproof.
The testament of a person deceased is deemed a femi-
proof.
In enormous cases, the semiproof frequently determined
them to try the torture.
SEMIQUARTILE, or SEMIQUADRATE, is an aspect
of the planets, when distant from each other 45 degrees, or
one sign and a half.
SEMIQUAVER, in Music. See QUAVER.
SEMIQUINTILE is an aspect of the planets, when at
the distance of 15 degrees from one another.
SEMIRA, in Geography. See SAMIRA.
SEMIRAMIS, in Biography, queen of Assyrity, a very
distinguished personage, in ancient history, lived at a period
so remote, that little can be known with certainty of her
actions. It appears, however, that Semiramis was a female
of obscure origin, but of great beauty and a superior under-
standing, and that she became the wife of Menon, an officer
of high rank under king Ninus; that following her hus-
band to the army, she engaged in the invasion of Bactria,
and attracted the king's notice, whom she afterwards married,
her former husband, through jealousy or defair, having put
an end to his life. After the death of Ninus, who left her
regent and guardian of their infant son, she assumed the
reins of empire, and governed with great glory. She
founded the famous city of Babylon; then purifying her
husband's plan of conquest, and marching through Media
and Persia, every where, it is said, leaving traces of her
splendour, in works of magnificence and utility, penetrated
to the banks of the Indus. She there encountered the king
of the country, at the head of a vast army, and underwent
a total defeat, which obliged her to return to Bactria with
carefully a third part of her forces. A conspiracy being
then entered to assassinate her, at the instigation of her own
son, she either fell under it, or was obliged to reign her
crown after wearing it upwards of 40 years.
SEMI FORCE, in Chemistry, a term
used to express such a reverberatory fire, as which
the gases the heat back up the better of the void.
SEMISHOMEUS, a name given to a
SEMIRACAS, in Geography. See SAMIRA.
SEMISEXTILE, or SEMIQUARTER, on S. S. an effect
of two planets, when they are distant from each other
one-twelfth part of a circle, or 30 degrees.
The semitendineus was added to the ancienir aspects by
Kepler; and, as he lays, from meteorological observa-
tions.
SEMISICHICUS, a word used by some pharmacists
writers to express a draught.
SEMISIDERATUS, a word used by some for a person
trucked with a hemiplegia.
SEMISOSPIRO, in the Italian Music, a little pause,
or the eight part of a bar in common time.
SEMISPINALIS DORSI, in Anatomy, a portion of
the muscular mafas, which fills the hollow of the spine
between the transverse and the spinous processes. It
arises from the transverse processses of four, five, six, or seven
of the inferior dorsal vertebrae, beginning with the second from
the loins, and is inerected in the spinous proccssses of the two
lower cervical, and of the two, three, or four first dorsal
vertebrae. It lies on the multifidus spine, with which it is
much connected; and it is covered by the long lumbar dorso
and complexus. It is described as a distinct muscle by Al-
nius and Soemmerring: Boyer and Bichat include it with
the multifidus spine under the name of transversari euxepus.
See MULTIDUS, under which article its action is de
scribed.
SEMITA LUMINOSA, a name given to a kind of lucid
stret in the heavens, which a little before the vernal equino
or after the autumnal, may be seen about six o'clock at
night, extending from the western edge of the horizon up
wards the Pleiades.
The phenomenon has been taken notice of by Caffimi and
Fatio, who both evince, that this light comes diffusd from
both sides of the sun, its brightnness is much the same with
that of the vites lucis, or the tail of a comet: it is seen
plainest with us about the beginning of October, or the
latter end of February.
Fatio conjectures, that the bodies, or rather the conge-
rates or aggregate of bodies, which occasions this light,
conforms to the sun like a lens, and takes it to have ever
been the same; but Caflini thinks it arises from a vain
number of small planets, which encircles the sun, and
give this light by reflection; others think it not to have
existed long before he observed it. See ZODIACAL LIGHT.
SEMITALES, among the Romans, a name given
to the gods who were the protectors of roads.
SEMITENTS. See TEINTS.
SEMITENDINOSUS, semimervorus, [schio-pre-tibias],
in Anatomy, a long muscle at the back of the thigh, thicker
above and very slender below, extending from the tuberity
of the ischium to the tibia. It arises from the ischium by
a tendon, which, for the space of three inches, is common
it with the long head of the biceps flexor cruris. The muscle
fibres arising from this tendon form a fascieus, which is first
thicker, then larger, and then again diminished, and inter-
sected in its middle by an aponeurosis very obliquely directed.
The semitendinosus passes along the inner and posterior edge
of the thigh, and terminates below in a tendon, which first
constitutes...
SEMITE. See Fever, Semitertian.

SEMITONE, in Music, one of the degrees, or consecutive intervals, of concords.

There are three degrees, or less intervals, by which a sound can move upwards and downwards successively from one extreme of any concord to the other, and yet produce true melody; and by means of which, several voices and instruments are capable of the necessary variety in passing from concord to concord. These degrees are the greater and less tone, and the semitone. The ratio of the first is 8:9; that of the second 9:10.

The ratio of the semitone is 15:16; its compass is five commas; which interval is called a semitone, not that it is geometrically the half of either of the tones, for it is more; but because it comes somewhat near it. It is also called the natural semitone, and the greater semitone, because greater than the part it leaves behind, or its complement to a tone, which is four commas. The Italians also call it seconda minore, or a lesser ledge.

There are several species of semitones; but those that usually occur in practice are of two kinds, distinguished by the addition of greater and less. The first is expressed by the ratio of 16 to 15, or $\frac{16}{15}$; and the second by 25 to 24, or $\frac{25}{24}$. The octave contains ten semitones major, and two dies, nearly; for the measure of the octave being expressed by the logarithm 1.000000, the semitone major will be measured by $0.0293109$; and the octave contains seventeen semitones minor, nearly; for the measure of the semitone minor will be $0.059464$. The two differ by a whole enharmonic dies, which is an interval practicable by the voice, and was much in use among the ancients, and not known even among the modern practitioners. Euler, Tent. Nov. Theor. Mus. p. 107. See INTERVAL.

These semitones are called fictitious notes; and with respect to the natural tones, are expressed by characters called flats and sharps.

Their use is to remedy the defects of instruments, which, having their sounds fixed, cannot always be made to answer to the diatonic scale.

By means of these we have a new kind of scale, called the SEMITONIC SCALE; which see.

In practical music, on keyed and fretted instruments, it is a nominal half-tone; though mathematicians, in theory, find it impossible to divide a tone into halves. Rouleau, after explaining the scientific and nominal difference between the major and minor semitone; the major changing its place, as to $f$; and $b$ to $e$; and the minor remaining on the same line, or on the same space of the staff; as $F_E$ $F_A$, $B_B$ $B_A$; observes, that though the imaginary change of tone is expressed by the accident of a sharp or a flat, yet there is no difference in the sound of $E_k$ and $F_A$, or in $A_A$ and $B_C$, on the organ or harpsichord, the same tones being sometimes major and sometimes minor, sometimes diatonic and sometimes chromatic, according to the key we are in.

For the importance of the semitone in music, see Mattson's Organista profci, or Treatise on Thorough-bafe, where he has bestowed many pages on this interval. Zarlino calls it il fale, the flat, or meaning of music.

The use of semitones has been much abused of late, by the now too common trick of running up and down the piano forte in half-notes. Our flow chromatic is fundamental, and productive of modulation; but the quick chiefly consists of appoggiatures, and mere notes of taste, unmoored in the base and the accompaniments. See Modern CHROMATIC.

For the further use of succeeeive semitones with good taste and effect, see Mozart's Theme, No. 5, Var. 4. second strain.

SEMITONIC SCALE, or the Scale of Semitones; a scale or system of music, consisting of 12 degrees, or 13 notes, in the octave, being an improvement on the natural or diatonic scale, by inferring between each two notes of it another note, which divides the interval or tone into two unequal parts, called semitone.

The use of this scale is for instruments that have fixed sounds, as the organ, harpsichord, &c. which are exceedingly defective on the foot of the natural or diatonic scale. For the degrees of the scale being unequal, from every note to its octave, there is a different order of degrees; so that from any note we cannot find any interval in a series of fixed sounds; which yet is necessary, that all the notes of a piece of music, carried through several keys, may be found in their just tone, or that the same fong may be begun in a different note, as may be necessary for accommodating some instrument to others, or to the human voice, when they are to accompany each other in unison.

The diatonic scale, beginning at the lowest note, being first settled on an instrument, and the notes thereof distinguished by their names, a, b, c, d, e, f, g; the inserted notes, or semitones, are called fictitious notes, and take the name or letter below with it, as $e$, called $c$ sharps, signifying that it is a semitone higher than the sound of $e$ in the natural series; or this mark $f$, called a flat, with the name of the note above, signifying it to be a semitone lower.

Now $\frac{16}{15}$ and $\frac{25}{24}$ being the two semitones the greater tone is divided into; and $\frac{24}{23}$ and $\frac{16}{15}$, the semitones the lesser tone is divided into; the whole octave will stand in the following scheme, where the ratios of each term to the next are written fraction-wise between them below.

Scale of Semitones.

<table>
<thead>
<tr>
<th>c</th>
<th>c#</th>
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<th>d#</th>
<th>e</th>
<th>f</th>
<th>f#</th>
<th>g</th>
<th>g#</th>
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For the names of the intervals in this scale, I may be considered, that as the notes added to the natural scale are not designed to alter the species of melody, but leave it still diatonic, and only correct some defects arising from something foreign to the office of the scale of music, viz. the fixing and limiting the sounds; we see the reason why the names of the natural scale are continued, only making a diminution of each into a greater and less. Thus an interval of one semitone is called a left second; of two semitones, a greater second; of three semitones, a left third; of four, a greater third, &c.

A second kind of semitonic scale we have from another division of the octave into semitones; which is performed by taking an harmonical mean between the extremes of the greater
SEM

This is the 83rd of Jullien's orders, the 5th of his 14th class, whose characters may be found at length under the article Sempervivum. The Sempervivae are defined as follows.

Calyx inferior, divided deeply into a definite number of segments. Petals inserted into the bottom of the calyx, alternate with its segments, and agreeing with them in number, or more rarely the calyx is monopetalous, either tubular, or deeply divided. Stamens either as many as the petals, and alternate therewith; or twice as numerous, inserted alternately into the claws of the petals, and the bottom of the segments of the calyx; anthers roundish. Germanos several, equal in number to the petals, joined together by the internal angle of their base, glandular at the opposite part, their glands, in some instances, affuming the form of scales; filaments and filaments as many as the germinos. Capsules as many, of one cell, with many seeds, separating at the inner margin into two valves, whose edges bear the seeds. Curculin incurved, surrounding a farinaceous mass. Stem herbaceous, or somewhat thorny. Leaves opposite or alternate, succulent.

The genera are Tilliae, Caryophylla, Costoloba, Rhodiol, Sedum, Sempervivum, and Semp. to which Penicillium is subjoined, as akin to the red, but differing in habit, (as being not succulent,) and in the mode in which the capsule bursts; see Penicillium, in which Jullien's mistake is rectified, and this genus referred to the order in question, without any exception or doubt.


Eff. Ch. Calyx inferior, cleft into twelve deep segments. Petals twelve. Capsules twelve, with many seeds.

Ohl. Linneus in a remark under the natural character in his Gen. Pl. makes the greater number of petals the essential distinction between this genus and Sempervivum, but in the Syb. Veg. the nectariferous scales are properly made characteristic of the latter. According to this principle, Sempervivum seditiforme, of Jacquin, has been referred by sir J. E. Smith, in Tr. of Linn. Soc. v. 10. 6, to Sedum, with which it accords also in habit, differing altogether from Sempervivum, except in number of petals, &c. a circumstance known, in this cafe, to be uncertain. Nevertheless, there being in Sempervivum birtum, according to Schmelde's figure at heel, a minute indication of a scale, or tooth, at the base of each germinos, the learned editor of Hort. Kew, was induced, on that ground alone, to prefer the character deduced from number, in the above plant of Jacquin. Both Willdenow and Martyn enumerate fourteen species of this handsome genus, including Sediforme; many of these are beautifully figured by Jacquin and Curtis. The following, beginning with the only British species, may serve as an epitome of the whole.

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S. tectorum. Common Houfeleek. Linn. Sp. Pl. 664. Engl. Bot. t. 1320. Curt. Loud. fac. 3. t. 29. Fl. Dan. t. 601.—Leaves fringed. Offsets spreading. Common on old tiles and decayed thatched roofs, where it forms large, dense tufts, flowering, though sparingly, in July. — Roots perennial, fibrous, throwing out numerous, roaceous, leafy runners. Stems erect, nearly a foot high, round, flothy, downy, leafy, corymbose at the top, many-flowered. Leaves extremely succulent, carinated, acute; the radical ones obovate; those of the stem alternate, lanceolate, more flender, reddish. Flowers pale pink, or flesh-coloured, downy.— "The bruised leaves are by ruffle furgeous used as a cooling external application, but their virtues are inconsiderable."

S. globiferum. Globular Houfeleek. Linn. Sp. Pl. 665. Curt. Mag. t. 507. Jacq. Avr. t. 5. t. 40. App.—Leaves fringed. Offsets resembling little globes.—Native of Russia and Germany, flowering in June and July.—Roots perennial, resembling those of the leaf species in habit, as indeed do all the other parts. Stems not so high, more leafy. Leaves narrower, closely fringed, tipped with red; those of the globular offsets compactly imbricated. Flowers large and handsome, in a terminal cluster; their petals yellow, and lilac coloured at the base.


S. arachnoidium. Cobweb Houfeleek. Linn. Sp. Pl. 665. Curt. Mag. t. 68. Jacq. Avr. t. 5. t. 42. App.—Leaves interwoven with hairs. Offsets globular.—Native of the Alpes of Italy and Switzerland, flowering in the summer.—This very elegant species, commonly known by the name of Cobweb Sedum, resembles all the other species in habit, but is exceedingly remarkable for its woolly substance on the top of its globular offsets, which, as the leaf expands, is extended with them, and affummes the appearance of a cobweb, whence the specific name. Flower-flakes about six inches high, of a bright pink colour, like the flem-leaves. Flowers terminal, corymbose, pink or reddish.

S. montanum. Mountain Houfeleek. Linn. Sp. Pl. 665. Curt. Mag. t. 41. App.—Leaves not fringed. Offsets spreading.—Native of Switzerland, flowering in June and July.—This elegant species differs chiefly from S. tectorum in having smaller leaves without any fringe or indenture at their edges, and more expanded offsets. Flowers beautifully variegated with lilac and a brownish-red colour.

S. monanthes. Cluttered or Dwarf Houfeleek. Ait. Hort. Kew. v. 3. 174. Wildl. n. 14. Curt. Mag. t. 93.—Leaves roundish, club-shaped, clustered together. Stalks solitary, generally single-flowered. Nectaries obcordate.—Native of the Canary Islands, flowering in July.—Remarkable as being by far the smallest species of Sempervivum, but more so on account of its nectaries, which are usually feven in number, and form a principal part of the fructification.

The remaining species are S. arboresum, canariense, glutinosum, glandulosum, villifolium, sellaturn, and biturn. Sempervivum, in Gardening, contains plants of the succulent, hardy, herbaceous, evergreen, and shrubby perennial kinds, of which the species cultivated are; the common houseleek (S. tectorum); the globular houseleek (S. globiferum); the cobweb houseleek (S. arachnoidium); the mountain houseleek (S. montanum); the tree houseleek (S. arboresum); and the Canary houseleek (S. canariense).

In the sixth fort a variety with variegated leaves was obtained from a branch accidentally broken from a plant of the plain fort, at Badmington, the seat of the duke of Beaufort.

Method of Culture.—The different herbaceous sorts are all capable of being increased without difficulty, by planting their off-set heads, which should be flipp'd with a few root-fibres to them, and planted in the spring season on rubbish, rock-works, or other places, or in pots for variety; and the tender greenhouse sorts may be raised from cuttings of the branches and from seeds; but the first is the better method. The cuttings should be made from the smaller branches in the early summer months, and be planted out in pots, or a bed of fine earth, in a warm shaded situation: when the cuttings are succulent, they should be laid in a dry place for a few days to heal over the cut part; they should be shaded from the sun; and those in pots lightly watered in dry weather: when they are become well rooted, they should be carefully removed into separate pots of a middle size, being placed in the greenhouse. Some forward these plants by means of bark hot-beds.

The feeds of the Canary kind should be found in the autumn or early spring in pots of light mould, placing them in a garden-frame to protect them from frost, having the air freely admitted in mild weather, when the plants are come up, and have a little stxrength, they should be removed into small pots and placed in the greenhouse.

The drift sorts are ornamental on walls, buildings, and rock-works, as well as in pots; and the last two kinds among other potted greenhouse plants.

SEMPHROPOL, in Geography, a town of Russia, in the province of Tauris; 60 miles S. of Perekop. N. lat. 45° 8'. E. long. 34° 10'.

SEMPHORIS, in Ancient Geography, a town situated in the environs of Galilee, according to Josephus.

SEMPRONIUS, in Geography, a port-town of New York, nearly in the centre of the county of Onondago, within the jurisdiction of the township of Scipio, 20 miles S.E. from the ferry on Cayuga lake, and 457 miles from Washington.

SEMP, a river of Bavaria, which runs into the Ifer, 5 miles above Landshut.

SEMR, a town of Hindooflan, in Bahar; 38 miles N. of Chuprah. N. lat. 26° 45'. E. long. 84° 51'.

SEMSAT. See SAMSAAT.

SEMSHIN, or SEMPTCHIN, a town of Little Bucharia; 18 miles E.S.E. of Tourfan. N. lat. 44° 30'. E. long. 89° 49'.

SEMTCHIARSKO1, a fortress of Russia, on the Irich. N. lat. 51°. E. long. 78° 10'.

SEUMUR, or SEMUR en Auxois, a town of France, and principal place of a district, in the department of the Côte d'Or, seated on a rock, near the river Armançon; 10 miles N.W. of Dijon. The place contains 4295; and the canton 14,782 inhabitants, on a territory of 2772 quadratkilometres, in 28 communes. Its principal commerce consists in woolen cloth of its own manufacture. N. lat. 47° 29'. E. long. 4° 23'.

SEUMUR en Brionois, a town of France, in the department of the Saône and Loire, and chief place of a canton, in the district of Charolles; 12 miles S. of Charolles. The place contains 598, and the canton 11,166 inhabitants, on a territory of 1824 quadratkilometres, in 16 communes. N. lat. 46° 16'. E. long. 4° 16'.

SEMUSSYR, one of the Kurilsky islands, 30 versts from Keti, another of the same islands. Its length is 130 versts, and its breadth not more than 10. This island has four mountains, one of which exhibits evident traces of
its having been formerly burnt: in other respects it has the same properties with those of Ketis; which fece. The paffage from this island to Thirspo Ot is 300 versts.

SEMYDA, in Botany, the name of a tree, mentioned by Theophrastus, and by some suppos'd to be the fame with the kedia, or birch-tree, but very erroneously.

SEMYSTA, in Ancient Geography, an island of the British ocean, near the coast of the Ofinmi, in which the Gauls had a celebrated oracle, according to Pomponius Mela.

SEMA, in Geography, a town of Ruffia, in the government of Archangel; 16 miles N.E. of Mezen.

Sena, or Marse, a town of Africa, in the country of Moeranga, on the river Zambesi, where the Portuguese have a factory. S. lat. 17° 35'. E. long. 35° 20'.

Sena, Senna, or Egyptian Caffia, in the Materia Medica, a purgative leaf much used in draughts and compositions of that intention.

The thrue which bears it is a species of cafia; which fece.

There is also a kind of fena growing about Florence; but it is inferior to that of the Levant, as it is owned by the Italians themselves. Father Plummer mentions also a third kind growing in the Antilles islands.

M. Lemery distinguishes three sorts of fena of the Levant: the first brought from Seyda, called fena apolo, that is, cydon fena, by reason of the cutium paid the grand signor, for the privilege of exporting it; the second comes from Tripoli; the third is called fena of Mocha.

Sena is a native of Egypt, the best of which is said to grow in the valley of Bafabras, or of Nubia: it also grows in some parts of Arabia, especially about Mocha; but as Alexandria has ever been the great mart from which it has been exported into Europe, it has long been distinguished by the name of Alexandrian fena or fena.

The best fena, named in Nubia "guebally," grows wild, and yields two crops of leaves, the abundance of which depends on the periodical rains. The first crop is collected after the first rains, about the middle of September; the second in the following March. The plants are cut down, and exposed on the rocks to dry in the sun. The leaves are then picked, packed up in bales, and sent down to Alexandria, where they are mixed with two other species of cafia: the one the C. fena of Phulich, with obtuse leaves; the other probably the C. angustifolia of Willdenow, the leaves of which are longer, narrower, and sharper pointed than those of the proper fena, and come from Mocha. There is reason also for thinking that it is further adulterated with the leaves of coluster, bladder-sena, and of box. The fena, after being thus mixed, is repacked in bales at Alexandria, whence it is exported to Europe.

M. Blondel, who was French consul at several seas-ports of the Levant, informs us, that the true fena grows only in the woods of Ethiopia, and in Arabia; and that the fena, which was brought from Saide and Tripoli, was carried there by the caravans; and this opinion is strengthened by the negative testimony of Alpinus, who, in his book "De Plantis Aegypti," does not notice fena. But as Haef-quist found this plant growing spontaneously in Upper Egypt, Blondel's assertion is not to be implicitly received.

Sena appears to have been cultivated in England in the time of Parkinson, A.D. 1640.

The colour of fena leaves is faint, rather disagreeable, and feckly; the taffe slightly bitter, sweetish, and nauseous. Boiling water extracts about one-third of the weight of the leaves employed: the infusion has a deep reddish-brown colour, with the odour and taffe of the leaves. This infusion, when exposed to the atmosphere, deposits a lemon-yellow-coloured insoluble matter; and a similar precipitate is produced by oxymuriatic acid, and several other substances. Alcohol and sulphuric ether, dejected on the powdered leaves, acquire a deep olive-green colour. When the liquid is poured on the surface of pure water, a dark blue precipitate remains after the evaporation of the ether, which is readily insoluble, and has all the properties of chloroform; this colour is transmitted to the water. This colour may be produced by some extractive being taken up by the ether, closely united to the fena. The precipitate in these cases is rendered only of a dirty colour by the addition of water, and scarcely any precipitate is produced; but a brown or blackish precipitate is thrown down by water or the acid. The active principle of fena appears to be a very volatile extractive, not a peculiar volatile matter; and it contains also no arsenic, and some saline ingredients. According to Bell's Lexicon, the residue of the water is much evaporated to dryness, and burnt, yields potash, sulphate of potash, oxide of lime, magnesia, and sulphiure.

It is in common use as a purgative, generally operating after four hours after it is taken; and it is adapted for all cases, in which the bowels require certain, but meteoric evacuation (see Cassia Sena); and it is much esteemed for its bitter taste and its operation. To this purpose Dr. Cullen remarks, that when fena was infused in the infinium agram, a less quantity of the fena was necessary for the dose than the simple infusion of it. Sena, however, when infused in a large proportion of water, as a drachm of the leaves to four ounces of water, rarely occasions much pain of the bowels; and to those who do not object to the bulkiness of the dose, may be found to answer all the purposes of a common cathartic, its operation being aided by plentiful draughts of weak broths or gruel. The dose, in infusion, is from a scruple to a drachm; in infusion, from one drachm to three or four. It gives out its virtue both to watery and phlegmatic menfhra; communicating to water and proof spirit a brownish colour, and to rectified spirit, a fine green. The two inconveniences attending the use of this medicine, are its being liable, in most compositions, to occasion gases, and its being accompanied with an ill flavour, which is apt to nauseate the stomach and palate. The griping seems to be occasioned by the resiny matter, as the infusion made with cold water does not grip, although it purges. The first may be greatly obviated by dilution; the latter by aromatic and other additions; e. gr. cinnamon, or a drachm or two of its distilled water, or carraway, or cardamom seeds. The decoction is a bad form in which to administer this drug, as its activity is much impaired by boiling; owing, according to Cresp, to the total dissipation of the resinous and volatile principles; but, as Thomson conceives, to the oxidation of the extractive, which also accounts for the severe gripings occasioned by the decoction.

Several compositions of this kind are prepared in the hops, sufficiently palatable, and which operate for the most part like cold and mild infever. Such are the following: the confection of fena, the electuary of fena of the Lond. Ph. of 1787, and the lenitive electuary of P. L. 1745 and 1780. (See Electuary of Sena.) The Dublin pharmacopoea directs the electuary of fena to be prepared by taking of fena leaves, in very fine powder, 8 ounces; pulv. of prunes, 1 pound; pulv. of taraxamis, 2 ounces; molasses, 1/2 pint; and essential oil of carraway, 2 drachms. Boil the pulps with the syrup, to the thickness of honey; then add the powder; and when the mixture is nearly cold, the oil: finally, mix the whole thoroughly together.

These electories furnish a mild and pleasant purgative, and well adapted for those who are afflicted with habitual collovenes, and also for pregnant women. The dose is from 3 to 51, or more, taken at bed-time.
**Extract of Sena. See Cassia.**

As the activity of sena is impaired by the preparation of it in the form of a decoction, it must necessarily suffer much more in this preparation. The extract is black, shining, and tenacious, and has an odour similar to that of wort, and a bitterish taste. It is almost inert as a purgative, and might properly be altogether rejected.

However, some have highly extolled M. Geoffroy's dry extract, which is made of a very strong infusion, evaporated to a dry and pulverizable substance. This, they say, is easily taken, of no ill taste, and operates in a very small quantity, one-third part containing the virtue of the whole, or nearly so; the nicest calculations show, that 24 grains of the extract, some part of which may be supposed to be earth, or other accidental or useless matter, poifles the virtues of a drachm in substance. Mem. de l'Acad. des Sciences, Paris, 1738.

**Inffusion of Sena. See Cassia.**

The Dublin pharmacopoeia directs this infusion to be prepared by taking 3 drachms of sena leaves, half a drachm of teller cardamom seeds, freed from the capsules and bruised, and boiling water, as much as will yield, when strained, 6 ounces by measure. Digest for an hour, and when the liquor is cold, strain it. These infusions will spoil in warm weather in 48 hours; and by simple exposure to the air, attract oxygen, which occasions a yellowish precipitate of oxydized extractive, that gripes violently, but is not purgative; on which account they should be preferred in a well-closed vessel, and made only when wanted. They are also precipitated by the strong acids, the alkaline carbonates, lime-water, solutions of nitrate of silver, oxymurate of mercury, superacetate of lead, tartarized antimony, and infusion of yellow eichonon bark, which are consequently incompatible in formulæ with those infusions. The infusions now mentioned contain all the purgative principles of the plant, and the aromatics correct its griping properties. They are given alone, or more generally combined with neutral salts and manna. The dose of the simple infusions may be from $\frac{1}{3}$ to $\frac{1}{3}$; but with the addition of $\frac{3}{5}$ of the tartrate of potas, or $\frac{1}{3}$ of the sulphate of magnesia, which are the usual auxiliaries, $\frac{1}{3}$ are sufficient.

**Infusion of Tamarinds and Sena is prepared, according to the Edim. Ph., by taking of preferred tamarinds, 1 ounce; sena leaves, 1 drachm; coriander seeds, bruised, half a drachm; raw sugar, half an ounce; and boiling water, 8 ounces. Macerate in a covered earthen vessel, which is not glazed with lead, shaking frequently, and after 4 hours strain it. It may be made with double or triple the proportion of sena. This infusion is made, according to the directions of the Dubl. Ph., in the same manner as the infusion of sena, except that $\frac{3}{4}$ of tamarinds is added, before straining the liquor.**

In these infusions, the nauseous taste is covered by the sugar and the acid of the tamarinds; but in other respects they agree both in their properties, and in the effects of the incompatible substances; to which, however, must be added all the salts having potas for their base.

**Compound Powder of Sena. See Cassia, and Powder of Sena.**

**Tincture of Sena is prepared, according to the Lond. Ph. of 1809, by taking of sena leaves, 3 oz., caraway seeds bruised, 1 oz., cardamom seeds bruised, 1 dr., raisins toned, 4 oz., and proof spirit, 2 pints. Macerate for 14 days and filter. The Dubl. Ph. directs to take of sena leaves 1 lb., caraway seeds bruised, 1 oz., dexter cardamom seeds bruised and bruised, $\frac{1}{4}$ oz., and proof spirit, a gallon. Digest for 14 days, then filter.**

**Compound Tincture of Sena, formerly called Elixir salutis, or Elixir of health, is prepared by taking of the leaves of sena, 2 oz., jalap root bruised, 1 oz., coriander seeds bruised, $\frac{1}{2}$ oz., proof spirit, $\frac{3}{4}$ lb. Digest for 7 days, and to the filtered tincture add of refined sugar, 4 oz.** These tinctures are homœopathic and purgative: they are very efficacious in flatulent colic, atonic gout, and as an opening medicine for those whose bowels have been weakened by intemperance. The dose is from $\frac{1}{2}$ to $\frac{1}{3}$ in any appropriate vehicle.

**Syrup of Sena, according to the Lond. Ph., is prepared by taking of sena leaves, 1 oz., fenel seeds bruised, 1 dr., manna, refined sugar, of each 1 lb., and boiling water, a pint. Macerate the sena leaves and the fenel seeds in the water for 12 hours; strain the liquor and mix it with the manna and the sugar. The Dubl. Ph. directs to take of manna, refined sugar, of each 1 lb., fenel leaves, $\frac{1}{2}$ oz., and boiling water, a pint. Let the sena leaves be macerated in the water in a covered vessel for 12 hours; then dilute the manna and the sugar in the strained liquor. This syrup contains the purgative properties of the sena, and is chiefly intended for children; but the simple infusion of sena, sweetened with sugar, and with the addition of a little milk, given in the form of tea, is more willingly taken by children, and operates with greater certainty. Lewis Woodville, Thomson.**

**Sena, Baldaria, in Botany. See Cassia.**

**Sena, Badder. See Colutea.**

**Sena, Paddled. See Cornylla.**

**Sena, Scorpion, Emerus, a species of corolla; which see. The leaves of this plant are used, but Boerhave is unacquainted with any medicinal virtue in them. Ruppius writes, that the common people substitute the leaves instead of those of sena; and Buxbaum tells us, that old women who pretend to medicine, call it fenès blatter, and use it instead of sena leaves.**

**Sena, in Ancient Geography, a river of Italy, in Umbria, between the Metaurus and the Mius, according to Silius Italicus.**

**Sena Gallica, Senagaglia, a town of Italy, in Umbria, of Gaulish origin, as its name indicates. When the Romans had put the Gauls to flight, they established a colony in this city, towards the year 359. Pompey vanquished Marcus in this place and destroyed it. Ptolemy assigns it to the Senones, from whom it derived its name.**

**Sena Infusa, an island, according to Mela, in the British ocean, on the coast of the Obiandriis. It is now the Isle of Sein or of Saints, on the coast of Bretagne.**

**Sena Julia, Sienna, a town of Italy, in Eturria, E. of Volatere, from which it is separated by mountains. Different accounts have been given of its origin, from which we may infer, that it is not one of the ancient towns of Eturia. The Romans established a colony in this place in the year of Rome 476. as others say, 471. A new colony was established in this place in the time of Julius Cæsar, who gave it the name of Julia. In 1370 it was subject to Charles IV.: it suffered much in the wars of the Guelphe and Ghibelines. Charles V. gave the investiture of it to Philip II. his son, who sold it to Cofno, duke of Florence, in 1558.**

**SENABA, in Geography, a town of Egypt, on the left bank of the Nile; 13 miles S. of Meda.**

**SENAC, John, in Biography, a distinguished French physician, was born in Galony, about the close of the 17th century. Little is recorded respecting the progres of his education and life; but he is said to have been a doctor of the faculty of phyfic of Rheims, and a bachelor of that of Paris; which latt degree he obtained in the year 1724 or 1725. He was a man of profound erudition, united
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united with great modesty, and became posses'd, by his industry in the practice of his profession, of much solid medical knowledge. His merits obtained for him the favour of the court, and he was appointed consulting physician to Louis XIV., and subsequently succeeded Chavotin in the office of first physician to that monarch. He was also a member of the Royal Academy of Sciences at Paris, and of the Royal Society of Nancy. He died in December, 1770, at the age of about 77 years, and the king appointed no physician as his successor, as long as he lived.

This able physician left some works, which will probably maintain a reputation as long as medicine is studied. We allude more especially to his treatise on the heart and its diseases, "Traite de la Structure du Cœur, du fon Action, et de ses Maladies," Paris, 1749, in two volumes, 4to, which is still a standard work upon this interesting subject.

An essay "De recondita febrifum intermittentium et remittentium natura," Ann. 1759, is generally ascribed to Senac. He also published, when young, an edition of Heister's Anatomy, with some interesting comments and observations of his own, entitled "Anatomie d'Heister, avec des Eilais de Physique sur l'Usage des Parties du Corps Humain," Paris 1724, and afterwards "Dificours sur la Methode de Françoise, ou sur celle de M. Rau touchant l'Operation de l'Eaiile," 1727. "Traité des Caufes, des Accidents, et de la Cure de la Pelle," 1744. A work under the assumed name of Julien Morison, entitled "Lettres sur la Chois des Sangsues," 1730, was from his pen; as well as a paper in the Memoirs of the Academy of Sciences for 1725, under the title of "Reflexions sur les Noyes," in which he commanded some erroneous opinions respecting the cause of death by drowning, and the treatment founded upon them. A work, entitled "Nouveau Cours de Chymie suivant les Principes de Newton et de Stahl," Paris, 1722 and 1737, has been attributed by mistake to Senac; it was in fact a compilation of notes taken at the lectures of Geoffroy by some students, and is unworthy of his pen. See Eloy, Dict. Hift. de la Médecine.

SENACIA, in Botany, a genus of Commeron's, apparently intended by him in honour of the French physician Senac, (see the preceding article,) whom perhaps have patronized the expedition of Commeron, but of whose botanical merits we find nothing recorded. Jussieu, Gen. Pl. 378, merely mentions this genus under Celagia, as differing from that in having a longer style, oblong anthers, and a fruit with generally two cells, two valves, and fix seeds. Our predecessor, the Rev. Mr. Wood, seems to have intended to adopt Sensaeis; see Celagia, at the end. We do not however find that any other writer has done so, nor do we know of what species the genus in question ought to confine, except those mentioned in the place just cited. The precise structure of the cypae, and the number of the seeds, are so little ascertained in some reputed species of Celagia, and the variables of these characters, in others, is so well known, that while Gartner himself has even doubted the distinction between Ecosmus, (see that article,) and Celagia itself, we feel little inclination to subdivide the latter. The comparative length of the styles in these plants, variable in different states of the flowers, can afford no certain mark of generic distinction.

SENAILLE'S, JOHN BAPTISTE, in Biography, a French musician, born about 1688. He was a great performer on the violin for his time. Having travelled into Italy, the manager of the Opera at Modena engaged him to perform in his orchestra, and did him the honour to prepare for his reception a fest more elevated than was allowed to the rest of the band. The duke desired him to play some successions between the acts of the opera, and he obeyed his serenc helpers, to the great joy of the work audience. He has left five books of fancies, which had great reputation, till those of Le Claire appeared; which are now as little known as those of Senaille, though infinitely superior to them. What a fluctuating age is music, and how transient the fame of its professors! since we may be certain, that the works of him who now enjoys the highest reputation, will be for ever plunged into oblivion, at the latest, in a period of 25 years; or appear as ridiculous to our children, as our ancient music now does to us!

SENAMARIIO, in Geography, a river of Guiana, which runs into the Atlantic, N. lat. 5° 30'. W. long. 54° 6'.

SE-NAN, a city of China, of the first rank, in the province of Koei-techen, surrounded on all sides by mountains; 845 miles S.S.W. of Peking. N. lat. 27° 50'. E. long. 107°.

SE-NAN, a town of Algiers; 20 miles S. of Oran.

SE-NANLU, a town of Affric Turkey, in Caramania; 30 miles N.W. of Seleucia.

SE-NAPSE, a town of Egypt, on the left bank of the Nile; 17 miles W. of Dendera.

SE-NARPONT, a town of France, in the department of the Somme; 22 miles W. of Amiens.

SENATE, SENATES, an assembly or council of senators, is, of the principal inhabitants of a state, who have a thare in the government.

Such were the senates of Rome, of Carthage, &c. among the ancients; and such are the senates of Venice, of Genoa, &c. among the moderns.

The senate of ancient Rome was, of all senates, the most celebrated, during the splendour of the republic. Cicero in his oration for Milo, defines it, tempalum sanctius, amplitudinis, libertatis, concilii publici Romani, raput orbis, ara factorum, portuque omnium gentium. The Roman senate exercised no contentious jurisdiction; it appointed judges either out of the senate, or among the knights; but it never flopped to judge any proceffes in a body. The senate concerted matters of war, appointed who should command the armies, lent governors into the provinces, took order, and dispossessed of the revenues of the commonwealth. Yet did not the whole sovereign power reside in the senate; it could not alone elect magistrates, make laws, nor decide of war and peace; but in all these cases, the senate was to consult the people. Under the emperors, when the senate became deposed of most of its other offices, they began to hear causes. For those of less consequence they appointed particular judges; the rest, principally criminal causes, they referred for their own cognizance, to be judged by them in a body, and that frequently in the emperor's presence. This was put in their way to keep their heads from state affairs. Nero farther committed to the senate the judgment of all appeals; but this did not hold long; nor do we find any footsteps of it anywhere but in the fifty-second Novel.

With regard to the jurisdiction of the senate, Dr. Middleton observes, that the supreme power at Rome was in the collective body of the people; yet where haste, perhaps, or secrecy was required, and where the determinations of the senate were so just and equitable, that the consent of the people might be presumed, and taken for granted, the senate would naturally omit the trouble of calling them from their private affairs to an unnecessary attendance on the public; till by repeated ommissions of this kind, begun at first in trivial matters, and proceeding ineflably to more serious,
fensive, they acquired a special jurisdiction and cognizance in many points of great importance, to the exclusion even of the people; who yet, by the laws and constitution of the government, had the absolute dominion over all. For example:

1. They assumed to themselves the guardianship and superintendence of the public religion; so that no new god could be introduced, nor altar erected, nor the Sibyllic books consulted, without their express order.

2. They held it as their prerogative, to settle the number and condition of the foreign provinces, that were annually assigned to the magistrates, and to declare which of them should be consul, and which praetor province.

3. They had the distribution of the public treasury, and all the expences of the government; the appointment of tribunes to their generals, with the number of their lieutenants and their troops, and the provisions and clothing of their armies.

4. They nominated all ambassadors sent from Rome, out of their own body, and received and dismissed all who came from foreign states, with such answers as they thought proper.

5. They had the right of decreeing all supplications, or public thanksgivings, for victories obtained, and of conferring the honour of an ovation, or triumph, with the title of emperor, on their victorious generals.

6. It was their province to inquire into public crimes or treasons, either in Rome, or the other parts of Italy; and to hear and determine all disputes among the allied and dependent cities.

7. They exercised a power, not only of interpreting the laws, but abolishing men from the obligation of them, and even of abrogating them.

8. In the case of civil divisions, or dangerous tumults within the city, they could arm the confuls by a vote with absolute power, to destroy and put to death, without the formality of trial, all such citizens as were concerned in exciting them.

9. They had a power to prorogue, or postpone the assemblies of the people; to decree the title of king to any prince whom they pleased; thanks and praise to those who had deferred them; pardon and reward to enemies, or the discoverers of any treason; to declare any one an enemy by a vote; and to prescribe a general change of habit to the city, in cases of any imminent danger or calamity.

The tribunes soon matched from them that original right, which they had enjoyed from the very foundation of the city, of being the authors, or first movers of every thing, which was to be enacted by the people, and excluded them from any share or influence in the assemblies of their tribes; and though in the other assemblies of the curia and the centuries, they seemed to have referred to them their ancient right, yet it was reduced to a mere form, without any real force; for instead of being what they had always been, the authors of each particular act that was to be proposed to the people's deliberation, they were obliged, by a special law, to authorize every assembly of the people, and whatever should be determined in it, even before they had proceeded to any vote. And C. Gracchus afterwards, in his famous tribunate, used to boast that he had demolished the senate at once, by transferring to the equestrian order the right of judicature in all criminal causes, which the senate had professed from the time of the kings.

It has been a question among the learned, how senators were created, and how the vacancies of the senate in old Rome were supplied.

Dr. Middleton is of opinion, that the constant and regular supply of the senate was from the annual magistrates; who, by virtue of their several offices, acquired an immediate right to sit and vote in that assembly. The usual gradation of these offices was that of quæstor, tribune of the people, ædile, praetor, and conful; which every candidate, in the ordinary forms of the constitution, was obliged to take in their order, with this exception only, that he might forego either the tribunate, or the ædileship, at his own choice, without a necessity of passing through them both. See Qæstor, Tribune, &c.

But though those offices gave both an immediate right, and actual entrance into the senate, yet the senatorial character was not esteemed complete, till the new senators had been enrolled by the consuls at the first lufrum, or general review of all the orders of the city, which was generally held every five years. Yet this enrolment was but a matter of form, which could not be denied to any of them, except for some legal incapacity, or the notoriousity of some crime, or infamy upon their characters; for which the same consuls could expel, or deprive any other senator, of what rank or standing ever. See Censor.

It has been the opinion of some, that under the kings of Rome the choice and nomination of all the senators depended wholly on the will of the prince, without any right in the people, either direct or indirect; and that the consuls, who succeeded to the kingly power, enjoyed the same prerogative, till the creation of the consuls, who ever after professed the sole and absolute right of making and unmaking senators. But Dr. Middleton is of opinion, that the kings, the consuls, and the senators, acted in this affair but ministerially and subordinately to the supreme will of the people, in whom the proper and absolute power of creating senators always reposed. And the doctor affirms us, upon the strictest search into the state of the present question, as it stood under the kingly government, he cannot but conclude, from the express testimony of the chief historians, the concurrence of similar facts, and the probability of the thing itself, that the right of choosing senators was originally and constitutionally vested in the people. Middleton of Rom. Sen. p. 36.

But lord Hervey, who seems to have studied the Roman history with care and attention, is of a different opinion. The senate, at its first establishment (notwithstanding the judicial and legislative power it afterwards acquired) was nothing more than the king's council. In this light not only Feftsus, Eutropius, and Livy, represent the senate, but even Dionysius himself. It is therefore highly probable, his lordship says, that each member of this council was merely, as Livy and Plutarch relate, the choice of the king, and not, as Dionysius reports, elected by the people. Nor is there the least ground to imagine, he tells us, from any authority whatever, except Dionysius, that during the whole regal government, the people had, directly or indirectly, actually or virtually, any share or concern at all in the choice of the senators. The first institution, in a word, every augmentation, and every supply on vacancies, he supposes to have depended entirely on the will and authority of the kings. Nor does he, like Monfieur Vertot, imagine the reason why Dionysius had reported otherwise, proceeded from his republican spirit, but from what every body who reads him must find in his manner of describing every institution, law, or custom, among the Romans, viz. an affection of tracing its origin from some similar practice in the Grecian states, in order, from his partiality to that country, to give Greece the honour of having furnished the model of every plan, on which the Roman government was framed, and the Roman greats raised.

Soon after the expulsion of Tarquin, and the establishment of
of the consul government, the senate, which, by many condemnations to death, or exile, the last king had reduced to less than half its complement, was filled up to its former number of three hundred; this supply, according to every historian, was made out of the plebeians; and in all probability, his lordship says, by the sole power of the consuls, since no author relates otherwise, and all authors agree that the consular power at first differed from the regal powers in no particular but that of being annual, instead of perpetual, and divided between two persons, instead of being vested in a single one.

Till the time of the censors then, lord Hervey tells us, there is not the least reason to imagine, that the people had any hand in promoting any man to the senatorial rank. From the time that the people were allowed to choose the annual magistrates out of their own body, till the time the commonwealth fell into confusion, which ended, as confusion generally does, with a total loss of liberty, the only difficulty in accounting for the filling up of the senate, his lordship says, is to reconcile the right of the annual magistrates to enter the senate, with the power of the censors. And this, he thinks, may be done by distinguishing between a right to vote in the senate, and being a senator, which were two different privileges, and quite distinct honours. The right was obtained by virtue of exercising any public office, from the quaestorship to the consulship; and was consequently conveyed by the people; whereas the last was a dignity conferable only by the censors. Felts says, that those who held any public office in the state, and by virtue of that office voted in the senate, were nevertheless no senators till made so by the censors. And Aulus Gellius, in his chapter upon the "Pedari Senatus," says the same thing.

These two classes were always distinguished even in the edict that convoked the senate; the form of the edict, as may be seen in many writers, being to convene the senators, and all those who had a right to vote in the senate.

Nor was the difference, according to Aulus Gellius, between the voters in the senate, and the confirmed senators, so insensible, as it may at first appear; for those, who had only a right to vote in the senate, and were not enrolled senators, had no right to speak there, and could only pass in silence to one side or the other, when a division was made on the point in debate. Whereas an enrolled senator had a right, when he gave his vote, to speak as long as he pleased, and on what he thought fit; a privilege, which amounted to a power of stopping all proceedings for that day, and was often so used.

From the story of Fabius Maximus and Caius, related by Valerius Maximus, book ii. chap. 2, there appears to have been another very essential difference between a senator, and a voter in the senate; for by that story one must imagine that those who were enrolled senators, had not only the sole right of debating any question that came into the senate, but were like a secret committee, or cabinet council, who previously weighed every proposal that was to be made in a general senate, and determined whether it should be brought in or not.

The power of taking cognizance of the manners of every Roman citizen, was first annexed to the censorship, when the office itself was disjoined from that of the consuls, in the three hundred and eleventh year of Rome, as may be seen in Livy, book iv. chap. 8. But the power of choosing the new senators was not transferred from the consuls to the censors till a hundred years afterwards, in the tribune-ship of Ovinus: and it was then given to the censors by the people, to revenge the breach of the Licinian law (which law ordained that one of the consuls should always be chosen out of the plebeians) for both the consuls being that year patricians, and one of the censors that year, for the first time, being a plebeian, the tribune Ovinus put the people upon this expedient to do themselves justice, and mortify the nobility.

When the annual magistrates were not sufficient to supply the vacancies in the senate, the censors chose whom they pleased. And that the annual magistrates were seldom enough to supply the vacancies, may easily be concluded, when one considers how few they were, and how many vacancies must be made in a large body as three hundred men, by natural deaths, the change of perpetual war, and the purgations made by the reforming authority of the censors.

The filling up of the senate then from the Olivran tribune-ship till the time of the Gracchi, lord Hervey thinks, depended entirely on the censors; for though he allows that the annual magistrates, at the expiration of their office, had a right of claim and pretension to be put on the roll of senators, by the censors; yet as the censors, under the pretence of reformation, had an uncontrovertible power to remove senators already enrolled, so on the same pretence they could, if they pleased, refuse to enrol, and even without giving any reason; since their manner both of expelling or admitting senators was merely by omitting or inferring a name in the ceremony of calling over the roll.

Though the censorship, therefore, at its original institution by Servius Tullius, was nothing more than the office of numbering the people, and taking the valuation of their estates, and an office annexed first to the royal authority, and afterwards to the consul power; yet when it was detached from the consul power, and erected into a separate office, with the power of filling up the senate annexed; from that time, as the cognizance of the manners of every citizen of Rome was also in their department, his lordship looks upon the censors to have been full as absolute in the city and the civil government, with regard to all promotions and degradations, from the senate down to the lowest tribe, curia, or society, as the consuls were in the camp and the military government.

Ever after the time of the Gracchi, the state was either in such confusion, or such absolute slavery, that his lordship thinks there was no regular method at all observed in filling up the senate, or any justice in purging it. Whoever had the sovereign power in his hand, under what title ever he was, or conferred on him, modelled the senate by the introduction of new members, or the expulsion of old ones, just as he thought fit.

Dr. Middleton politely acknowledges, that the hypothesis of lord Hervey has the advantage of his own, and will be thought the more solid or plausible by the generality of readers. See Letters between Lord Hervey and Dr. Middleton, concerning the Roman Senate; published by Dr. Knowles, quarto, 1758.

The magistrates who had the power of assembling the senate were the dictator, the consuls, the praetors, the tribunes of the commons, and the interrex. Yet upon extraordinary occasions the same privilege was allowed to the tribuni militum, invested with consular power, and to the decemvirs, created for regulating the laws; and to other magistrates chosen upon some unusual occasion.

In the early ages of the republic, when the prejudices of the city were small, the senators were personally summoned by an appurten; and sometimes by a public crier, when their affairs required immediate dispatch; but the usual way of calling them, in later days, was by an edict appointing the time and place, and published several days before,
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before, that the notice might be more public. These edicts were commonly understood to reach no farther than to those who were resident in Rome, or near it; yet when any extraordinary affair was in agitation, they seem to have been published also in the other cities of Italy. If any senator refused, or neglected to obey this summons, the conful could oblige him to give security for the payment of a certain fine, if the reasons of his absence should not be allowed. But from sixty years of age they were not liable to that penalty, nor obliged to any attendance but what was voluntary.

The senate could not regularly be assembled in a private or profane place, but always in one fet apart, and solemnly conformed to that use by the rites of augury.

The senate frequently met in certain curiae. See CURIÆ.

But their meetings were more commonly held in certain temples, dedicated to particular deities; as in that of Jupiter, Apollo, Mars, Vulcan, Castor, Bellona; of Concord, Faith, Virtue, the Earth, &c.

These temples, on account of the use which the senate made of them, were called likewise curiae; as well as the proper curia, or senate-houses, on account of their solemn dedication, are frequently called temples.

On two special occasions the senate was always held without the gates of Rome, either in the temple of Bellona, or of Apollo. first. For the reception of foreign ambassadors, and especially of those who came from enemies, who were not permitted to enter the city. secondly. To give audience, and transact business with their own generals, who were never allowed to come within the walls as long as their commission subsisted, and they had the actual command of an army.

The senate met always, of course, on the 1st of January, for the inauguration of the new consuls, who entered into their office on that day.

The month of February, generally speaking, was referred entirely by old custom to the senate, for the particular purposes of giving audience to foreign ambassadors.

In all months, universally, there were three days, which seem to have been more especially defined to the senate, the kalends, nones, and ides, from the frequent examples found in history, of its being convened on those days. But Augustus enacted afterwards, that the senate should not meet regularly, or of course, except on two days only of each month, the kalends, and ides.

On their days of meeting, they could not enter upon any business before the sun was risen, nor finish any after it was set; every thing transacted by them, before or after that time, was null and void, and the author of it liable to cenure. Whence it became a standing rule, that nothing new should be moved after four o'clock in the afternoon. The senate, as has been shewn above, was composed of all the principal magistrates of the city, and of all who had borne the same offices before them: and confided therefore of several degrees and orders of men, who had each a different rank in it, according to the dignity of the character which he sustained in the republic. At the head of the senate was the dictator and consuls, in chairs of state. Manutius thinks that the other magistrates sat next to the consular chair, each according to his rank; the praetors, censors, aediles, tribunes, quaestors. But Dr. Middleton rather thinks that the consular magistrates, who, in all ages of the republic, were the leaders and first speakers in the senate, used to sit next in order to the consuls; and after them the praetors; and all who were of praetorian dignity, or had been praetors; then the aediles, the tribunes, and the quaestors, on distinct benches; and on the same bench with each, all who had borne the same offices; but the curule magistrates, as the praetors and aediles, were perhaps distinguished, at the head of their several benches, by seats somewhat raised, or separated at least from the rest, in the form of our fettes, or of that longa cathedra, which Juvenal mentions, to denote the curule dignity.

All the private senators sat on different benches, and in a different order of precedence, according to the dignity of the magistrates which they had severally borne. First the consular, then the praetorian, aedilic, tribunitian, and quaestor; in which order, and by which titles, they are all enumerated by Cicero. And as this was their order in sitting, so it was the same also in delivering their opinions when it came to their turn. Cic. Phil. i. 13, 14.

The senate being assembled, the consuls, or the magistrate, by whose authority they were summoned, having first taken the auspices, and performed the usual office of religion, by sacrifice and prayer, used to open to them the reasons of their being called together, and propose the subject of that day's deliberation; in which all things divine, or relating to the worship of the gods, were disfpatched preferentially to any other business. When the consul had moved any point, with intent to have it debated and carried into a decree, and had spoken upon it himself as long as he thought proper, he proceeded to ask the opinions of the other senators, severally in their name, and in their proper order, beginning always with the consuls, and going on to the praetorians, &c. It was the practice originally to ask the prince of the senate the first; but that was soon laid aside, and the compliment transferred to any other ancient consular, distinguished by his integrity and superior abilities; till, in the later ages of the republic, it became an established custom to pay that respect to relations, or particular friends, or to those who were likely to give an opinion the most favourable to their own views and sentiments on the question proposed. But whatever order the consuls observed in asking opinions on the 1st of January, when they entered into their office, they generally purloined the same through the rest of the year. Julius Caesar, indeed, broke through this rule; for though he had asked Crassus the first, from the beginning of his consulship; yet, upon the marriage of his daughter with Pompey, he gave that priority to his son-in-law, for which, however, he made an apology to the senate.

This honour of being asked in an extraordinary manner, and preferably to all others of the same rank, though of superior age or nobility, seems to have been feldom carried farther than to four or five distinguished persons of consular dignity; and the rest were afterwards asked according to their seniority. And this method, as has been said, was observed generally throughout the year, till the election of the future consuls, which was commonly held about the month of August; from which time, it was the constant custom to ask the opinions of the consuls elected, preferably to all others, till they entered into their office, on the 1st day of January following.

As the consuls elected had this preference given in speaking before all the consuls, so the praetors, and tribunes elected, seem to have had the same, before the rest of their particular orders.

None were allowed to speak till it came to their turn, excepting the magistrates, who seem to have had a right of speaking on all occasions, whenever they thought fit; and for that reason, perhaps, were not particularly asked, or called upon by the consuls.

If in the debate several different opinions had been offered, and each supported by a number of senators, the
The decree of the senate were usually published, and
openly read to the people, or if they were passed, and
an authentic copy of them was always deposited in the public
treasury of the city, yet even these were not considered
as legal or valid.

As to the force of these decrees, it is difficult to define
precisely what it was. It is certain that they were not con-
trolled by law, but were to have been acted upon as
acts grounded in the report of the people; for in all ages of the
republic, no law was ever made, but by the general suffrage of the
people.

By even under the kings, the collective body of the people
was the real sovereign of Rome, and the denier resorted in
all cases. But their power, though supreme and final, was
yet qualified by this check, that they could not regularly
execute any thing, which had not been previously considered
and approved of by the senate. This needed to continue to be
the general way of proceeding in all quiet and regular times,
from the beginning of the republic to the end of it; and the
constant style of the old writers, in their accounts of the
public transactions, is, that the senate voted or decreed, and
the people commanded such and such an act. Middleton,
ubi supra, and the authorities cited by him.

Before the accession of Augustus the senate had lost
its power, and also its dignity. Many of the most noble families
were extinct; the republicans of spirit and ability had per-
rished in the field of battle, or in the profligacy. The
door of the assembly had been defilyed left open for a
mixed multitude of more than a thousand persons, who
reflected disgrace upon their rank, instead of deriving honour
from it. Julius Cæsar introduced soldiers, intruders, and half-
barbarians into the senate; and this abuse, recorded by Suet-
onius, became still more scandalous after his death. Au-
gustus, soon after his accesion, set about the reformation of
this. He was elected censor: and in concurrence with his
faithful Agrippa, he examined the list of the senate, expelled
a few members whose vices or whose obliquity required a
punishment example; persuaded near two hundred to
prevent the shame of an expulsion by a voluntary retreat; placed
the qualification of a senator to above ten thousand pounds;
created a sufficient number of patrician families; and accepted
for himself the honourable title of prince of the senate, which
had almost been belittled, by the censors, on the citizen most
eminent for his honours and services. But in thus restoring
the dignity, he destroyed the independence of the senate,
the principles of a free constitution being irrecoverably lost,
when the legislative power is nominated by the executive.

How he was afterwards recompeded by the flattery of the
Senate is well known. (See Augustus, Proconsul, and
Imperator.) It was, however, on the dignity of the
senate, that Augustus and his successors founded their new
empire; and in the administration of their own powers, they
frequently consulted the great national council, and seemed
to refer to its decision the most important concerns of peace
and war. Rome, Italy, and the inland provinces, are
subject to the immediate jurisdiction of the senate. With
regard to civil objects, it was the supreme court of appeal;
with regard to criminal matters, a tribunal, constitu-
ted for the trial of all offences that were committed by
men in any public station, or that affected the peace and
majesty of the Roman people. The exercise of the judicial
power became the most frequent and iterated in operation of
the senate; and the important causes that were pleaded before
them afforded a last refuge to the spirit of ancient eloquence.

As a council of state, and as a court of justice, the senate pro-
selled
feffed very considerable prerogatives; but in its legislative capacity, in which it was supposed virtually to represent the people, the rights of sovereignty were acknowledged to reside in that assembly. Every power was derived from their authority; every law was ratified by their sanction. Their regular meetings were held, as we have already said, on three flatted days in every month; their debates were conducted with decent freedom; and the emperors themselves, who gloated in the name of senators, fat, voted, and divided with their equals.

Augustus found by experience, what he had previously expected, that the senate and people would submit to slavery, provided they were respectfully affurred, that they still enjoyed their ancient freedom; a feeble senate and an encraved people cheerfully acquiesced in the pleasing illusion, as long as it was supported by the virtue, or even by the prudence of the successors of Augustus. It was a motive of self-preservation, not a principle of liberty, that animated the conspirators against Caligula, Nero, and Domitian. After seventy years of patience, the senate made an ineffectual attempt to realign its long-forgotten rights. When the throne was vacated by the murder of Caligula, the confuls convoked the assembly in the Capitol, and during forty-eight hours acted as the independent chiefs of the commonwealth. But while they deliberated, the praeatorian guards had resolved: the dream of liberty was at an end; and the senate awoke to all the horrors of inevitable servitude. Deforted by the people, and threatened by a military force, that feeble assembly was compelled to ratify the choice of the praeatorians, and to embrace the benefit of an amnesty, which Claudius had the prudence to offer, and the generosity to oblige.

To cenure, to depose, or to punish with death the first magistrate of the republic, who had abused his delegated trust, was the eminent and undoubted prerogative of the Roman Senate; accordingly they condemned Nero to be put to death, as Suetonius oberves, more majorum; but on the death of Commodus, that feeble assembly was obliged to content itself with inflicting on a fallen tyrant that public justice from which, during his life and reign, he had been shielded by the strong arm of military despotism. Till the reign of Severus, the virtue and even the good fene of the empire, had been distinguished by their real or affected reverence for the Senate, and by a tender regard to the nice frame of civil policy instituted by Augustus. But Severus, trained from his youth to the deputation of military command, disdainful to profess himself the servant of an assembly that detainted his perfon, and trembled at his power: he assumed the conduct and style of a sovereign and a conqueror, and exercised, without diffiguie, the whole legislative as well as executive power. Hence the senate, neither elected by the people, nor guarded by military force, nor animated by public spirit, rested its declining authority on the frail and crumbling basis of ancient opinion. The fine theory of a republic infamibly vanished, and made way for the more natural and substantial feelings of monarchy. The polished and eloquent flaves from the Eastern provinces, by whom the Senate was filled, justified personal flattery by speculative principles of service. The lawyers and the historianst concurred in teaching that the imperial authority was held, not by the delegated commission, but by the irrevocable reafignation of the Senate; that the emperor was freed from the restraint of civil laws, could command by his arbitrary will the lives and fortunes of his subjects, and might difpoie of the empire as of his private patrimony. Pollicy, who experienced the fatal effects of the maxims and example of Severus, judilily considered him as the principal author of the decline of the Roman empire. Such was the timid ingratitude of Gallienus, that, unmindful of his obligations to the Senate and people for repelling the Alemanm from Rome, he published an edict, prohibiting the senators from exercising any military employ; and even from approaching the camps of the legions. Tacitus was chosen emperor by the Senate, and the judgment of this assembly was confirmed by the consent of the Roman people, and of the praeatorian guards. By this election the Senate regained several important prerogatives, the principal of which were the following: 1. To invest one of their body, under the title of emperor, with the general command of the armies and the government of the frontier provinces. 2. To determine the lift, or as it was then styled, the college of consuls. 3. To appoint the proconsuls and praecons of the provinces, and to confer on all the magistrates their civil jurisdiction. 4. To receive appeals through the immediate office of the prefect of the city from all the tribunals of the emperor. 5. To give force and validity by their decrees to such as they should approve of the emperor's edicts. 6. To those several branches of authority, we may add some inspection of the finances, since even in the flern reign of Aurelian, it was in their power to divert a part of the revenue from the public service. Diodorean expressed his dislike of Rome and Roman freedom, by framing a new system of imperial government, which was afterwards completed by the family of Conflantine; and as the image of the old constitution was religiously preferred in the Senate, he resolved to deprive that order of its small remains of power and consideration. The name of the Senate was mentioned with honour till the last period of the empire; the vanity of its members was still flattered with honorary dilations; and the assembly which had been so long the source, and so long the instrument of power, was respectuflly suffered to fall into oblivion. The Senate of Rome losing all connection with the imperial court and the actual constitution, was left a venerable but useless monument of antiquity on the Capitoline hill. During the Gothic war, and in consequence of the conquest of Rome by Narses, the institution of Romulus, after a period of thirteen centuries, expired; and if the nobles of Rome still assumed the title of senators, few sublernent traces can be discovered of a public council, or constitutional order. A few hundred years, and contemplate the kings of the earth soliciting an audience, as the flaves or freedmen of the Roman Senate. From the year 144 the Senate was restored and its establishment is dated as a glorious era in the acts of the city. After its revival, the confept fathers, if the expression may be ufed, were invested with the legislative and executive power; but their views seldom reached beyond the prefent day, and that day was most frequently disturbed by violence and tumult. In its utmost plentitude, the order or assembly consisted of fifty-five senators, the most eminent of whom were distinguished by the title of counfellers; they were nominated, perhaps anualy, by the people; and a previous choice of their electors, ten perons in each region or pariis, might afford a basis for a free and permanent constitution. The pope confirmed by treaty the establishment and privileges of the Senate, and expected from time, peace, and religion, the reformation of their government. The motives of public and private interest might sometimes draw from the Romans an occasional and temporary facrifice of their claims; and they renewed their oaths of allegiance to the succesors of St. Peter and Conflantine, the lawful head of the church and republic. At length the union and vigour of a public council were diffolved in a lawless city; and the Roman fee adopted a more strong and simple mode of administration. They conformed the name and authority of the Senate to a single magistrate, or two colleagues; and as they were changed at the end of a year.
SENATOR or a member of a senate.

There were two orders, or degrees, among the Roman nobility: that of the senators, and that of the knights; after these two came the people. The first hundred senators were appointed by Romulus, and called patres, fathers. Upon the union with the Sabines, Romulus, or as others say, Tullus, added a second hundred, called patres majorum gentium; this distinguished them from a third hundred, added by the elder Tarquin, and called patres minorum gentium, fathers of the lower rank.

In ancient Rome, the number of senators is commonly supposed to have been limited to three hundred, from the time of the kings to that of the Gracchi. But this must not be taken too strictly. The Senate generally had that number, or thereabouts, and upon any remarkable deficiency, was filled up again to that complement by an extraordinary creation. But as the number of the public magistrates increased with the increase of their conquests and dominions, so the number of the Senate, which was supped of course by those magistrates, must be liable also to some variation. To what number Sylla increased them is not absolutely certain; but in Cicero's time they were not less than four hundred and fifteen, as appears by his letter to Atticus, lib. i. ep. 14.

In the time of Gracchus they were fix hundred; during the civil wars they were reduced to three hundred. Julius Cæsar augmented that number to nine hundred; the triumvirs to above a thousand; and Augustus reduced them to fix hundred, according to Dion Cassius; and to three hundred, according to Suetonius. For the choice of senators belonged at first to the kings, then to the consuls, then to the centors, who in their census or survey every fifth year, appointed new senators in lieu of those dead or degraded; but at length it fell to the emperors. See Senator.

Though, for a long time, none were raised to the dignity of senators, but those most conspicuous for their prudence, &c.; yet some regard was afterwards had to their estate, lest their dignity should become debased by poverty. To hold the senatorial dignity, a yearly revenue of eight hundred thousand fities was required, which amount was to be even six and seven thousand pounds of our money. Half as much was required for the qualification of the knights. The senators who fink below this revenue, were debarred, and expunged out of the list of the centors; and this was increased by Augustus to twelve hundred thoudand.

This qualification must not be taken, as it is by some, for an annual income, but the whole estate of a senator, real and personal, as estimated by the survey and valution of the cenors.

This proportion of wealth may seem perhaps too low, and unequal to the high rank and dignity of a Roman senator, but it must be considered only as the limit to which they could be reduced; for whenever they had once, they forfeited their seats in the Senate.

In ancient Rome, a certain age was required for a senator, as is often intimated by the old writers, and by the state itself; but rarely we can discover what it was. The most usual age for entering into the number of senators was settled, by the laws of Tullus, at eighteen years; and they were obliged, by Publius, to serve ten years in the wars, before they could pretend to a civil magistracy. The State the proper age of fund for the quinarian, or the first step of honour, to the twenty-eighth year; and as this office gave an admission into the Senate, so the Genius of the learned seem to have given the same date to the senatorial age. Some writers, indeed, on the authority of Dion Cassius, have imagined it to be twenty-five years, not reflecting that Dion mentions it here as a regulation only proposed to Augustus by his favourite Maeceus. Dr. Middelton takes the quinarian age, which was the same with the senatoria, to have been thirty years complete.

The laws concerning the age of magistrates were in very ancient times; and were made to check the forward ambition of the nobles, and to put all the citizens upon a level in the pursuit of honours. And Livy tells us, that L. Villius, a tribune of the people, was the first who introduced them, A. U. 573, and acquired by it the surname of Anahil. Middlet. of Rom. Sen. p. 99.

The senators were ordinarily chosen from among the knights, or from among such as had borne the principal offices. At first the magistrates were taken wholly from among the senators; whence Tacitus calls the Senate the senary of all dignities; but after the people had been admitted to magistracies, senators were taken from among such as had discharged those offices, though before plebeians.

There was some law subsisting from the earliest times, concerning the extraction and descent of senators, enjoining that it should always be ingenous; and as their morals were to be clear from all vice, so their birth likewise from any stain of base blood. In consequence of which, when Appius Claudius, in his censorship, attempted to introduce the grandsons of freed slaves into the Senate, they were all immediately turned out again.

There are some of the laws by which the cenors were obliged to act, in the enrolment of the new, or the omission of old cenors; and when we read of any left out, without any intimation of their crime, it might probably be for the want of one or other of these legal or customary qualifications.

It was from the senatorial order alone, that all ambassadors were chosen and sent to foreign states; and when they had occasion to travel abroad, even on their private affairs, they usually obtained from the Senate the privilege of a free legation, as it was called; which gave them a right to be treated every where with the honours of an ambassador, and to be furnished on the road with a certain proportion of provisions and necessaries, for themselves and their attendants; and as long as they resided in the Roman provinces, the governors used to attorn them a number of litterers, or mace-bearers, to march before them in state, as before the magistrates in Rome. And if they had any law Suit, or cause of property depending in those provinces, they seem to have had a right to require it to be remitted to Rome.

At home, likewise, they were distinguished by peculiar honours and privileges; for at the public shows and plays they had particular seats set apart, and appropriated to them.
in the most commodious part of the theatre; and on all solemn festivals, when sacrifices were offered to Jupiter by the magistrates, they had the sole right of seating publicly in the Capitol, in habits of ceremony, or such as were proper to the offices which they had borne in the city.

The peculiar ornament of the senatorian tunic was the *latus clavus* (see Laticlavium), as it was called, being a broad stripe of purple sewed upon the fore part of it, and running down the middle of the breast, which was the proper distinction between them and the knights, who wore a much narrower stripe of the same colour, and in the same manner. The fashion also of their shoes was peculiar, and different from that of the rest of the city; this difference appeared in the colour, shape, and ornament of the shoes. The colour of them was black, while others wore them of any colour perhaps, agreeable to their several fortunes; the form of them was somewhat like to a short boot, reaching up to the middle of the leg, as they are sometimes seen in ancient statues and bas-reliefs; and the proper ornament of them was a half moon sewed, or fastened upon the fore-part of them, near the ankle.

Confuls, praetors, exiles, tribunes, &c. during the year of their magistracy, always wore the praetexta, or a gown bordered round with a stripe of purple. In which habit also, as has been signified above, all the rest of the senate, who had already borne those offices, used to affect at the public festivities and solemnities.

The senators carried their children with them to the senate, to inform them betimes of affairs of state; though these children had not admittance till seventeen years of age. Some make a distinction among the senators, and say, that besides the senators who were allowed to speak, and were asked their opinions, there were others, who, without speaking, or being ever asked their judgment; were only to follow the opinion of those they thought the most reasonable, and were hence called *pedarii*. A. Gelius gives us another notion of the pedarii, and says, those were thus called, who, having never borne the office of curule magistrate, were obliged to go to the senate on foot.

They had the name senators, q. d. old men, given them in imitation of the Greeks, who called their senate *agnusena*. So when the Athenians assembled the people to consult about the affairs of the public, the officers summoned none but such as were at least fifty years old.

The Egyptians and Persians followed the same example, after the Hebrews; and the Lacedaemonians and Carthaginians received none but such as were sixty years of age. See Conscript.

As to other matters relating to Roman senators, see the article Senate, supra.

**SENEATUS** Auctoritas. See Senate.

**SENEATUS-CONSULTUM**, a vote, or resolution, of the Roman Senate, pronounced on some question, or point of law, proposed to it. See Senate.

The senatus-consulata made a part of the Roman law: when passed, they were deposited in the temple of Ceres, under the custody of the *aediles*; and at last they were carried, by the censores, to the temple of Liberty, and put up in an armory called tabularia.

Julius Capitolinus speaks of a sort of *senatus-consulata ta- bularia*, which he says were made in reference to affairs of great moment and secrecy by the senators themselves, without the privity of the public officers, under an oath of secrecy, till their designs should be effected.

The narrative of the famous senatus-consulatum, or rather decrees, against the musician Timotheus, at Sparta, for augmenting the number of strings on his lyre, is confirmed by Paulyanis and Suibus.

This curious piece of antiquity is preferved at full length by Boethius (De Mufica, cap. 1.) Mr. Stillings Sleat (Prin. and Power of Harm. § 185,) has given an extract from it, in proof of the simplicity of the ancient Spartan music. The fact is mentioned in Athenaeus; and Calauberus, in his notes on that author (Animad. in Athen. p. 386), has inferred the whole original text from Boethius, with corrections, to which we refer the learned reader. We shall here, however, give a faithful translation of this extraordinary Spartan Act of Parliament.

"Whereas Timotheus the Miletian, coming to our city, has dishonoured our ancient music, and, defiling the lyre of seven strings, has, by the introduction of a greater variety of notes, corrupted the ears of youth; and by the number of his strings, and the novelty of his melody, has given to our music an effeminate and artificial dref, instead of the plain and orderly one in which it has hitherto appeared; rendering melody infamous, by composing in the chromatic, instead of the enharmonic; — The kings and the ephori have, therefore, reolved to pass a sentence upon Timotheus for these things: and, farther, to oblige him to cut all the superfluous strings of his eleven, leaving only the seven tones; and to banish him from our city, that men may be warned for the future, not to introduce into Sparta any unbecoming customs."

The same story, as related in Athenaeus, has this additional circumstance, that when the public executioner was on the point of fulfilling the sentence, by cutting off the new strings, Timotheus, perceiving a little flutus in the same place, with a lyre in his hand, of as many strings as that which had given the offence, and throwing it to the judges, was acquitted.

Indeed the decree only informs us, that the use of a lyre, with more than seven strings, was not allowed at this time by the Lacedaemonians; but does not prove that the rest of Greece had confined their music within the compas of seven notes; nor, consequently, acertain how many of the eleven strings were additions peculiar to Timotheus. That the outcry against the novelties of this musician was, however, not confined to Sparta, appears from a passage in Plutarch's Dialogue, where he has a lift of the innovators who had corrupted and enervated the good old melody, by additional notes both upon the flute and lyre.

"Laus of Hermione," says he, "by changing musical rhythms to the dithyrambic irregularity of ancient move, and, at the same time, emulating the compas and variety of the flute, occasioned a great revolution in the ancient music. Melanippides, who succeeded him, in like manner, would not confine himself to the old music; any more than his scholar Philoxenus, or Timotheus."

The same thing also appears from the bitter invectives to which the comic poets at Athens, especially Pherecrates and Arilopanes, gave a loose: not, perhaps, from understanding music, or being at all sensible of its effects, but from that envy which the great reputation of the musician had excited. An exalted character is a shooting butt, at which fatirists, and wicked wits, contently point their arrows; and the rage at all times wages war against whatever calls off the public attention from itself.

The abuse, therefore, of this musician, which abounds in ancient authors, is, perhaps, as great a proof of his superiority as the praise. A Greek epigram, preferred in Macrobius, informs us, that the Ephesians gave him a thousand pieces of gold for composing a poem in honour of Diana, at the dedication of the temple of that goddess; and
Sendia, in Geography, a town of New Mexico, on the Bravo; see also S. of Santa Fe.

Sendivig, a town of Hindoostan, in Behar; 45 miles S.S.W. of Patna.

Sendibera, in Botany, a genus of Delphinium, dedicated to Mr. John Sibthorp, a German naturalist, who published a work upon Vegetable Physiology, in 1751.

Sendic, in Aminta, Geography, a people of Scythia, in the country called Sendica, in the vicinity of the country of the Tauro-Scythians.

Phny.

**SENNA**, in Geography, a town of Hindoostan, in the cazar of Bickaner; 5 miles E. of Jelfemere.

**Sence**, a river of England, which rises in Leicestershire, and runs into the Anker, near Atherstone, in Warwickshire.

Send, is used by seamen, when a ship, either at an anchor, or under sail, falls with her head, or stern, deep into the trough of the sea, i.e., into a hollow made between two waves, or billows. They say the *send* much that way, whether it be a head or a stern.

Sendal, in our Old Writers, a kind of thin fine silk, mentioned in the flat, 2 Rich. II. cap. 1.

**Sendebas**, in Geography, a town of Egypt, on the east branch of the Nile; 13 miles S. of Sememud.

**Sendelbach**, Langen, a town of Germany, in the bishopric of Bamberg; 5 miles S.S.E. of Forchheim.

**Senden**, a town of Germany, in the bishopric of Münster; 7 miles S.S.W. of Münster.

**Sendenhorst**, a town of Germany, in the bishopric of Münster; 10 miles S.E. of Paderborn.

**Sendese**, a town of Egypt, on the Kalilis Menhri; 3 miles N. of Behnefe.

**Sendegea**, a town of Asia Minor. In Notoria; 13 miles S.E. of Bilkediri.

**Sendgeshow**, a town of Poland, in the palatinate of Sambir; 36 miles S.S.W. of Sandomirz.

**Senlir, or Sine**, in Aminta, Geography, a people of Scythia, in the country called Sendea, in the vicinity of the country of the Tauro-Scythians.
tious, and kept himself out of sight as much as possible. Notwithstanding his prudence, it is said that the tyrant engaged one of his freedmen to poison him, and that Seneca by good fortune escaped the snare. It was not long, however, before an occasion was given to the emperor to gratify his hatred against one, whom he felt as a secret censor of his vices. Under the pretence of Seneca's connection with a conspiracy, a military tribune was sent with a band of soldiers to Seneca's house, where he was at supper with his wife Paulina, and two friends. He was, without much ceremony, commanded to put an end to himself. The philosopher heard the sentence with equanimity, and only asked for time sufficient to make his will. This was refused, and turning to his friends, he said, that since he was not allowed to flow his gratitude to them in any other way, he would leave them the image of his life, as the best memorial of their friendship. He then exhorted them to moderate their grief. He embraced Paulina, and endeavoured to comfort her; but she refused any other consolation than that of dying with him. The death which he chose was that by opening his veins, and he expired in the year 65, and in the 12th year of Nero's reign. The emperor would not suffer Paulina to die with her husband; but he never recovered the loss of blood which she had experienced, before the imperial decree arrived.

The character of Nero has been greatly extolled by some writers, and not less deprecated by others; but Tacitus, without pretending to conceal his faults, inclines to a favourable opinion of him; and it is completely ascertained, that while Nero followed the precepts of his master, he appeared a good prince; and that all virtue was banished from the court, when Seneca left it.

"If," says one of the philosopher's biographers, "a writer could be estimated by his works, a purer moralit could not easily be found; for their constant tenor is that of solid virtue, tempered with humanity, and exalted by the noblest principles of theism. They are indeed marked with the timid pride inculcated by the Stoic fect, to which he chiefly adhered, though he freely adopted what he found good in others." Of his writings which have come down to us, the greater part are moral, confuting of epistles, 124 in number, and of distinct treatises on Anger, Consolation, Providence, &c. There are, moreover, seven books on physical topics, entitled "Natural Questions," in which are to be found the rudiments of some notions regarded as fundamental in modern physics.

A number of tragedies are extant, under the name of Seneca, but they are probably not his; nor is it at all known to whom they ought to be ascribed. The editions of Seneca's works are very numerous. Of the works, not including the tragedies, the most esteemed are those of Lipsius; the Variorum, 3 vols. 8vo.; the Leipzic, 2 vols. 8vo.; and the Bipontine. Of the tragedies, are the Variorum; that by Heinlin, with notes by Scaliger; and the quarto Delphin.

Seneca, in Geography, a town of America, in the county of Onondago, in New York, laid out in irlscts and squares, on the north side of Seneca Falls. The inhabitants have erected, at a great expence, flour and saw-mills, of the best kind in this place, and also a bridge across Seneca river; and as the place is central, and accessible from the eastern and western countries, it promises a rapid increase.

Seneca Creek, a creek in Maryland, which has two branches; one called Little Seneca. It empties into Potomac river, about 19 miles N.W. of the mouth of Rock creek, which separates George-town from Washington city.

Seneca Lake, a lake in Ontario county, New York, which is a handsome piece of water, from 35 to 40 miles in length, and about 2 miles wide. At the N.W. corner of the lake stands the town of Geneva; and on the E. side, between it and Cayuga, are the towns of Romulus, Ovid, Hector, and Ulysses, in Onondago county, New York. Its outlet is Scayac river, which also receives the waters of Cayuga lake, 9 miles N.E. from the mouth of Canada Saga, 18 miles below Geneva.

Seneca River, a river in the state of New York, which has an easterly course, and receives the waters of Seneca and Cayuga lakes, which lie north and south, 10 or 12 miles apart, and empties into the Onondago river, 14 miles below the Falls, at a place called the Three Rivers. The river is navigable from the lakes downwards. Within half a mile of the river is the famous salt lake.

Seneca, or Seneca, Antoine Bauderon de, in Biography, a French poet, was born at Macon in 1543. He was brought up to the bar, and pleaded for a time, rather in compliance with his father's wishes, than from his own inclination. A duel, in which he was engaged, obliged him to retire to the court of Savoy, where he had another quarrel with the brothers of a lady, who attacked herself to him; and the consequences of which caused him to withdraw to Madrid. After this he returned to France, married, and purchased the place of first valet-de-chambre to Therese, the wife of Lewis XIV. Lofing that office, on the death of the queen, he, with his family, was received into the house of the duchess of Angouleme, where for 30 years he enjoyed an honourable retreat. At her death, he fixed his residence at his native town, where he died in 1737, having attained to his 94th year. Seneca devoted himself to literature, and many of his compositions were infant in the "Mercuries," and other periodical works of the time. By his poems he has obtained a rank among the Successful votaries of the French muses. Voltaire denominated him "a poet of a singular imagination," and says, that his tale of "Kaimae" is a distinguished performance. He also speaks in praise of his "Travaux d'Apollon." His tale, entitled "La Maniere de Filer le parfait Amour," is much esteemed. He was also the author of "Remarques Historiques," with observations on the Memoirs of Cardinal de Retz.

Senecas, or Senekas, in Geography, a tribe of Indians, being one of the Six Nations. They inhabit the territory on Genesee river, at the Genesee castle. This tribe consists of about 1700 persons. They have two towns of 60 or 70 inhabitants each, on French creek, in Pennsylvania; and another town on Buffalo creek, which falls into the eastern extremity of lake Erie, on the New York shore; and two small towns on Allegany river. The Seneca Indians are wonderfully expert in the use of bows and blow-guns, with which they shoot squirrels in the woods. The blow-gun is a narrow tube, about six feet long, made of a cane-reed, or some pithy wood, through which they drive slender arrows by the force of the breath. The arrows are not much thicker than the lower string of a violin: they are generally headed with small triangular bits of tin; and round the opposite ends, for the length of two inches, they have three inches, a quantity of the down of thistles, or something like it, is bound, so as to leave the arrows at this part of such a thickness that they may but barely pass into the tube. The arrows are put in at the end of the tube that is held next to the mouth; the down catches the breath, and with a smart puff they will fly to the distance of 50 yards.

Senecay, or Grand Senecay, a town of France, in the department of the Saone and Loire, and chief place of
of a rampion, in the district of Chaloun for Salve; 3 male.
S. of Chaloun for Salve. The place contains 2,154, and
the rampion 14,612 inhabitants, on a territory of 352
kilometres, in 18 communes.

SENECIO, in Eng., an ancient name, occurring in
Pliny, derived from sene, an old man; or seneaceae, to
grow old; which is said to have been borrowed from the
fancied resemblance of its capitulei feed down to the grey or
Lamarck Histo. t. 676. Gaertn. t. 170. (Jacobsen; Gaertn. t. 170.—Clas and order,

Senecea Podagrica Superfusia, Nat. Ord. Composita Dif.

Gen. Ch. Common calyx calyculate, conical, truncated;
septae awl-shaped, numerous, parallel and converging into
cylinders at the upper part, contiguous, equal; not so nu-
merous at the base, but imbricated, withering at the tip.
Cor. compound, higher than the calyx; flowers of the disk
perfect, tubular, numerous, funnell-shaped, with a five-leafed
lobe or throat, the disk radially symmetrical, if any; many,
hairy, pubescent hairs on the flower-heads. Filaments five,
capillary, very small; authors cylindrical, tubular.
P. (in all the flowers) Germain ovate; flye
thread-threaded, the length of the flament; ligments two,
long, reversion. Peric, none, except the conical, converging
calyx. Seeds in both kinds of flowers alike, solitary, ovate,
crowned with capillary, long down. Recept, naked, flat.
Obs. Senecea of Tournesort and others, is definite of a
common radius to the corolla, whereas their Jacobea
are furnished with one. This, however, is by no means a sufficient
generic distinction. Most authors have accordingly united
them into one genus.

Efl. Ch. Receptacle naked. Down simple. Calyx cy-
lindrical, many-leaved, equal, fearly at the base; scales
dead at the tip.

In the Species Plantarum of Linnaeus we meet with only
forty species of Senecea, (to which however many others are added
in his Supplement Plantarum,) whereas Willdenow enumerates
one hundred and twenty-two. These are divided into
the four following sections, from each of which we shall
select a few species in order to give as clear and concise an
account of this extensive genus as we are able.

Sec. 1. Floribus filifloribus. Flowers without a radius.
Willd. n. 1. (S. granifolius; Jacq. 1c. Rar. v. 1.
t. 174.)—Corolla naked. Calyx ventricose, somewhat im-
bricated. Leaves thread-shaped, linear, quite entire, smooth.
—Native of the Cape of Good Hope, flowering from June to
October. Stem herbaceous, about three feet high, tawny,
reclined and branched at the top, yellowish-green, round.
Leaves sessile, flat-topped, partly spreading, revolute at the
eight, rough. Flowers terminal, white, golden-brown, with
a glaucous calyx.
Willd. n. 6. (Calacca villosa; Jacq. 1c. Rar. v. 3.
t. 580.)—Corolla naked. Leaves lyrate, hairy; the upper ones
laceolate, toothed.—Native of the Cape, and flowering from
June to September. Stem even, thick. Stems
numerous, erect, a foot high, fruited. Leaves alternate,
lyrate, obtuse, thickish; the lower ones on long flanks; all
beautifully veined. Flowers terminal, corymbose, purple,
rather small.

embace the stem, and the taper-pointed scales at the base of the calyx, which are not blackened and abrupt at the tip, as in perhaps every other Senecio.” This species varies much in the depth of the segments of its leaves. The florets of the radius are not at first revolute, but gradually become so.

S. fuscifolius. Mountain Groundsel. Linn. Sp. Pl. 1217. Eng. Bot. t. 748. “Fl. Dan. t. 869.”—Radius revolute. Leaves pinnatifid, lobed, toothed. Scales of the calyx short. Stem erect, strait, corymbose.—Common in bulky spots upon gravelly or sandy heaths, flowering in July. Root perennial. Stem three feet high, leafy, forked, rather hairy, many-flowered. Leaves numerous, cleft, with an unpleasant smell, and finely villose. Flowers yellow, but paler and smaller than in S. fuscifolius, of which some authors have confidered this as a variety, but from which it is perfectly distinct.

The remaining species of Willdenow in this section are, S. triflorus, egypius, aureus, latus, craphia, lenticis, leucanthemifolius, auritus, giganteus, telephifolius, trilobus, cicenfis, juncus, coronopifolius, multifolius, nebrodenis, glaucus, and varicosus.

Sect. 3. Floribus radiatis, radio patens; folis pinnatifidis. Flowers with a spreading radius and pinnatifid leaves.

S. hyalatus. Spleen-wool-leaved Groundsel. Wild. n. 45. (Jacobba afr periennis viscose lutea, apfieni folis; Dill. Elth. 183. t. 152. f. 184.)—Radius spreading. Leaf-flalks embracing the stem. Flower-flalk thrice as long as the leaf. Leaves halftate, finnutate.—Native of the Cape of Good Hope, flowering mostly part of the summer. Stem herbaceous, perennif, about two feet high, branched at the bottom. Leaves flalked, narrow, seven or eight inches long, very glutinous. Flowers terminal, yellow, two or three on each flalk.

S. elegans. Elegant Groundsel, or Purple Jacobba. Linn. Sp. Pl. 1218. Wild. n. 58. Curt. Mag. t. 238.—Radius spreading. Leaves hairy, vilif, pinnatifid, equal, much-spreading. Common flalk narrowed below. Calyx hairy.—Native of the Cape, flowering from June to autumn. Linnaeus gave to this annual the name of elegans, because of the beauty of its flowers, their radius being of a most brilliant purple, and their disk bright yellow; colours peculiar to this and S. sylvestris, Wild. n. 57.—The stem is about eighteen inches high, erect, branched, furrowed. Leaves at the stem-points, bright green. The figure of Curtis exhibits a beautiful variety of this species, with double flowers, whose colours are equally brilliant as when single. It occasionally produces white flowers.

S. fuscifolius. Inelegant Ragwort. Linn. Sp. Pl. 1218. Eng. Bot. t. 600.—Radius spreading, longer than the calyx; its florets elliptical and entire. Leaves pinnatifid; their segments different, somewhat linear. Plentiful on almost every wall in and about Oxford, flowering from June to October. Root annual or biennial. Stem erect, branched, much spreading, sometimes a little hairy. Leaves fefible, deeply pinnatifid, narrow, smooth, flat, rather felifly, often purplif beneath. Flowers solitary, of a bright golden yellow, on terminal, solitary, branched, corymbose flalks. The whole herb has a peculiar fmmell, somewhat like Tansy or Mugwort.

S. abrodisanifolius. Southern-wood leaved Groundsel. Linn. Sp. Pl. 1219. Jacq. Anf. t. 79.—Radius spreading. Leaves pinnatifid, jagged; leaflets linear, naked, acute. Stalks mofily two-flowered.—Native of the Auflrian Alps, flowering from July to October. Root perennial, composed of many, long, fender fibres, fhirking deep, and spreading on all sides. Stem from one to two feet high, fhirited upwards. Lower leaves biffpinatifid, flaked; upper pinatifid, fefible; all dark green above, glaucous beneath. Flowers large and fample, lemon-coloured, in terminal bunches.

S. tenuifolius. Hoary Ragwort. Wild. n. 75. Eng. Bot. t. 574. Jacq. Anf. t. 278.—Radius spreading. Leaves pinatiftad, somewhat revolute; paler and faggty beneath. Stem erect, cottony.—Found occasionally in woods, on hedges, and by roads fides, chiefly in a calcareous soil, flowering in July and August. Root perennial, rather creeping. Stem erect, wand-like, forked, leafly, corymbose at the top. Leaves numerous, alternate, embracing the stem, more or less cottony beneath, and often white with down. Flowers corymbose, bright yellow. This is certainly distinct from S. crucifolius of Linnaeus, fays the author of Englifh Botany, who is inclined to think it may rather be a variety of S. crucifolius which it more nearly resembles.


S. aquatitus. Marjor Ragwort. Wild. n. 77. Sm. Fl. Brit. 835. Eng. Bot. t. 1131. Fl. Dan. t. 784.—Radius spreading; florets elliptical. Leaves lyrate, ferrated; the lowermost obvate and undivided. Seeds smooth.—Very common in moif woods and ditches, where it flowers from July to the end of autumn. The herbage of this pe-rennial is fhirited smooth, except when it grows in dry situations, and then it is sometimes a little woolly. Stem erect, branched, purplif at the bafe, like the last species. Leaves variable in shape, from ovate to deeply pinatifid, of a much lighter green than in Jacobea. The flowers are larger, fewer in number, and of a brighter colour; but the entire sampooths of its fefels confitute the moft fhirking mark of fpecific distinction between this and the last, of which Linnaeus confidered it only as a variety. “In having the fefels both of the disk and radius quite fhirited, it differs (fays for J. E. Smith) from every other Senecio we have been able to examine.”

The remaining species of Willdenow in this section are, S. symphosius, inflatus, carnofus, acpulsus, lycites, fyrifolius, pulferus, earvaef, montanus, eypiftris, dentatus, venifius, cru-folius, specifius, cefius, uniflorus, incaenus, carnioles, parvi-florus, muricatus, leovigatus, grandiflorus, myrifolius, difi-fius, canadenfis, delphiniolus, auriculatus, auris, Bal-fmites, obovatus, and umbellatus.

Sect. 4. Floribus radiatis; folis indivisibus. Flowers with a radius. Leaves undivided.

the base, smooth above, paler and downy beneath. *Flowers*
above an inch in diameter, bright yellow; in a kind of ter-
nial corymb, the lowestest *flats* arising from the blos-
oms of the upper leaves.

Jacq. *Auct. t. 185. — Radius nearly revolute. Leaves
ovalo-lanceolate, serrated, fringed at the margin, 
very slightly downy beneath, subelliptic, unequal at the base.
— Native of *Austria* and Switzerland; flowering in July and
August. *Root* perennial, fibrous, not creeping. *Stems*
usually single, two or three feet high, erect, slightly an-
gular or grooved towards the top, pale green, purplish here
and there. *Leaves* alternate or scattered, five or six inches
long, pointed, smooth above, hairy beneath. *Flowers* very
numerous, yellow, in terminal compound corymbs.

spreading. *Flowers* corymbose. Leaves lanceolate,
serrate, nearly smooth. — Native of the south of Europe,
and occasionally though very rarely found in Britain.
It flowers in July and August. *Root* perennial, creeping.
*Stems* erect, from three to five feet high, angular, leafy,
smooth, corymbose at the top. *Leaves* alternate, serrate, sub-
lanceolate, slightly downy. *Flowers* bright yellow, in a
large, terminal corymb, with narrow, lanceolate, pointed
*flats*, and rather downy *flats*. — This is one of our rarest
British plants. The specific name alludes to its being used
by the Saracens as a vulnerary. Its qualities are astrigent,
with considerable astringency.

Outer scales of the calyx spreading. Leaves somewhat
decurrent, oblong-lanceolate, glaucous, smooth, serrate.
— Native of *Austria*, flowering from July to September.
*Root* perennial, brownish, bitter, with long white fibres.
*Stems* from two to five feet in height, much branched
upwards, serrated. *Leaves* alternate, lower ones *flats*; upper
serrate; all of them extremely glaucous and ribbed. *Flowers*
rather small, numerous, palish yellow, in terminal, com-
ound corymbs.

*Stem* simple, softly single-flowered. Leaves undi-
vided, serrate; radical ones ovate, hairy beneath. — Native of
the south of Europe, flowering from July to September.
*Root* perennial, fibrous. *Stems* perfectly simple, hairy.
*Radical leaves* thick, thickish, plain or slightly serrate on
either side of the mid-rib; *stem-leaves* small, lanceolate, nearly
wedge-shaped. *Flowers* large, terminal, mostly solitary, of
a deep yellow or orange-colour, on longish, thick, hairy
*flats*.

Jacq. Hort. Schoenbr. t. 304. — Radius spreading. *Leaves*
lanceolate, heart-shaped, and embracing the stem at the
base, smooth, densely serrate. *Stem* shrubbery. — Native of
the Cape of Good Hope, flowering from July to October.
*Root* perennial, fibrous. *Stems* numerous, annual, round,
smooth; from four to six feet high, streaked with purple.
*Leaves* alternate, somewhat hispidly, smooth, glaucous,
pointed, veined with purple. *Flowers* in terminal, thick,
compound corymbs, bright yellow; the *dyke* turning
brown.

The remaining species of this last and fourth section
described by Willdenow are the following. — *S. limi-
folius, juniperinus, rosmarinifolius, afer, friatus, cruciatus, rigescens,
pinna tus, haincianus, ovatus, coriaceus, orientalis, Barrellii, arenarius,
glabref us, aperinus, longifolius, undulatus, lysan-

S. senega. *Gardening*, contains plants of the herb-
aceous, annual, and perennial kinds, of which the species
cultivated are; the four-seamed groundsel (*S. inaurulhus*); the
Chenelle groundsel (*S. pseudo-chama*); the five-wool-
leaved groundsel (*S. haitatus*); and the elegant groundsel,
or purple Jacobea (*S. elegans*).

In the fourth species there are varieties with very double
purple, and with equally double white flowers. The former
is now chiefly cultivated.

And there are other species that may be cultivated for
variety.

Method of Culture. — The last and two last sorts are
readily increased by planting cuttings of the branches in
 pots filled with fine mould in the summer season, shading
them till they have taken root; and, as the winter ap-
proaches, removing them under the protection of the green
house, where they should remain till May, when they may
be placed out in the borders or clumps. They may like-
wise be raised from seed, which should be sown in the spring
in pots, and placed in a gentle hot-bed.

The second sort should be more carefully attended to,
being raised from offsets, which should be planted in pots in
the spring season, and be plunged in the hot-bed of the
flour, where the plants should be constantly kept.

The first and two last sorts afford variety in the borders,
and among potted plants; and the second in flower col-
lections.

**SENECA.** *Angustis, the-exuvia, or floughs of ser-
-pents. The snakes cast their whole skin, and with it were
lupposed to call off their age, and be born anew; whence
the name of these cast skins. A decoction, or infusion of
these, is recommended by medical writers against pains of
the ears and eyes, and some superstitious people recom-
ended it to women to tie about their waists, to prevent
miscarriages, and about their thighs, in time of labour to
harden delivery.

**SENEFFE, in Geography,** a town of France, in the
department of Jemappe, and chief place of a canton, in the
district of Charleroy; 13 miles N.W. of Charleroy. The
place contains 5253, and the canton 12,663 inhabitants,
on a territory of 167¼ kilometres, in 13 communes.

**SENEGA.** See *Gum Senega.*

**SENEGAL, or SENEGAMBIA,** in Geography, a country of
Africa, situated between the rivers Senegal and Gambia,
and including many kingdoms and states. It derives the
former name from the river Senegal, and the latter from
that of Gambia. According to Bruns, all the coast ex-
tending from Cape Blanco to the mountains to the N. of
Senegal, has been called Upper Senegambia. It is fre-
quently by the Moors, wandering shepherds in the desert of
Zaara or Sahara. They acknowledge the supremacy of
the emperor of Morocco; but only obey him as they find
it to be their interest. The Egyptians trade with these
people in gum; and the establishment of Portedeeck,
formed by the Dutch, and that of Arguin, have been dis-
pensed by several European nations, with inconceivable
emergence. The dreadful portrait which Mango Park has
given us of the foolish pride, perfidy, and barbarity of
the Moors of the environs of Tombeutoo, perfectly agrees
with that given by Bruns of those who inhabit the coasts.
The whole country watered by the rivers of Senegal and
Gambia has been called Senegambia, and extends, accord-
ing to Bruns, from the northern shores of Senegal to the
northern shores of Sierra Leone.
SENEGAL.

Senegal, a river of Africa, which winds in the interior of the country, and runs, after a winding course, into the Atlantic. It takes its rise by various streams in a chain of mountains, situated, according to Mr. Park's discoveries, between the 5th and 9th degrees of west longitude, and directs its course towards the N.W. Within the same space are the sources of the Gambia, which runs to the W.-N.W., and those of the Joliba or Niger flowing towards the E.-N.E. A large portion of the tract bounding on the northern foot of the mountains, whence the branches of the Senegal river issue, is covered with thick forests. One part of this tract is denominated the Jallonka wildernesses, in which no inhabitants are to be seen during nine days of forced marching. The head of the principal branch of the Senegal is about 50 geographical miles W. of that of the Joliba; and the head of the Gambia is about 100 miles W. of the Senegal. The branches of the latter are very numerous, and intersect the country for about 200 miles from E. to W., in the line of the caravan route. In Mr. Park's judgment, the Senegal river, below the falls of F'low, or Foleo, as Labat calls it, was about the bulk of the Tweed at Melro's in summer; but this was in the dry season, or Christimas; and as the river does not swell periodically, till many months after that, Mr. Park did not see it at its lowest point. And yet this was the affluentage of all the rivers, the Falemé excepted, which was itself about three feet deep at the same feason. But the Senegal is even fordable in some places before the conflux of the Falemé, according to Labat; for the Moors cross it in the dry season, and commit depredations on some of the lands to the south. However, almost all the towns and villages are placed on the south side, with a view of being in security for the longest possible term. The Senegal river is then by no means a very capital stream, except in the rainy season; when, like all other tropical rivers, its bed is filled, and it very commonly overflows. Mr. Park observed, by the mark of the highest point of swelling of the river Kokoro, or easterm branch of the Senegal, that it had been twenty feet higher than when he crossed it, in the line of the southern route. The main branch of this river, the Ba-ring, or Black river, was not fordable, and was crossed over a temporary bridge of a very singular construction. Alligators and crocodiles are found in all these rivers, at the height at which Mr. Park passed them. The Falemá river has a remote source, and drains a great extent of country. The great body of the river Senegal is precipitated from the upper level, containing the political divisions of Manding, Jallonkadu, Foolsadu, Kaffon, Gadon, and some other smaller streams, to the intermediate one; thus forming the falls of Govinea. The intermediet level contains Bambouk, Konkaddoo, Satadoo, Dentila, and some others, and is bounded on the S.W. by the great slope of country at Kirwanney, when the waters first begin to flow towards the W. On the N.W. it is bounded by the great dehient which forms the second or lower fall of the Senegal river, named F'low. This fall is about 50 miles below Govinea, 48 above fort St. Joseph; and here the river, being arrived at the lowest level of the country, continues navigable, with little interruption, to the sea. The Falemá river, of course, must run on a far lower level than the other heads of the Senegal river. The distance between Koonia-karry in Kaffon, lat. 14° 34', and the Senegal river, 13 miles points to a W.N.W. course, or therabouts, of the river between the falls; not much different from its general course, lower down. But as the Ba-fing, or principal arm of the river, must run almost directly to the N. from the place where Mr. Park crossed it, in Jallonkadu, it is highly probable that the two great branches unite at no great distance above the upper fall; the fame ridge of mountains that occasion the fall, may, perhaps, occasion a junction of the different streams above it. These falls are faid by Labat to be from 30 to 40 toifes perpendicular, or 180 to 240 French feet. The Senegal, in its course, separates the two countries of Kajaga and Kaffon.

Within six miles of the fea, the river in its course takes a sudden turn to the south, and for the remainder of its passage is divided from the fea only by a natural ridge of land, sometimes not 100 toifes over. By this curve it prolongs itself for 35 miles farther, from north to fouth, till at length it discharges itself into the ocean, in N. lat. 15° 50'. This great river separates the country of the Negroes from the Moors of Sahara, or the D. Sert, stretching by a number of windings to a prodigious length, from east to west. The extreme rapidity of this river is attributed to the space passed through by fo large a body of water, confined within fo narrow a channel; the mouth of it being no more than a mile and a half over, and that choked up with fand, called a bar, which renders the passage exceedingly difficult and dangerous. This bar is doubly dangerous, on account not only of the shallowness of the water at all times, but the shifting of the bar, and the change of its situation after floods and heavy rains, by which the channels are loft, and new foundings requisite to discover them; indeed the Senegal would be quite shut up, but for one channel of 200 toifes in breadth, and two fathoms depth, which has long kept its situation immoveable, amidst the floods and overflowing of the river. This bar prevents ships of 500 tons from entering the river, and mooring under the fort; an inconvenience that obliged the French company to keep a veifeil constantly at anchor in the channel, for no other purpose than to keep an account of the foundings. The most commodious time of the year for crossing the bar, is from the month of January till August, the winds being then variable, the river smooth, and the bar fixed till the ensuing rainy season, when the prodigious swell of the river, and south-west winds, opposed to its rapid course, raise waves of fo prodigious height at the bar, that their breaking resembles the fhook of mountains, and fo furious, as to dash in pieces the stoutest ship. After crossing the bar, it becomes a beautiful smooth, and gently gliding river, at four fathoms depth. In advancing three miles higher, the country on the south side is clothed with a beautiful verdure, the trees in perpetual bloom, than which nothing can form a more agreeable contrast to the dry, sandy, and barren points of land, that fift pr felon themselves to the shipping. All around it lie a great number of islands, pleafantly fcocked with trees, fruits, herbage, and birds, but appropriated to no ufe, except the ifland of Senegal.

Fort St. Louis, at the mouth of the Senegal river, according to the observations and refults of M. D'Anville and M. Feureiue, is placed in lat. 16° 5' (by D'Anville), long. 16° 8' by Feureiue: and Cape Verdi in lat. 14° 38', long. 17° 34' W. of Greenwich. By the treaty of 1765, the river of Senegal and its dependencies were left in the poftification of the French, who had extended their territories above 500 miles from the shore. In 1784 was founded the company of the gun of Senegal, which obtained an exclusive privilege of trading in gums, ivory, wax, and other products of the river Senegal, and dependencies, from Cape Blanco to Cape Verdi. Goree was chofen as the residence of the administrators. In 1791 this company was suppressed by the national assembly, and the trade with Senegal was declared free.

The Moors chiefly gather the gum in the three forests of 10 Sokel,
Sakel, Eliazar, and Alfectak, situated on the north of the island St. Louis. The season is the month of March, and the consumption in Europe is estimated at a thousand tons, each of 2000 pounds. In 1788, different ports in France employed in this trade 105 ships, the tonnage exceeding 35,000. The French settlement on the coast of Africa, according to Herbin, is Arguin, a little settle granted to the company of Senegal in 1727. A considerable trade in gum was maintained with the river St. Juan, which is not far distant; and by the treaty of 1783 the English obtained the right of trading with this river. On the river Senegal there were some French settlements, particularly in the Isle of St. Louis at the mouth of that river, which is a great seat of the gum trade. The white population may be about 400; but in 1801 the whole, including captives, was computed at 10,000.

SENEGAL, an island of Africa, in the river so called, about one mile and a quarter in length, from north to south, and almost half a mile in breadth, from cast to west. It is composed of a bed of loose sand, productive of nothing but what is forced by art and the richelieu manner, notwith standing which it contains 3000 inhabitants, whose principal food is fish and maize. This sort of corn grows in great plenty almost all over the whole country. It may seem surprizing, that a part of the world so very unhealthy as this, should yet be so populous, but the wonder will cease when we come to understand, that the greatest pride among the men consists in the number of their wives; so that every one takes as many as he is able to maintain; some five, others eight, and others twelve at a time. In the year 1758, this island was taken from the French by the British troops, and by the peace of 1763 it was ceded to Great Britain. N. lat. 16° 5'.

SENEGALIA, or Senegalus, in Ornithology, the Loxia afrill. See Loxia. See also Fringilla Senegala.

SENEKA, Rattlesnake-root. This is a root lately brought into use among us, and which seems to deserve very great regard. It is the root of a species of polygala, or milk-wort, (see Polygala Senega,) distinguished by Gronovius, in his Flora Virginica, under the name of the erect polygala, with a simple stalk, with oval leaves, pointed at the end, and with an erect cluster of flowers. We generally call it the rattlesnake-root, and the French, from the place whence it comes, Seneka. The plant is a native of Virginia, Pennsylvania, and Maryland, and is cultivated in some of our gardens.

The root is perennial; the thickness of it is generally about that of a man's little finger. It is four or five inches, or more, in length, and is variously contorted and twisted, and divides into many branches, furnished with small fibres, and with a membrane of it running all along it. It is yellowish on the outside, and white within, very acid, and somewhat bitter to the taste, and has somewhat of an aromatic flavour. From this root arise numerous stalks, all simple, and without branches; some lie on the ground, others stand erect. These are ten or twelve inches high, when full grown. The leaves stand alternately on the stalks, and the flowers are white, and perfectly like those of our own kinds of polygala. This root, which is brought from Virginia in bales, each containing from two to four hundred weight, is of no remarkable smell, but has a peculiar kind of frutile, pungent, penetrating taste. Its virtue is extracted both by water and spirit.

Dr. Tennent, who brought over a large quantity of this root from America some years ago, and took great pains to introduce it into practice, praises it very largely as a diuretic, a diaphoretic, and an alexipharmic, and a very powerful attendant and resolvent. He says it will sometimes vomit and purge.

The Senegaw Indians first taught the use of it to the Europeans; they esteem it a sovereign remedy against the bite of the rattlesnake; and Dr. Tennent assures us, that he saw two persons, who had been bitten by this creature, in the month of July, when their poison was most fatal, perfectly restored to health by it. The powder, or a decoction of the root, is taken internally; and either the powder or cataplasm made with it applied to the wound.

He afterwards gave it as a pleurisy and peripneumata with great success, and in all other cases where the blood is impurified. The effect of this medicine was found to be, that it made the first blood fluid, (which is contradicted by a strong fact added by Dr. Haen,) procured a plentiful perspiration, increased perforation and urine, and sometimes purged or vomited. If the first doses of it provoke a vomiting, it is not at all the worse, except in cases in which the patient is very weak; and in such this effect is easily prevented, by giving some of the telling powders with it.

In pleurisy it is best to take away ten ounces of blood, before the entering on the use of the medicine; in other cases no precaution is required, but it is to be given in powder, or tincture, in white wine, particularly Madeira wine; and the ordinary drink, during the use of it, should be marshmallow tea. Its good effects in pleurisy have been attested by several of the French academicians and others. But repeated bleeding is not to be neglected.

This medicine may be given either in powder or decoction, and combined with aromatics, opium, or camphor, which check its nauseating qualities; but Dr. Tennent prefers the decoction, having observed it to give relief sooner than the powder does. The dose of the powder is thirty-five grains, and he gives at once three spoonfuls of the decoction, prepared by boiling three ounces of the root bruised in a quart of water to nearly the half. The dose is repeated every six hours. He is also fond of this root in the rhematism, dropsy, and gout, in which last disease, he says, he has given it with successes. See his Letter concerning the Seneka, or Rattlesnake-root. The extract of it in combination with carbonate of ammonia has been found by Dr. Brandreth, of Liverpool, to be efficacious in some cases of lethergy; and in America the decoction given in divided doses, at short intervals, till it vomits, has been employed with seeming success in croup; it has also been lately used as a stimulating gargle in the same disease.

The usual dose, says Woodville, is from one scruple to two of the powder, or two or three spoonfuls of a decoction prepared by boiling an ounce of the root in a pint and a half of water till it is reduced to a pint.


SENEMBI, in Zoology, a name given by Marcgrave to the Lacerta iguana. See Lizard.

SENESCHAL, Senegalus, a name recently used for a herald or major-domo; formed from the German, hauze, house, or family, and frit, servant.

Thus the seneschal of a lord, or a baron, is his herald or bailiff, who holds his courts, and manages his demesne lands; and the sub-seneschal, his under-bailiff.

High seneschal of England is the high-bailiff of England; high seneschal del hotel de roi, is the herald of the king's household.

The office of seneschal was at all times a great office; but the jurisdiction of it increased much, when the grand
judiciary's was diminished; which did not happen till after the decease of king Henry II. Indeed these offices could not possibly have fulfilled together, in the height of their power; the functions and dignity appertaining to each of them having been nearly the same. But in the reign of Henry II. that of benevol was much inferior to the other; and the authority of it seems to have been not very different from that of the lord steward of the household at present.

The ancients used the term fenestralis indifferently with that of daphis; whence we are sure it signifies steward.

SENECHELALO et marblesal quod non teneaut placia de libero tenimento, in Lavo, a writ directed to the steward and marshall of England, inhibiting them to take cognizance of an action in that court that concerns freehold.

SENECINO, Francesco Bernardo, Detto, in Biography, called Senefino, from being a native of Siena, one of the greatest singers and the best actor who performed in Handel's operas during the Royal Academy of Music, established in the year 1720, and dissolved in 1729. He continued singing in England till the year 1735; but in an opera established by the nobility and gentry in opposition to Handel.

We have conversed with several good judges of music, who had been confidant in their attendance at the operas of those times, who always spoke of Senefino's voice, style of singing, figure, and action, in the highest terms of admiration. In early youth his voice had been a sopranino, but it had defended into the full, most melihouse, and most flexible contralto, that was ever heard in this country. He had not more than six or seven notes in his compass; but these were so mellow and powerful, and his execution of divisions fo granito, or difficil, that, without the rapidity of a bravura finger, he seemed possessed of every solid and lasting charm of a great performer. Quantz, who heard him at Dresden in 1719, gives him the following character. "Francesco Bernardo, called Senefino, had a powerful, clear, equal, and sweet contralto voice, with a perfect intonation, and an excellent shake; his manner of singing was masterly, and his elocution unrivalled; though he never loaded adagios with too many ornaments, yet he delivered the original and essential notes with the utmost refinement. He sung allegros with great fire, and marked rapid divisions, from the chiet, in an articulate and pleasing manner; his countenance was well calculated for the stage, and his action was natural and noble: to these he joined a figure that was truly majestic, but more suited to the part of a hero than a lover."

When he returned to his own country, he sung no more on a stage; but retired to Siena, the place of his nativity, where he built himself a magnificent mansion, called there a palazzo, and ended his days in splendid tranquillity.

SENESOTO, in Geography, a cape on the S.W. coast of the island of Corfica; 20 miles W. of Sarcenca.

SENEZ, a town of France, in the department of the Lower Alps, and chief place of a canton, in the district of Castellane, before the revolution the see of a bishop, suffragan of Embrun; 6 miles N.W. of Castellane. The place contains 768, and the canton 2081 inhabitants, on a territory of 180 kilometres, in 4 communes.

SENTENBERG, a town of Austria; 3 miles N. of Stain.—Alto, a town of Bohemia, in the circle of Kingigratz; 3 miles N. of Geyerberg.—Alto, a town of Saxony, in the margravate of Meißen, containing about 300 houses, surrounded with ramparts and ditches; 32 miles N.E. of Meißen; M. lat. 51° 31'. E. long. 14° 1'.

SENGARA, a town of Hindoostan, in the Mewat country; 95 miles S.W. of Delhi.

SENGEN, or SENG, a town of Peru, in the province of Khorasan; 25 miles S.E. of Mesghid.

SENGEN, or SENS, a river of Switzerland, which joins the Saan river, near Laupen, in the canton of Berne.

SENGEN, or SEN-GUEN, a city of China, of the first rank, in Quang-hi. N. lat. 23° 24'. E. long. 109° 34'.

SENGERHASARA, a town of Peru, in the province of Ghilan; 69 miles N.W. of Rehfd.

SENGIN, or SEN-GUEN, a town of China, of the third rank, in Quang-hi; 25 miles N.W. of King-yuen.

SENGLEA, a town of the island of Malta, divided by a canal from Vittoriafola; and containing about 4000 inhabitants.

SENGMA, a town of Africa, in the country of Calbari; 5 miles N. of Cape Formosa.

SENOA, a town of Peru, in the province of Adirbeita or Azerbajin; 48 miles S.E. of Tauris or Taibreez.

SENGRAIN, in Botany. See Saxifrages.

SENGWARDEN, in Geography, a town of Germany, in the lordship of Kniphafen; 6 miles E. of Jever.

SENJEN, a small island in the North sea, close to the coast of Norway. N. lat. 69° 14'.

SENGAGLIA. See SINGAGLIA.

SENINGHEM, a town of France, in the department of the Straits of Calais; 9 miles W. of St. Omer.

SENIONTZ, a town of Bohemia, in the circle of Königigratz; 6 miles N. of Königigratz.

SENORE, a town of Algiers; 22 miles W. of Tiffeth.

SENI TO, a river of Naples, which runs into the Sibari.

SENITZ, a town of Hungary; 25 miles W. of Tapoloz.

SENKE, a town of Hungary; 24 miles E. of Toudfong.

SENLIS, a town of France, and principal place of a duchy, in the department of the Oise, before the revolution the see of a bishop, suffragan of Rheims; 5½ miles N.E. of Paris. The place contains 4312, and the canton 11690 inhabitants, on a territory of 2231 kilometres, in 18 communes. N. lat. 49° 12'. E. long. 2° 40'.

SENN, a town of Asiatic Turkey, in the government of Moful, on the Tigres; 80 miles S.S.E. of Moful.

SENN, or SENNAH, a most romantic and flourishing little town of Peru, in the province of Ardelan, included in the bofom of a deep valley, well cultivated and interpered with orchards of peach, apricot, pear, apple, and cherry trees. Its population amounts to about 8000 persons, of which number 2000 are Jews, Armenians, and Neitarians, who trade to Moful, Bagdad, and Ihalan. The Whalea, who seldom quits this place, resides in a fumptuous palace, built on the top of a small hill in the centre of the town, where he maintains a degree of flate and splendid superior to any thing in Peru, except at court. His house is ever open for the entertainment of strangers, and he always retains about his person a body of horse. The mountains to the W. of Senna are covered with forests of oak, which produce fine timber and abundance of gall-nuts. The former is made into rafts and floated down the Tab into the Tigres; the latter is an article of trade, and exported to India. A small river of the fame name flows about one mile and a half or two miles from it. The route from Tabrez by way of Mirago to Senna is 223 miles; that from Senna by Kermanshaw to Bagdad is 303 miles; and that from Senna to Hamadan is 89 miles.

SENN,
though these people are Mahometans, they are so brutal with regard to their women, that they sell their slaves after having lived with them, and even after having had children by them. The king himself, it is said, is often guilty of this unnatural practice, utterly unknown in any other Mahometan country. Once in his reign the king is obliged, with his own hand, to plow and sow a piece of land. From this operation he is called Bada, the countryman or peasant; and this name is common to the whole race of kings, as Cesar was among the Romans.

No horse, mule, ox, or any beast of burden, will breed or even live at Sennar, or many miles about it. Poultry does not live there. Neither dog nor cat, sheep nor bullock, can be preferred there for a season. All of them must be removed every half year to the lands. Though all possible care be taken of them, they die in every place where the fat earth is about the town during the first season of the rains. Hence, it appears that the soil of Sennar is very unfavourable both to man and beast, and particularly adverse to their propagation. This circumstance is ascribed by Bruce to the noxious quality of the fat earth; for this noxious quality is not known in the lands. Aira, between three and four miles from Sennar, which has no water near it but the Nile, surrounded with white barren sand, agrees perfectly with all animals. Nevertheless this soil contributes very abundantly to the nourishment of man and beast. It is said to render 300 for 1; though this must be an exaggeration; as is shown with dura or mellet, which is the principal food of the natives. The salt used at Sennar is wholly extracted from the earth about it, especially at Halsaia, in lat. 15° 45' 54". E. long. 32° 49' 15", is strongly is the soil impregnated with this useful fulfil. Halsaia is a large, handsome, and pleasant town, though built with clay. The houses are terraced at the tops. This town is the limit of the rains, and is situated upon a large circular peninsula, surrounded by the Nile from S.W. to N.W. about half a mile from the river. It consists of about 500 houses, and derives its principal gain from a manufacture of very coarse cotton cloth, called Densour, which serves for small money through all the lower parts of Atbara. The people here eat cats, and also the river-horse and the crocodile, which are very plentiful.

About twelve miles from Sennar, nearly to the N.W. is a collection of villages called Shadly, from a great fault, who in his time directed large pits to be dug, and platted closely with clay, into which a quantity of grain was put when it was at the cheapest, and these were covered up, and platted again at the top, which they call fealings, and the hole itself matamore, These matamores are in great number all over the plain, and, on any prospect of corn growing dearer, they are opened, and corn sold at a low price both to the town and country.

To the north of Shadly, about twenty-four miles, is another foundation of this sort, called Wed-Aboud, still greater than Shadly. Upon these two characters the chief subsistence of the Arabs depends; for as there is continual war among these people, and their violence being always directed against the crops rather than the persons of their enemies, the destruction of each tribe would follow the loss of its harvest, was it not for the extraordinary supplies furnished at such times by their granaries.

The small villages of Teldires are scattered up and down through this immense plain to watch the grain that is sown, which is dora only, and it is said that here the ground will produce no other grain. Prodigious excavations are made at proper distances, which fill with water in the rainy season, and are a great relief to the Arabs in their pal-
tween the cultivated country and the sands. The fly, that
incororable persecutor of the Arabs, never pursues them
to the north of Shaddly. The knowledge of this circumstance
was what, perhaps, determined the first builders of Sennaar
to place their capital here; this too, probably, induced the
two saints, Shaddly and Wed Aboud, to make here these
vast excavations for corn and water. This is the first rift-
ing-place the Arabs find, where, having all things necessary
for subsistence, they can at leisure tranfact their affairs with
government.

To the westward of Shaddly and Aboud, as far as the
river Abiad, or El-ace, the country is full of trees, which
make it a favourite itation for camels. As Shaddly is not
above three hours ride on horfecake from Sennaar, there
could not be chozen a situation more convenient for leying
the tribute; for though Gerri, from the favourable situa-
tion of the ground, being mountainsous and rocky, and jut
on the extremity of the rains, was a place properly chozen
for this purpole by the Arab prince before the conquest of
the Funge, (for his troops there cut them off, either from
the sands, or the fertile country, as he pleased), yet many of
them might have remained behind at Shaddly, and to the
westward, free from the terror of the fly, and confequently
without any neceffity of advancing for far north as Gerri,
and there subjeeting themselves to contribution.

In this extensive plain, near Shaddly, arife two moun-
tainsous driftrits, the one called Jibbel Moia, or the Moun-
tain of Water, which is a ridge of confiderable hills nearly
of the fame height, clothly united; and the other Jibbel
Segud, or the Gold Mountain, a broken ridge compofed
of parts, some high and some low, without any regular form.
Both these enjoy a fine climate, and are full of inhabitants,
but of no confiderable extent. They ferve for a protection
to the Dahera, or farms of Shaddly and Wed Aboud.
They are alfo fortrefles in the way of the Arabs, to detain
and force them to payment in their flight from the cultivated
country and rains to the dry lands of Atbara. Each of
these driftrits is governed by the defendant of their ancient
and native princes, who long refitted all the power of the
Arabs, having both horfe and foot. They continued to be
Pagans till the conquest of the Funge. Bloody and un-
natural sacrifices were faid to have been in use in thefe
mountainous flates, with horrid circumftances of cruelty,
till Abdeleader, fon of Amru, the third of the kings of
Sennaar, about the year 1554, befieged firft the one and
then the other of these princes in their mountain, and forced
them to surrender; and, having fattened a chain of gold to
each of their ears, he expoed them in the public market-
place at Sennaar in that situation, and fold them to the
highelt bidder, at the vile price of something like a farthing
each. After this degradation, being circumcifed, and con-
verted to the Mahometan religion, they were refored each
to their government, as slaves of Sennaar, upon very easy
conditions of tribute, and have been faithful ever since.
Nothing is more pleafant than the country around Sennaar,
in the end of Auguft and beginning of September, I
mean (fays Bruce) fo far as the eye is concerned; instead of
that barren, bare waste, which it appeared on our arrival in
May, the corn now sprung up, and covering the ground, made
the whole of this immense plain appear a level, green land,
interperfed with great lakes of water, and ornamented at
certain intervals with groups of villages, the conical tops of
the houfes preffing, at a distance, the appearance of small
campaments. Through this immense, extenfive plain, winds
the Nile, a delightfull river there, above a mile broad, full
to the very brim, but never overflowing. Every where on
these banks are feen numerous herds of the moft beautiful
cattle of various kinds, the tribute recently extorted from
the Arabs, who, freed from all their vexations, return home
with the remainder of their flocks in peace, at as great a
distance from the town, country, and their oppressors, as
they possibly can.

The banks of the Nile about Sennaar refeemble the ple-
fant parts of Holland in the summer fefon; but foon after,
when the rains caele, and the fun exerts his utmoft
influence, the dora begins to ripen, the leaves to turn yel-
low and to rot, the lakes to putrefy, Smell, and be full of
vermin, all this beauty suddenlly disappears; bare, focheched
Nubia returns, and all its terrors of poifonous winds and
moving sands, glewng and ventilated with fultry blasts,
which are followed by a troop of terrible attendants,
epilepsies, apoplexies, violent fevres, obfinate agnes, and
lingering, painful dyenteries, still more obfinate and
mortal.

War and treafon feem to be the only employment of this
horrid people, whom heaven has seperated, by almost im-
pallable deferts, from the reft of mankind, confining them
to an accurfed spot, seemingly to give them earneft time
(as Mr. Bruce forebodes) of the only other worfe which he
has referved to them for an eternal hereafter.

The drefs of Sennaar is very fimple. It confifts of a long
fhirle of brown Satrat cloth called Morowty, which covers
them from the lower part of the neck down to their feet,
but does not conceal the neck itself; and this is the only
difference between the men's and the women's dreffes; that
of the women covers their neck altogether, being buttoned
like ours. The men have fometimes a fath tied about their
middle; and both men and women go bare-footed in the
houfe, even thofe of the better fort of people. Their floors
are covered with Perifian carpets, efpecially the women's
apartments. In fair weather, they wear tandals; and with-
out doors they ufe a kind of wooden patten, very neatly
ornamented with fehels. In the greatest heat at noon, they
order buckets of water to be thrown upon them instead of
bathing. Both men and women anoint themfelves, at leaft
once a day, with camels' grease mixed with civek, which
they imagine softens their skin, and prefserves them from
cutaneous eruptions, of which they are fo fcarcd that the
ftallcs pimple in any viil part of their body keeps them in
the house till it disappears: for the fame reafon, though
they have a clean ftirt every day, they ufe one dipt in
grege to lie in all night, as they have no covering but this,
and lie upon a bull's hide, tanned, and very much ftofened
by this contant greating, and at the fame time very cool,
though it occafions a fmal that no walking can free them
from.

The principal diet of the poorer fort is millet, made into
bread or flour. The rich make a pudding of this, toaffing
the flour before the fire, and pouring milk and butter into
it; befides which, they eat beef, partly roasted and partly
raw. Their horned cattle are the largest and fattelf in the
world, and are exceedingly fine; but the common meat
fold in the market is camel's flefh. The liver of the animal,
and the spare rib, are always eaten raw through the whole
country. Bruce never faw one infance where it was drefed
with fire; it is not then true that eating raw flefh is peculiar
to Abyssinia; it is practifed in this infance of camels' flefh
in all the black countries to the westward.

Hogs' flefh is not fold in the market; but all the people
of Sennaar eat it publicly: men in office, who pretend to
be Mahometans, eat theirs in secret.

There are three principal governments in the kingdom
of Sennaar. The firft is at El-ace, the capital of that coun-
try, from which the Shillook came. The Babar el Abiad
spreads
frees itself all over the territory, and, divided into a quantity of small channels, (whether by art or nature we know not,) surrounds a number of little islands, upon each of which is a village, and this collection of villages is called the town of El-aice. The inhabitants are all fishermen, and have a number of boats, like canoes, in which they fish up and down to the cataracts. With incredible fleets of these their invasion was made when they undertook the conquest of the Arabs, who had not the smallest warning of the attempt. They had, at that time, no weapons of iron; their swords and lances were of a hard wood called Dengui-Sibber. It must be a relation of the Mek of Sennaar that commands at El-aice; and he is never suffered to leave that pool, or come to Sennaar.

The second government, next to this in importance, is Kordofan. The revenue consists chiefly in slaves procured from Dyre and Tegla. It seems this situation is the most convenient for invading those mountains, either from its having water in the way, or from some other circumstance that is not known. Mahomet Abu Kalec had this government, and with him about 1000 black horse, armed with coats of mail, with whom he maintained himself at this time independent of the king. It is a frontier near to Dar-Fows, a black state still more barbarous, if possible, than Sennaar, and by them it often has been taken from Sennaar, and again retaken.

The third government is Fazuelo, bounded by the river El-aice on the west, and the Nile on the east, and the mountains of Fazuelo, where are the great cataracts, on the south. These are part of the large chain of mountains of Dyre and Tegla, which reach so far westward into the continent, from whence comes the chief supply both of gold and slaves which constitute the riches of this country; for the greatest part of the revenue of Fazuelo is gold; and the person that commands it is not a Funge, but the same native prince from whom the army of Sennaar conquered it. This seems to be a very remarkable piece of policy in this barbarous nation, which must have succeeded, as they constantly adhere to it, of making the prince of the state they have conquered their lieutenant in the government of his own country afterwards. Such was the cafe with Dongola, whose Mek they continue; also with Wed Ageeb, prince of the Arabs, whom they subdued; and such was the cafe with Fazuelo, Wed Aboud, Jibbel Mois, and other petty states, all of which they conquered, but did not change their prince.

The forces at Sennaar, immediately around the capital, consist of about 14,000 Nuba, who fight naked, having no other armour but a short javelin and a round shield, very bad troops, as Bruce supposes; about 1600 horse, all black, mounted by black slaves, armed with coats of mail, and without any other weapon but a broad Scelavonian sword. These, he supposes, by the weight and power of man and horse, would bear down, or break through double the number of any other troops in the world; nobody, that has not seen this cavalry, can have any idea to what perfection the horse rides here. The Mek has not one musket in his whole army. Besides these horse, there is a great, but uncertain number of Arabs, who pay their tribute immediately to the Mek and to the great men in government, and live under their protection close by the town, and thereby have the advantage of trading with it, of supplying it with provisions, and, no doubt, must contribute in part to its strength and defence in time of need.

The diseases of Sennaar are the dysentery, or bloody flux, fatal in proportion as it begins with the first of the rains, or the end of them, and return of the fair weather. Intermittening fevers accompany this complaint very frequently, which often ends in them. Bark is a sovereign remedy in this country, and seems to be by so much the furer, that it purges on taking the first dose, and thus it does almost without exception. Epileptics and leprous have are likewise very frequent, owing, as is supposed, to their debasing or diminishing perispiration, or stopping the pores by constant usection, as also by the quantity of water they deluge themselves with at the time they are hottest.

The elephantiasis, so common in Abyssinia, is not known here. The small-pox is a disease not endemic in the country of Sennaar. It is sometimes twelve or fifteen years without its being known, notwithstanding the constant intercourse they have with, and merchandizes they bring from Arabia. It is hkwise said this disease never broke out in Sennaar, unles in the rainy season. However, when it comes, it sweeps away a vast proportion of those that are infected; the women, both blacks and Arabs, those of the former that live in plains, like the Shillook, or inhabitants of El-aice, those of the Nuba and Guba, that live in mountains, all the various species of slaves that come from Dyre and Tegla, from time immemorial have known a species of inoculation which they call Tihettee el Juddeere, or, "the buying of the small-pox." The women are the conductors of this operation in the fairest and driest season of the year, but never at other times. Upon the first hearing of the small-pox any where, these people go to the infected place, and, wrapping a fillet of cotton cloth about the arm of the person infected, they let it remain there till they bargain with the mother how much she is to sell them. It is necessary that the terms be discussed judicially, and that the bargain be not made collusively or gratuitously, but that one piece of silver, or more, be paid for the number. This being concluded, they go home, and tie the fillet about their own child's arm; certain, as they say, from long experience, that the child infected is to do well, and not to have one more than the number of pultules that were agreed and paid for. There is no example, as far as Bruce could learn, either here or in Abyssinia, of this disease returning, that is, attacking any one person more than once.

The trade of Sennaar is not great; they have no manufactories, but the principal article of consumption is blue cotton cloth from Surat. Formerly, when the ways were open, and merchants went in caravans with safety, Indian goods were brought in quantities to Sennaar from Jidda, and then dispersed over the black country. The return was made in gold, in powder called Tibbar, civet, rhinoceros's horns, ivory, offish feathers, and, above all, in slaves or ghas, more of which was exported from Sennaar than all the east of Africa together. But this trade is almost destroyed, for it is that of the gold and ivory. However, the gold still keeps up its reputation of being the pured and best in Africa, and therefore bought at Mocha to be carried to India, where it all at last centers. If the weight of Abyssinian gold falls at 16 patakas, the Sennaar gold falls at the same price for 22 patakas. The ivory falls at 15 oz. per rotol at Cairo, which is about 25 per cent. lighter than the rotol of Mocha. Men-foaves, at a medium, may be about a wakea per head at Sennaar. There are women, however, who fell for 14 or 14 wakeas. What their peculiar excellencies may be, which so far alters the price, Bruce could not tell, only they are preferred by rich people, both Turks and Moors, to the Arab, Circassian, and Georgian women, during the warm months in summer.

The Daveina Arabs, who are great hunters, carry the ivory to Abyssinia, where they are not in fear. But no
Sennaar comes now from Sudan (Nigritia) to Sennaar, nor from Abyffinia or Cairo. The violence of the Arabs, and the faithfulness of the government of Sennaar, have hutt them up on every side but that of Jidda, whither they go once a-year by Suakem.

The wakea of Sennaar, by which they fell gold, civet, scented oils, &c. confisits of 10 drachms; 10 of these wakeas make a rotol. This wakea at Sennaar is accounted the fame as that of Maluah and Cairo. It is equal to 7 drachms 57 grains troy weight.

1 Rotol = 10 Wakeas.
1 Wakea = 10 Drachms.

But there is another wakea used by the merchants called the Atareys.

1 Rotol = 12 Wakeas.
1 Wakea = 12 Drachms.

But this is only used for coarce goods. There is but one long measure in Sennaar, called the Drai, which is the peck, or cubit, and is measured from the centre of the elbow-joint to the point of the middle finger. This is probably the ancient cubit of Egypt, and of the holy scripture.

Bruce’s Travels, vol. iv.

Sennaar, a city of Africa, and capital of the kingdom of the fame name, situated on the W. side of the Nile, and close upon its banks. The ground on which it stands rises just enough to prevent the river from entering the town, even in the height of the inundation, when it comes to be even with the street. Poncet says, that when he was at this city, his companion, father Brevedent, a Jesuit, an able mathematician, on the 21st of March 1699, determined the latitude of Sennaar to be 13° 4' N. The difference therefore will be about half a degree. The reader however may implicitly rely on the situation given by Poncet, being the mean result of above fifty observations, made both night and day, on the most favourable occasions, by a quadrant of three feet radius, and telescopes of two, and sometimes of three feet focal length, both reflectors and refractors made by the best makers.

The town of Sennaar is very populous, there being in it many good houses after the fashion of the country. Poncet says, in his time they were all of one story high; but now the great officers have all houses of two. They have parapet roofs, which is a singular construction; for in other places, within the rains, the roofs are all conical. The houses are all built of clay, with very little straw mixed with it, which sufficiently shews the rains here must be less violent than to the southward, probably from the distance of the mountains. However, when Poncet was there, a week of constant rain happened, and on the 30th of July the Nile increased violently, after loud thunder, and a great darknes to the south. The whole fiream was covered with wrecks of houses, cases, wooden bowls, and platters, living camels and cattle, and several dead ones passed Sennaar, hurried along by the current with great velocity. A hyena, endeavouring to cross before the town, was surrounded and killed by the inhabitants. The water got into the houses that stand upon its banks, and, by rising several feet high, the walls melted, being clay, which occasioned several of them to fall. It seemd, by the floating wreck of houses that appeared in the fiream, to have destroyed a great many villages to the southward towards Fazuo.

It will not be thought surprizing, considering the latitude of Sennaar, that the heats should be excessive. The thermometer rises in the shade to 110°. Nevertheless, from 70° to 78° Fahrenheit’s thermometer, the air is cool; from 79° to 92° temperate; at 92° it begins to be warm. N. lat. 13° 34' 36". E. long. 33° 30' 30". For further particulars relating to this city see the preceding article.

SENNE, a river of France, which enters the Demer, a little below Malines.

Sennecy, Grand. See Senecy.

Senneterat, an island near the W. coast of West Greenland. N. lat. 61° 28'. W. long. 47° 35'.

Sennertus, Daniel, in Biography, an able and learned physician, was born at Bredlaup, in Silefia, on the 25th of November, 1572, where his father was a shoemaker, and died in his childhood. He received his early education in his native city; under the direction of his mother, and was then sent to the university of Wittemberg, in the year 1593, where he exhibited such proofs of acuteness of mind and solidity of judgment, that every opportunity was afforded him, by visiting the other celebrated universities of Germany, especially those of Leipfice, Jenf, Francfort on the Oder, and Berlin, of cultivating his talents. He returned to Wittemberg in 1601, and received the degree of doctor in September of that year, and in the same month of the following year was appointed to a professorship of medicine. In this office his eloquence and knowledge were calculated to raise him to a high reputation, and his luminous method of teaching brought crowds of pupils to his lectures. He also endeavoured, by means of various publications with which he enriched the profession among his contemporaries, to affit him in cultivating the science of medicine. By these means his reputation became so extensive, that patients came to him from all parts of the world, and he refused his affliance to nobody. He took what was offered for his trouble, but demanded nothing, and even returned to the poor what they gave him. The plague prevailed seven times at Wittemberg, while he was professor there; but he never retired, nor was ever known to refuse to visit the poorest sick. George I., elector of Saxony, whom he had cured of a dangerous illness in 1629, appointed him one of his physicians in ordinary; but with the permission to remain at Wittemberg, that the world might continue to derive the benefit of his public instructions. He was three times married, and had seven children by his first wife, three of whom survived him. He was at length carried off by an attack of the plague, which was raging in Wittemberg, in the month of July 1637, in the sixty-fifth year of his age.

Sennertus was a voluminous writer, and has been characterized, by some critics, as a mere compiler from the works of the ancients. It is true that his writings contain an epitome, but, it must be added, a most comprehensive, clear, and judicious epitome, of the learning of the Greeks and Arabs, which renders them, even at this day, of considerable value as books of reference, and which are highly creditable, considering the age in which they were composed, to his learning and discrimination. The freedom, indeed, with which he impugned many of the doctrines of the ancients, called up many opponents, and led him into much controversy. He was the first to introduce the study of chemistry into the university of Wittemberg, and demonstrated his freedom from the shackles of ancient opinion, by combining much of the chemical with the Galenicai doctrines; an union which the mere advocates of antiquity strongly deprecated, as well as the introduction of chemical medicines. His treatise “De Confusio et Difflae Galenicorum et Peripateticorum cum Chymicis,” 1619, may be said to have introduced a new fire into Germany by this union. His various works have been collected together, and published at different times and places, under the title of “Opera omnia;”
but they were principally promulgated by limidure under the following titles: "Quarto Institutionum Medica trium controversiarum Libri:" 1609. "Institutiones Medicae, de Originie am-
serum in Brux.; 1611. "Epitome Scientiarum Natu-
"De Sertorius Prætutus;" 1624. "Practica Medicæ,
Liber prius;" 1628. Five other books of the same work
were successively published. "Practica Medicæ &
Tractatus de Arthritis;" 1641. "Epitome Institutionum
Medicæam disputatuum 18 componib.;" 1651. "Epitome
Init. Med. et Librorum de Fabrius;" 1654. "Hyppomnesta phytica;" 1655; and
at or two small works of his note. Almost all thes
works have passed through many editions and tran-
lations.

Senni, (of sennin and Binit,) a sort of flat, braided
cordage, formed by plaiting five or seven ropes to-
togtl. This is beaten smooth and flat with a hammer,
and forced to keep the ropes to which it is applied
from

Sennor, in Geography, a small island in the Medi-
terranean, near the coast of Naples. N. lat. 41° 3'. E. 110'.

Sena, a river which rises in the N. part of Etruria,
crosses the department of the Amone, in Italy, and runs
into the S. branch of the Po, between Ferrara and the
Adriatic.

Senogu, a town of New Navarre; 270 miles S.E. of
Cata Grande.

Senomaly, a town of Bohemia, in the circle of
Rakotz; 5 miles W.S.W. of Rakonitz.

Senonca, a town of Naples, in Lavora; 43 miles
W. of Cuma.

Senones, a town of France, in the department of
the Eure and Loire, and chief place of a canton, in the
district of Dreux; 9 miles W. of Chateaueneuf. The place
contains 1,856, and the canton 7,541 inhabitants, on a terri-
tory of 205 kilometres, in 12 communes.

Senone, a river of France, which runs into the Meurte,
5 miles S.E. of Nancy.

Senones, a town of France, in the department of
the Vosges, and chief place of a canton, in the district of
St. Die; 9 miles S. W. of Salem. The place contains
1,809, and the canton 10,979 inhabitants, on a territory
of 215 kilometres, in 19 communes.

Senones, in Ancient Geography, a people of Gallia Cel-
tica, who occupied nearly the whole extent of the dioce-
e of Sens and that of Auxerre, according to the ancient divisions
of France. According to Caesar, they were confined to
Begica. This author says of them: "off civitas in primis
firma, et magne apud Gallos authentatia."—Alfo, a people
of Italy, in Gallia Cispadana, upon the borders of the
Adriatic sea. Their arrival in Italy may be fixed in the year
before the vulgar era 397. Having joined a leader named
Aruns, who wished to avenge himself of one of the Leu-
cens in Etruria, they passed the Alps in a numerous body,
and traversed the plains watered by the Po, where other
Galla were already established, and arrived on the other side
of the river, in Umbria, fully occupied by its ancient inha-
britants. They established themselves from the Utis as far
as the Ceis, having the Adriatic sea to the N.E. and the
Apennines to the S.W. After having spent about six years in
forming their establishments, Aruns conducted them to
Clufium, to besiege that place, where his wife and her
relations were. The Romans, whole nation was reduced,
took part with the inhabitants of Clufium, and joined the
troupes of that city. The Senones were indignant, and de-
termend to do themselves justice. Accordingly they marched
towards Rome, and penetrated into the city, in defense of
the army that was opposed to them. The Capitol made
a vigorous resistance; till at length Camillus arrived,
defeated the Senones, and rescued Rome. About 262 years
after this expedition they engaged in a war, and were over-
powered in the year of Rome 465, by M. Cursus Cestinum
and P. Cornelius Rufinus. They were afterward driven
from the whole country which they occupied, from the Alps
to the Rubicon. A colony was sent into their country,
which assumed the name of "Sena Gallia." Seven years
afterwards they were almost entirely exterminated by Della-
becia.

Senople, See Senople.

Senora, in Geography. See Senora.

Sernonca, in Botany, a name by which some authors
have called the banana-tree, or mapp fritti brewer. 

Senosad, in Geography, a town of Bohemia, in the
circle of Cratia; 20 miles S.S.W. of Cratia.

Senosecz, or Senoseich, a town of Carniola; 8
miles S.W. of Cirkinitz.

Senra, Senara, or Serra, in Botany, a genus of
Cavausses, upon which different authors have bestowed
the above appellations. None of these, however, been satis-
factory, for it has been suggested, that Senra would be a
preferable name to any of the foregoing. We are ignorant
Nat. Ord. Malvaceae, Jull.

Gen. Ch. Cal. Perianth double, permanent; outer of
three, heart-shaped, roundish leaves; inner very small,
of one leaf, cloven half way down into five segments. Car.
of five petals, malvaceous, tubular. St. Filaments com-
monly ten, united, placed on the upper superficies of the
tube; anthers kidney-shaped. Pith. Germen ovulate, con-
celed in the tube, surrounded by four membranes, or rather
by a single four-toothed membrane; style simple, five-cleft.
Stigma globose. Peric. Fruit ovulate, downy. Seeds ten,
oblong, kidney-shaped.

Ell. Ch. Calyx double; outer of three leaves; inner
five-toothed. Petals five. Style five-cleft. "Capule
five-celled?" 1. S. angulata. Cavan. Diff. 2. 1. 35. f. 3. Willd.—Na-
tive of Arabia, opposite the Island Socotra. The whole
plant is white with down, whence its specific name. Stem
scarce three inches high, flat, heart-shaped, solitary. Leaves alternate,
filated, heart-shaped, ovate, truncated, terminating with three notchs. Flowers axillary, solitary, nearly fel-
le, probably yellowish.

Described by Cavamines from a dried specimen, which
was communicated to him by Sir Joseph Banks. It appears
to be allied both to Malvaceae and Malvaceae.

Sens, in Geography, a town of France, and principal
place of a district, in the department of the Yonne, situate
on the Yonne. Before the revolution it was the seat of
an abbey, and contained 16 parish churches, and 14 abbeys
and convents. In the reign of Edward III. and Henry V.
Sens was taken by the English; 24 p. As N.N.W. of Dijon.
The place contains 16,500, and the canton 21,847 inhabi-
tants, on a territory of 2574 kilometres, in 23 communes.
N. lat. 45° 12'. E. long. 3° 27'.—Allo, a town of
France, in the department of the Ille et Vilaine; 14
miles N.N.E. of Rennes.—Allo, a town of France, in the
department of the Saône et Loire; 7 miles N.N.E. of
Louvain.

Sensabary, a town of Bengal; 70 miles N. of
Nulbin.
Sensation, a town of Africa, in the kingdom of Fez, near a mountain of the same name; 25 miles S. of Tetuan.

Sensation, in Physiology, a general term denoting the effect produced in the mind by the impressions of external bodies on our organs of sense, by various changes in the internal organs, and by affections of any parts of the body which poises nerves. The appropriate external objects, being presented to the eyes, ears, nose, tongue, or skin, give us the sensations of those parts respectively the organs: hunger and thirst, nausea and sicknese, griping, fainting, agitation, &c. are the results of particular states of internal organs: fatigue is caused by exertion of the muscular system; mechanical or chemical applications to any parts poising nerves cause pains of all kinds and degrees. Thus feeling, hearing, smelling, tasting, and touching; hunger and thirst, sicknese, fainting, &c.; and all the agreeable or disagreeable effects produced by external objects acting on our frame, are so many modes of sensation, so many states of existence, accompanied each with a peculiar feeling or act of consciousness.

In the first place, sensation requires a healthy condition of the external organs of the brain, and of the nerves which pass between the organs and the brain. The absence of either of these conditions destroys sensations: if the optic nerve be divided there is no seeing, although the eye and brain be healthy; if the brain be compressed, the nerve and the eye remaining unaffected; or if the eye be diseased, the nerve and the brain being found, vision is destroyed. The same is the case with the general feeling of the frame; if the nerves of a limb be divided, or the brain be compressed, there is no sensation; a pin might be thrust into the part without being felt. The dependence of the internal feelings on the brain is not so clearly made out in every instance. On the whole, however, physiologists consider it as established, that sensation is the function of the nervous system. On this subject, as well as on the phenomena of sensation exhibited by the brain and nerves, we refer to Brain, Physiology of the, to Life, and Nervous System.

As there are so many different phenomena included under the common term of sensation, what is the point in which they agree? What is the character by which they are all recognized as sensations? It is the feeling excited, the ceaseless analysis of a new mode of existence, the modification which the sentient being experiences. Sensation in short is feeling.

This is the only point in which the various sensations agree; independently of this there is little resemblance, or even analogy between them. Hearing is no more like seeing, and either of these is no more like hunger or thirst, than a muscle is to a nerve or the skin.

Sensations may be reproduced without any external objects, by an active state of the brain; thus in dreams we pass through scenes, and experience feelings, which are not distinguishable from real occurrences.

Sensation, according to Dr. Reid, is a name given by philosophers to an act of mind, which may be distinguishable from all others by this, that it hath no object distinct from the act itself. Pain of every kind is an uneasy sensation. The pain and the feeling, he says, are one and the same thing, and cannot be disjoined even in imagination. Pain, when it is not felt, has no existence. The same observation may be applied to every other sensation. This author adds, that when we have acquired a distinct notion of that simple act of the mind called sensation, we shall be able the more easily to distinguish it from every external object that accompanies it, and from every other act of the mind that may be conjoined with it. Hence it is of importance, that the name of sensation should, in philosophical writings, be appropriated to signify this simple act of the mind, without including any thing more in its significance, or being applied to other purposes. The word feeling, which signifies the perceptions we have of external objects by the sense of touch, is also used to denote the same thing as sensation; in which sense it has no object, the feeling and the thing felt being one and the same. He acknowledges, however, that between, being taken in this last sense, and sensation, there may be this small difference; that sensation is more commonly used to signify those feelings which result from our external senses and bodily appetites, and all our bodily pains and pleasures. But there are feelings of a nobler nature, accompanying our sensations, our moral judgments, and our determinations in matters of taste, to which the word sensation is less properly applied.

Dr. Reid, in another place, observes, that almost all our sensations have corresponding sensations, which constantly accompany them, and, on that account, are very apt to be confounded with them. Hence the names of most of our sensations become ambiguous, and this ambiguity hath very much perplexed philosophers. He alleges several facts that serve to illustrate and evince this ambiguity, in reference to the names we have for smells, tastes, sounds, and for the various degrees of heat and cold, which names denote both a sensation, and a quality perceived by means of that sensation. The caufe is the fame with respect to many operations of mind to which we give one name, and which we always consider as one thing; and yet they are complex in their nature, and made up of several more simple ingredients; of which ingredients sensation very often reckons one. Indeed, the number of our sensations and feelings is prodigious; and the most general and important division of them is into the agreeable, the disagreeable, and the indifferent.

The preceding remarks serve to evince the importance of distinguishing carefully between our sensations and that perception of external objects which is constantly conjured with them. Sensation, says this author, taken by itself, implies neither the conception nor belief of any external object. It supposes a sentient being, and a certain manner in which that being is affected, but it supposes no more. But perception, in his view of it, implies an immediate conviction and belief of something external; something different both from the mind that perceives and from the act of perception. Things so different in their nature ought to be distinguished; but by our constitution they are always united. Every different perception is conjured with a sensation, that is proper to it. The one is the sign, the other the thing signified. They coalesce in our imagination; they are united by one name, and are considered as one simple operation. To the philosopher it belongs to distinguish between them.

Our author elsewhere observes, that when certain impressions are made upon our organs, nerves, and brain, certain corresponding sensations are felt, and certain objects are both conceived and believed to exist. But we can neither discover the cause of any one of these operations, nor any necessary connection of one with another.

On the subject of this article, in its connection with metaphysics, or the philosophy of the human mind, we refer to Idea, Perception, Mental Philosophy, Vibration, and other terms of a similar import, or in any degree connected with them, occurring in various parts of the Cyclopaedia.

SENSBURG, in Geography, a town of Prussia, in the province of Bartenland; 14 miles S. of Ratenburg. N. lat. 53° 44'. E. long. 21° 23'.

SENSE. Senses, in Physiology and Anatomy, the organs
by which we become acquainted with surrounding objects, by which external bodies impress our frame, so as to communicate to us a knowledge of their properties. They are in number, viz. the eyes, ears, nose, tongue, and fingers, for the natural and physiological account of what we refer to those articles. There are often called the external sense; while the internal organs, the parts of the brain which are concerned in knowing and reflecting, have sometimes been called the internal sense. See Mental Philosophy.

Dr. Hutcheson gives us a more extensive and philosophical notion of sense. On his principle, sense is defined, a power of perception, or a power of perceiving ideas; at least if what is absolutely passive may be properly called a power.

On some occasions, instead of power, he chooses to call it a determination of the mind to receive ideas; and the ideas thus perceived, or received in the mind, he calls sensations.

Sense, he considers, either as natural or moral; and the natural, either as external or internal; though the distribution is chiefly founded on the common ways of conceiving; for, in reality, they appear to be all natural and necessary. Some restrict, however, for the distinction, will be shewn under the several articles of it.

External senses, then, are powers of perceiving ideas, upon the presence of external objects. On such occasions, we find the mind is merely passive, and has not power directly to prevent the perception, or idea, or to vary it at its reception; so long as the body is continued in a state fit to be acted upon by the external object.

When two perceptions are entirely different from each other, or agree in nothing but the general idea of sensation, the powers of receiving those different perceptions are called different senses. Thus, seeing and hearing denote the different powers of receiving: as ideas of colours and sounds. And though colours, as well as sounds, have vast differences among themselves; yet is there a greater agreement among the most opposite colours, than between any colour and a sound; and hence all colours are deemed perceptions of the same sense.

All the several senses seem to have their distinct organs, except feeling, which is, in some degree, diffused over the whole body. Inquiry into the Original of our Ideas of Beauty and Virtue, p. 2. Svo. 1726.

In another place, the same writer defines the external senses to be those determinations of nature, by which certain perceptions constantly arise in the mind, when certain impressions are made upon the organs of the body, or motions raised in them. Some of these perceptions are received solely by one sense; others may be received by two or more. Of the former class are these five sorts: viz. colours, sounds, tastes, smells, cold, or heat. Some ingenious authors reckon more: these we may call the proper ideas of sensation. System of Moral Philosophy, vol. i. p. 4.

Internal senses are powers or determinations of the mind to be pleased with certain forms and ideas, which occur to our observation, in objects perceived by the external senses. Of these there are two different species, distinguished by the different objects of pleasure, viz. pleasurable or beautiful forms of natural things, and pleasurable or beautiful actions, or characters of rational agents: whence the internal senses become divisible into natural and moral; though what others call the internal natural sense, our author calls simply, and by way of eminence, the internal sense.

In reflecting on our external senses, we plainly see, that our perceptions of pleasure and pain do not depend directly on our will. Objects do not please us, according as we incline this should the pleasure of some objects necessarily please us; nor can we by will will our own pleasure, or avoid pain, thereby growing another kind of pain, and avoiding the latter. But in every state of nature, the mind is made the occasion of delight, and the other of discomfort. In effect, our internal perceptions are pleasant, and painful, immediately, without any knowledge of the cause of this pleasure and pain, or of the cause of how they excite it, or are occasions of it, or without any bias to what further advantage, or detriment, the act of these objects might tend. Nor would the mind accurately know the cause of these things, if not the pleasure or pain of the perception: hence the mind, in understanding what is pleasant, plain, or painful, in the common prospect of anticipated advantage or satisfaction, the natural objects, or the natural laws, by which the mind is made the cause of its own pleasure and pain. Thus we shall find our senses pleased with a regular form, a piece of architecture, or painting, a composition of names, a theorem, an action, an affection, a character; and we are conscious, that this pleasure naturally arises from the contemplation of the idea then present to the mind, with all its circumstances, though some of those ideas have nothing of what we call sensible perception in them; and in those which have, the pleasure arises from some uniformity, order, arrangement, and imitation; and not from the simple ideas of colour, or sound, or mode of extension, separately considered.

It seems hence to follow, that when instruction, education, or prejudice of any kind, raise any desire or aversion towards an object; this desire, or aversion, is founded on an opinion of some perfection, or deficiency, in those qualities, for perception of which we have the proper senses. Thus, if beauty be defined by one who has not the sense of sight; the desire must be raised by some apprehended regularity of figure, sweetness of voice, smoothness, softness, or some other quality, perceptible by the other senses, without relation to the idea of colour.

The only pleasure of sense, which our philosophers seem to consider, is that which accompanies the simple ideas of sensation; but there are vastly greater pleasures in those complex ideas of objects, which obtain the names of beautiful and harmonious. The power, then, by which we receive ideas of beauty and harmony, has all the characters of a sense. It is no matter, whether we call these ideas of beauty and harmony, perceptions of the external senses of seeing and hearing, or not: we should rather choose to call these ideas an internal sense, were it only for the convenience of distinguishing them from other sensations of seeing and hearing, which men may have without perception of beauty and harmony. Hutcheson's Inquiry, &c. Preface, and p. 3. &c.

For the general manner in which our senses act, or more properly, the manner in which we become sensible, that is, perceive external objects, see Sensation.

For the particular senses, or, more properly, the particular manner in which we become sensible, by the particular organs of sense, see Hearing, Seeing, Smelling, &c.

For the several organs of sense, ministering to the several manners of sensation, see Eye, Ear, Nose, &c.

Pliny observes, that of all the senses, seeing and tasting are those which men enjoy in the greatest perfection. As to seeing, he says, he is excited by the eagle, &c.; as to smelling, by the vulture, &c.; and as to hearing, by the mole, even when hid under ground.
The fenfes have been sometimes found greatly sharpened and improved by dileances. Mr. Boyle mentions a gentleman, who, during a diſtemper he had in his eyes, had his organs of flight brought to be fo fenſible, that when he walked in the night, he could, for a while, plainly fee and diftinguifh colours, and other objects; and the fame author gives an inſtance of another perfon, who, after getting halffuddled with claret, if he walked in the night, could fee for fome time to read a moderate print.

Grimaldi tells us, that fome women of Megara were able by their eyes alone to diftinguiffh between eggs laid by black hens, and thofe by white ones. Grimaldi de Lum. & Col.

In the Philofophical Transaflions, No. 312, we have an account of Dan. Fräifor, who continued deaf and dumb from his birth to the feventeenth year of his age: when, upon recovering from a fever, he perceived an uneasy motion in his brain, after which he began to hear, and by degrees to fpeak.

Dr. Reid, in his second Effay, fuggels a variety of methods, by which our fenfes may be improved, as they give us information of things that concern us. Our original powers of perceiving objects by our fenfes admit of great improvement by ufe and habit; but, befides, there are various ways in which our fenfes may be improved, or their defects remedied by art; as by a due care of the organs of fenfe, that they be in a found and natural state; by accurate attention to the objects of fenfe; by additional organs or instruments contrived by art; and by discovering the connection which nature has efablifhed between the fenſible qualities of objects, and their more latent qualities.

Dr. Reid fuggels, that the fallacy of the fenfes has been a common complaint among philofophers, both ancient and modern; and this, he thinks, is founded on a common error, to which another has been added, that our ufe of reafon is to detect the fallacies of fenfe. In his opinion, there is no more reafon to account our fenfes fallacious, than our reafon, our memory, or any other faculty of judging which nature hath given us. They are all limited and imperfect, but widely suited to the prefent condition of man. We are liable to error and wrong judgment in the ufe of them all, but as little in the information of fenfe as in the deductions of reafoning; and the errors we fall into, with regard to objects of fenfe, are not corrected by reafon, but by more accurate attention to the information we may receive by our fenfes themselves.

Sence, Moral, is a determination of the mind to be pleaded with the contemplation of thofe affections, actions, or characters, of rational agents, which we call good or virtuous.

This moral fenfe of beauty in actions and affections, may appear ftrange at first view; fome of our moralifts themfelves are offended at it in Lord Shaftesbury, as being accufomed to deduce every approbation, or averfion, from rational views of interefl. Our gentlemen of good tale can tell us of a great many fenfes, tastes, and relifts for beauty, harmony, imitation in painting and poetry; and may we not find, too, in mankind a relift for a beauty in characters, in manners? The truth is, human nature does not feem to have been left quite indifferent in the affair of virtue, to form to itself observations concerning the advantage or disadvantage of actions, and accordingly to regulate its conduct. The weaknefs of our reafon, and the avocations arifing from the infirmities and necneffities of our nature, are fo great, that very few of mankind could have framed thofe long deductions of reafon, which may have fome actions to be, in the whole, advantageous, and their contrary pernicious.

The Author of nature has much better furnifhed us for a virtuous conduct than our moralifts feem to imagine; by almoft as quick and powerful instructions, as we have for the prefervation of our bodies; he has made virtue a lovely form, to excite our purfuit of it; and has given us frong affections, to be the fprings of each virtuous action. Hutcheon's Inquiry, &c. ubi fupra. Eflay on the Nature and Conduct of the Passions, p. 5. &c. See Mental and Moral Philosophy, and after Virtue.

Sence, Common, is a term that has been variously ufed both by ancient and modern writers. With fome it has been fynonymous with public fenfe; with others it has denoted prudence; in certain infirmities it has been confuned with fome of the powers of falt; and, accordingly, thofe who commit egregious blunders with regard to decorum, faying and doing what is offensive to their company, and inconfident with their own character, have been charged with a defect in common fenfe. Some men are diftinguifhed by an uncommon acutenefs in difcovering the characters of others; and this talent has been fometimes called common fenfe: fimilar to that which is ufe of the term, which makes it to fignify that experience and knowledge of life which is ac- quired by living in fociety. Hor. lib. i. fat. 5. lin. 66. To this meaning Quintilian refers, fpeaking of the advantages of a public education: "Senfund ipsum qui communis dictur, ubi defcit, cum fe a congregi, qui non hominibus femus, fed mutis quoque anamibus eali, regarum?" Lib. i. cap. 1.

Dr. Reid observes, in his 6th Effay, "of Common Senfe," that, in common language, fenfe always implies judgment, nor is the popular meaning of the word fenfe peculiar to the English language: the correffponding words in Greek, Latin, and probably in all the European languages, have the fame latitude. The Latin words fenfe, fenfatus, fenfas, fenfas, from the last of which the English word fenfe is borrowed, exprès judgment or opinion, and are applied in diftinctly to objects of external fenfe, of taste, of morals, and of underftanding.

This is the meaning which Mr. Pope has given to it; and in his epiftle to the earl of Burlington he has thus defcribed upon it:

"Off have you hinted to your brother peer, 
A certain truth, which many buy too dear;
Something there is more needful than expence,
And something previous even to taste — 'tis Senfe.

Good fenfe, which only is the gift of Heaven;
And though no science, fairly worth the feven:
A light, which in yourself you must perceive,
Jones and Le Notre have it not to give."

Having fhewn that fenfe, in its moft common, and therefore moft proper meaning, signifies judgment, our author infers that common fenfe should mean common judgment; as it really does.

Lord Shaftesbury has given to one of his treatifes the title of "Senfas Communis," and he has introduced fome criticism upon this word in Juvenal, Horace, and Seneca: after fhowing in his faceitious manner, that the fundamental principles of morals, of politics, of criticism, and of every branch of knowledge, are the dictares of common fenfe, he fums up the whole in these words: "that fome moral and philosophical truths are fo evident in themselves, that it would
SxKE.

would be eafe to imagine half mankind run mad, and joined
precisely in the fame species of folly, than to admit any
thing as truth, which should be advanced against fuch natural
knowledge, ufual notions, and common fense; and on taking
leave he adds; "and now, my friend, should you
find I had moralized in any tolerable manner, according to
common fense, and without coolnefs, I fhall be fatisfied with
my performance." After citing other numerous testimonies
in vindication of common fense, as a principle of knowledge,
our author concludes with obferving, that it is abfurd to
conceive that there can be any opposition between reason
and common fense. To reason we affign two officers, or
two degrees. The firft is to judge of things fendent; evident;
the second to draw conclufions that are not fendent from
thofe that are: the firft of thefe is the province, and the
fcale province, of common fense; and therefore it comedies
with reason in its whole extent, and is only another name for
one branch or degree of reason. The firft is purely the gift
of heaven; the leccond is learned by practice and rules, when
the fird is not wanting.

Our author further obferves, that the province of com-
mom fensc is more extensive in refutation than in confirmation.
A conclufion drawn by a train of fendent reafoning from true
principles, cannot poffibly contradict any dellion of common
fense, becaufe truth will always be confident with itfelf.
Neither can fuch a conclufion receive any confirmation from
common fense, becaufe it is not within its jurifdiction.
But it is poffible that, by fetting out from fende fentences, or by
an error in reafoning, a man may be led to a conclufion that
contradicts thedecisions of common fense. In this cafe, the
conclusion is within the jurifdiction of common fense, though
the reafoning on which it was grounded be not; and a man
of common fense may fairly reject the conclufion, without
being able to fhew the error of the reafoning that led to it.

After these preliminary remarks, we obferve that the term
common fense hath in modern times been used to dignify
that power of the mind which receives truth, or com-
mmd notions, not by progreflive argumentation, but by
an infiantaneous, infinite, or infolvable impulfes; derived
rather from education nor from habit, but from nature;
acting independently of our will, whenever its object is pre-
ferred, according to an efablifhed law, and, therefore,
called fende; and acting in a fimilar manner upon all, or at
leaff upon a great majority of mankind, and, therefore,
called common fense. The firft among the moderns who took
notice of this principle as one of the fprings of our knowl-
ledge, was Buffier, a French philofopher of the laft cen-
tury, in a book entitled "Traité des Premières Vertus;" and
this doctrine hath lately, in our own country, been illu-
minated and maintained by Drs. Reid, Beattie, Osvald, and
Campbell.

In order to evince that there is a real and effential dif-
ference between this faculty and that of reafon, it is ob-
ferved, that we are conscious, from internal feeling, that the
energy of understanding, which perceives intuitive truth,
is different from that other energy which unites a conclufion
with a fendent principle, by a gradual chain of intermediate
relations; that we cannot difcern any necefsary connectionetwcen reafon and common fense; that the one is more in
our power than the other; the faculty of reafoning being
improveable by cultute, whereas common fense, like other
infincts, arrifes at maturity with almighty and care of ours,
and it is impossible to teach common fense to one who wants
it; though this, like other infincts, may lengthen for want of
exercise; and that a distinction, fimilar to that which is
here maintained, is acknowledged by the vulgar, who speak
of mother-wit as something different from the deductions of
reason, and the refinements of fcienee. All things taken
into account, it is laid, all ultimately rest on the principles of
common fense, that is, on principles intuitively evident, or
ftoutly probable; and, consequently, common fense is the true
judge of truth, to which reason must continually be
in subordination. This is the doctrine for this faculty, an
original and infiuent power of the human mind, alien
to every extenfive enquirer, and authority that adapts itself
and absolute. And they have proceeded to far as to hiftc the
in the room of Mr. Locke's abstraction, this facility as
characterized as infallibility. To them they refer all the
axioms of mathematical truth, of external and internal fense,
memory, of reafoning from the effect to the cause, or probable
or experinental reafoning, of analogical reafoning, of
faith infalibility, and, indeed, of all primary truths. To
common fense, therefore, all truth must be conformable:
this, they fay, is its fixed and invariable standard. And
whatever contradicts common fense, or is inconsistent with
this standard, though supported by arguments that are
deemed unanswerable, and by names that are celebrated by
all the critics, academicians, and philosophers on earth, is not
true, but falfehood. In a word, the dictates of common
fense arc, in respect to human knowledge in general, what
the axioms of geometry are in respect to mathematics:
on the fupposition that these axioms are falfe or dubious, all
mathematical reafoning falls to the ground; and on the
fupposition that the dictates of common fense are erroneous
or deceitful, all truth, virtue, and science, are vain.

And hence it appears, that, according to this fystem, common
fense is not only the tell of truth, but the standard of moral
obligation.

Dr. Priefley, in his attack upon this fystem, has charged
the abettors of it with an unceafing innovation in the re-
ceived ufe of a term; as no perfon ever denied that there are
fendent truths, and that these must be allowed as the
foundation of all reafoning. But they also recommend par-
ticular poflitions as axioms, not as being founded on the
perception of the agreement or disagreement of any ideas,
which is the great doctrine of Mr. Locke, and which makes
truth to depend upon the neceffary nature of things, to be
absolute, unchangeable, and everlasting; but merely fome
unaccountable infidtive perceptions, depending upon the
arbitrary constitution of our nature, which makes all truth
to be a thing that is relative to ourselves only, and confe-
quently to be infinitely vague and precarious. This fystem,
he fays, admits of no appeal to reafon, properly confidered,
which any perfon might be at liberty to examine and difcufl;
but, on the contrary, every man is taught to think himfelf
authorized to pronounce decisively upon every question,
according to his prefent felling and perfonation; under the
notion of its being something original, infidtive, ultimate,
and incontrovertible, though, if strictly afcalified, it might
appear to be a mere prejudice, the offspring of infalce.
Some of the axioms which they have adopted as fendent
truths, and which they have multiplied without neceflity,
are fo far from being fendent, that, in the judgment of
many fober and candid enquirers after truth, they are not
tru, but capable of a ficaticy refutation.

At the fame time, fince no man can pretend to any natural
right to fix the principles of truth and another, they teach un-
believers, and by their example authorize them, to reject the
principles of religion by the fame human and infidtive
powers, as what appear to them to be, at first fight,
too absurd, and ridiculous to be admitted as true and divine.

Dr. Priefley apprehends, that the inconfistencies above-
mentioned, may attend even the calling of that faculty by
which we difcern truth by the name of fense. By this term,
philofophers
philosophers in general have denominated those faculties, in consequence of which we are liable to feelings relatively to ourselves only, and from which they have not pretended to draw any conclusions concerning the nature of things; whereas truth is a thing not relative, but absolute and real, independent of any relation to this or that particular being, or this or that order of beings. Besides, if the determinations of this new principle of common sense be so instantaneous, irresistible, and infallible, as Dr. Reid, Dr. Beattie, and Dr. Oswald represent, how can we account for all the error there is in the world? Not to add, that this system, in its practical influence, tends to prevent the exercise of free and unrestricted enquiry, with regard to truth or duty, and to confine it, in many cases, the extravagancies of credulity, enthusiasm, and mysticism. Dr. Priestley also observes, that Dr. Price (in his Review of the Principal Questions and Difficulties in Morals, 8vo.) though unnoticed by the writers above cited, by maintaining that the understanding is the source of many of our most important simple ideas (see Idea), has secured all the flattering advantages of the new doctrine of common sense, without the capital inconveniences attending it. Like this system, his scheme cuts off, if it be admitted, all objections to primary moral truths, refting them on a simple appeal to the faculty of intuition; and refusing to reason upon a subject, which is maintained to be as evident as the truth of the geometrical axiom, that if equal things be taken from equal things, the remainders will be equal.

If the ideas of moral right and wrong, &c. be perceived by a sense, it depends upon our arbitrary constitution, that we conceive of them as we do, or whether we perceive them at all; and we have no method whatever of investigating, whether they have any foundation in the absolute nature of things; whereas by making moral ideas the object of the understanding as such, the principles of morality become part of this system of necessity, eternal, and unalterable truth, perceived by the divine Being as by ourselves, but altogether independent of his will, as well as of all other beings and things whatsoever; as much so as the truth of the axiom above-mentioned, or of the proposition, that two and two make four.

It is added, that these writers seem even to have borrowed their language, as well as their ideas, from Dr. Price, who also uses the term common sense, though applied in a different manner. Reid's Enquiry into the Human Mind on the Principles of Common Sense, 8vo. ed. 2. 1765, Reid's Essays, above cited. Beattie's Essay on the Nature and Immutability of Truth, 8vo. ed. 2. 1771. Oswald's Appeal to Common Sense in behalf of Religion, 8vo. ed. 2. 1768. Campbell's Philosophy of Rhetoric, 8vo. 1776, vol. i. p. 169, &c. Priestley's Examination of Reid, Beattie, and Oswald, 8vo. 1774. For a farther account of this system, see ABSTRACTION and IDEA.

SENSE, in Geography. See SENSE.

SENSIBILITY, in Physiology, the power of receiving an impression, and transmitting it to the brain, so as to cause sensation or feeling. The question whether any part be sensible is, therefore, whether by acting on it in any way, feeling can be excited. Sensibility in this, its common acceptation, obviously refers to the internal feeling or act of consciousness resulting from its exercise. Some physiologists have used the word in a more extensive sense, to denote all impressions produced on our organs, even those which are not felt; as that of the blood on the heart, the food on the alimentary canal, &c. They call the former animal sensibility, because it is peculiar to living beings; and they distinguish the latter by the name organic, as it belongs to those parts where motions are involuntary, and which constitute the automatic or organic life. See Life.

Rousseau has given the word sensibility a place among French medical terms. The soul of the composer should furnish ideas, the performer should be gifted with feeling in its expression, and the audience should be capable of being impressed with the beauties and defects of the music which is executed for their amusement.

SENSIBLE Horizon, Point, and Qualities. See the sublunaries.

SENSIBLE Note. See NOTE, Sensible.

SENSIBLE Fluid. Some have imagined a sensible fluid to be the principle that preserves animals from corruption, and to which we owe our sensation and motion. This animal fluid pales in the proper nervous tubes to the organs of motion; but is contained in the fibrous coats of the nerves to become an organ of sensation. This sensible fluid is, according to M. Le Cat, capable of thinking, and is so modified by the ganglions, that what is lodged in each part, is capable of being impressed by the object proper to each organ. And from the doctrine concerning this animal fluid, he endeavours to account for most operations, which are generally said to depend on the soul. (Med. Eth. Edinb. Abbr. vol. ii. p. 481.) But all these attempts to account for sensation and thought, from the properties of matter, seem to be very desperate undertakings, not to say absurd.

SENSIBLE Plant, in Botany. See Mimosa.

The sensible plant is sufficiently known to the world for its remarkable property of reeding from the touch, and giving signs, as it were, of animal life. Philosophers in general have, however, contented themselves with admiring the fact, without giving themselves any trouble about the cause. See Leaf.

Mr. Hook, indeed, has made some conjectures about it; but the greatest light that has been given into the thing, is from the inquiries which Mellers. Du Fay and Du Hamel, gentlemen of the Academy of Sciences at Paris, concerted together, and afterwards made separately on different flinches, or at different times, that each might be able to correct the errors of the other.

Botanic writers mention many kinds of sensible plants, some of which contract at a touch, others with heat, others with cold. The truth is, many, if not most, vegetables expand their flowers, down, &c. in warm fine-dry weather, and again close them towards evening, or in rain, &c. especially at the beginning of flowering, or after the flowers are fallen, whilst the seed is yet young and tender; as is very evident in the down of dandelion, &c. and in the flower of the pimpernel, the opening and shutting of which are the countryman's weather-wiser; by which, Gerard says, he foretells what weather shall follow the next day; for if the flowers be close shut up, it betokens rain and foul weather; if they be spread abroad, fair weather.

The structure of the sensible plant is this; from the large flents, or main branches of the whole, there part off several other lesser ones, and from these there go off others still lesser, which, by way of distinction, may be called the ribs of the leaves, as they serve to support a number of leaves arranged on each side, and standing on short pedicles in pairs, over against one another. Several other plants have this fort of compound leaves, as the coffee, culottes, and the like; and all these shut their leaves together at night, and open them again in the morning, in the same manner as the sensible plant does. This periodical opening and shutting of the leaves are therefore common to many plants, not peculiar to the sensible plant; but the wonder in this is, that before having this motion periodical and regular, it is to be brought on.
at other times, and by accidents, some requiring no more
time than such. If the plant is cut, it forms, as usual, the
inner surface of a tube which is made smooth or bright.
A close observation of the motions in which this is per-
formed, will give many hints towards the making of its cause.

It was a very difficult thing to touch the leaf of a vigorous
tentative plant to lightly, as not to make it drip: its foliage
is extremely delicate, and its larger or smaller, which arise
along its middle, is as a worm's tongue, on which the two
halves of the leaf move when they turn upon being touched,
till they flatten erect, and by that means meet one another.

The slightest touch imaginable gives this motion to the
side of the leaf which is touched, which is communicated
immediately to the other side, or half, and they move to-gether; and if the touch has been a very little rougher, the
opposite leaf on the same rib receives the impression, and
exhibits in the same manner with that which was actually

Nur in all this, for when the two sides of each of their
leaves move upwards, the pedicle of each half moves up-
wards at the same time, and by this means they, in some
manner, approach towards each other, and make the angle
of their pedicles with the main rib, or flaky, of the composite
leaf, less than before; and the total motion of each leaf is
compos'd of these two motions.

If the touch be still rougher, the whole arrangement of
leaves on the same rib feels its influence on each side, and all
close in the same manner with the single pair in the preceding
example; and if the touch be yet stronger than this, the rib
itself feels it, and attempts to close in its way; moving itself
upwards towards the branch from which it is produced, just
as the single pedicles of the leaves did towards it; and if the
touch be yet more hard and rough, the very branches have
the sensation propagated to them, and apply themselves to
the main branch, or trunk of the shrub, as the simple leaves
did before to their rib, and that rib to the branch; so that
the whole plant in this state forms itself from a very compexly
branched figure, into a sort of straight cylindrical one. That
motion which has, of all others, the greatest effect upon this
plant, is a shaking one.

These motions of the plant are performed by means
of three distinct and sensible articulations; the first that of
the single leaf to its pedicle, the second that of the pedicle
to its branch, the third that of the branch to the trunk. The
primary motion of all which, is the closing of the two halves
of the leaf upon their rib, which ought also to be performed
in a similar manner, and by a similar articulation; thus,
however, is much less visible than the other.

These motions are wholly independent of one another, as
may be proved by experiment. It should appear, that if the
stalks are moved, and collapse towards the branches, or
towards the trunk, the leaves whole motion is usually primary to these, should be affected also; yet expe-
iment proves, that it is possible to touch the branches in
such a manner, as to affect them only, and make them apply
themselves to the trunk, while the leaves feel nothing of the
touch; but this cannot be, unless the branches are so dis-
persed, that as they can fall to the trunk without suffering
their leaves to touch any other part of the plant in their
path, because, if they do, they immediately become affected.

Winds and heavy rains cause the sensitive plants to shut
up their leaves, while each flower doth not at all affect them;
it is plain, hence, that the agitation of the plant by the wind,
and the strokes given by the large and heavy drops of rain,
are what cause the contraction.

By whatever means the leaf is made to close its
leaves, it always, in the same manner. For, however,
cut or leafed the plant is, its movements are, as I have
noticed, the same, and in all cases, the leaf is shut up half
an hour; and the manner in which it is shut up, at the
same time, fer hours over the same period. This, and
then several other instances, which I don't think worth
mentioning, proves, that the motion of the plant, the
proposition above stated, have occurred, that these are
performed by means of a sort of very small, and long
filaments, which communicate one with another by means of
minute and slender cords, which are sufficiently strong to
be seen when the plants are sufficiently detached, and the cord
broken; and what gives this theory probability to this
conjecture is, that the delayed and dilly leaves of the plant
perform this motion in a very regular and vigorous manner,
which is true and full of juice.

It seems plain, that while the juice is evaporating, and
the parenchymatous infusion of the leaves drying up, there
are more solid parts, the bones and organs, retain their figure;
and, consequently, if it be by means of these that the motion
is always performed, it will be as well performed in these
as in the fresher leaves, which could not be the case were it
owing to the juices.

The natural opening and shutting of the leaves of the
plant at night and morning, are not so fixed but that they are
variable also, according to circumstances of place, temper-

ture, &c.

In the month of August, a sensitive plant was carried in
a pot out of its usual place into a dark cave, the motion that
it received in the carriage shut up its leaves, and they did not
open till twenty-four hours afterwards; at this time they
became moderately open, but were afterwards subject to no
changes at night or morning, but remained three days and
nights with their leaves in the same moderately open state.

At the end of this time they were brought out again in the
air, and then recovered their natural periodical motions, shut-
ting every night and opening every morning, as naturally
and as strongly, as if it had not been in this forced state;
and while in the cave, it was observed to be very little left
affected with the touch than when abroad in the open air.

Repeated experiments have proved, by these philosophers,
that it is not the light of the day that opens the leaves of
this plant, nor the darknesse of the night that closes them; neither
is it the alternate warmth of the day and cold of the night,
that have this effect, since it fluxes in nights which are much
warmer than the days often are in which it opens; and the
increasing the heat of the place in which it is kept, and mark-
ing the increase or decrease on the thermometer, have been
found to have not the leaf effect, as to its sooner or later
opening or shutting its leaves.

The most probable conjecture seems, that it is not great
heat, or great cold, such as it can bear, that bring on
this effect, but the sudden change from one to the other, and
this is confirmed by this experiment, that if one of these
plants be raised under a glass bell, or cage, in a bottle or
covering be taken off, it immediately closes, even though it
be in the middle of the day; and this is also observed, that
the more open or exposed the plant stands, the more strong
and lively are its shutting and opening; and that they are
most observable in summer, and much less so when it is kept
in a close house in winter.

The great heats of summer, when there is open sunshine
at noon, affect the plant in some degree like cold, causing it to
flint up its leaves a little, but never in any very great degree.

The plant, however, is leaf of all affected about nine o'clock in the morning, and that is consequent upon the proper time to make experiments on it. A branch of the sensitive plant cut off, and laid by, retains yet its property of fluting up and opening in the morning for some days; and it holds it longer if kept with one end in water than if left to dry more suddenly.

The leaves only of the sensitive plant shut up in the night, not the branches; and if it be touched at this time, the branches are affected in the same manner as in the day, shutting up, or approaching to the stalk or trunk, in the same manner, and often with more force. It is of no consequence what the substance is with which the plant is touched, it answers alike to all; but there may be observed a little spot, distinguishable by its paler colour in the articulations of its leaves, where the greatest and nicest sensibility is evidently placed.

The sensitive plant plunged into water immediately cloths its leaves, which is partly owing to the touch, partly to the coldness of the water; afterwards the leaves expand again, and if they are then touched, close again as before, as if in the open air, only that they do it with less force.

If the end of one of the leaves be burning with the flame of a candle, or by a burning glass, or touching it with hot iron, it closes up in a moment, and the opposite leaf does the same, and after that the whole series of leaves on each of the ribs, then the rib itself, the branch, all do the same, if the burning has been in a sufficient degree. This proves that there is a very nice communication between all the parts of the plant, by means of which the burning, which only is applied to the extremity of one leaf, diffuses its influence through every part of the shrub.

If a drop of aqua fortis be carefully laid upon a leaf of the sensitive plant, so as not to shake it in the leaf, the leaf does not begin to move till the acid liquor corrodes the substance of it; but at that time, not only that particular leaf, but all the leaves placed on the same rib, close themselves up. The vapour of burning sulphur has also this effect upon many leaves at once, according as they are more or less exposed to it; but a bottle of very acrid and sulphureous spirit of vitriol, placed under the branches untopped, produces no such effect.

The wetting of the leaves with spirit of wine has been observed also to have no effect, nor the rubbing oil of almonds over them; though this latter application destroys many plants.

A branch of the plant was cut away longitudinally, till only a third part of the substance remained, yet it communicated the effects of the touch, in the same manner as before, to those branches which arose lower on the shrub. The transpiration of the plant being retarded, is of no effect as to its periodical opening and closing; for one kept under a close glass bell fluts and opens as regularly night and morning, as when it stands in an open green-houle. A branch of it put into the exhausted receiver of an air-pump, is found to have its force of opening and closing up much impared, but not wholly taken off. Mém. de l’Acad. des Scienc. Par. 1756.

Dr. Hill, notwithstanding the experiments and observations above recited, confiders the phenomenon of the sensitive plant as the effect of light, and in an express dissertation on this subject, endeavors to account for it from this principle; ascribing that other phenomenon, which is called the sleep of plants, to the absence of light. Hill’s Sleep of Plants, and the Caufe of Motion in the Sensitive Plant explained, 12mo.

Mr. Ellis has described a sensitive plant, which is a nature of the swamps in North Carolina, called Iiona muhipura, or Pept’s fly-trap, (see DIONEA,) and which, from his account of it, appears to be the most animated of the whole sensitive tribe of vegetables. Its sensibility exists in its leaves, each of which exhibits, in miniature, the figure of a rat-trap with teeth cloven on every fly or other insect that is tempted to take the sweet liquor which is supposed to be secreted in certain minute red glands that cover its inner surface; but before it has had time to take it, the lobes of the leaves rise up, and incline and grasp the invader, and he is then deprived of his life by the action of three small erect spines, fixed near the middle of each lobe; nor do the leaves open again, while the dead animal continues there. The same effect is produced by a straw or pin.

Mr. Ellis conjectures, that in the construction and motive powers of this plant, nature may have had some view to its nourishment, by forming the upper joint of each leaf like a machine to catch food, and by having laid a bait upon the middle of it, to entice the unhappy insect that becomes its prey. But, perhaps, it may be equally probable, that nature has armed and animated this plant for the preservation of its juices against the depredation of insects. Ellis’s Directions for bringing over Seeds and Plants, &c. 1779.

Sensitive Plant, Bellard. See ESCHYNOME. Sensitive Power. See Mental Philosophy.

Sensitive or Sensitive foul, the soul of brutes, or that which man is supposed to have in common with brutes. See BRUTE.

It is thus called, either as intimating its utmost faculty to be that of sensation; or, perhaps, because it is supposed to be material, and to come under our senses.

Lord Bacon afferts, that the sensitive or brute soul is plainly no more than a corporeal substance, attenuated by heat, and thus rendered indivisible; or a kind of aura or vapour, partly of an aerial, and partly of a fiery nature, endowed with the softness of air, to be fit to receive impressions, and with the vigour of fire to communicate its action; fed partly with oily matters, and partly with aqueous ones included in the body, and, in the more perfect animals, principally in the head, moving along the nerves, and restored and repaired by the spirituous blood of the arteries. Bac. de Augment. Scient. lib. v. See Life.

SENSKOWA, in Geography, a town of Pruffia, in the palatinate of Cuilm; 15 miles N.E. of Thorn.

SENSORIUM, in Physiology, the part which feels and perceives, the common centre, to which sensations are conveyed, and from which volition emanates; in other words, the brain. In medical and physiological writings, this expression is used as synonymous with brain; thus we read of affections of the fenforium; of senforial power and influence, &c. Senforium commune, is the imaginary point of the brain, the residence of the metaphysical soul, to which every sensation is brought, and from which all determinations of the will proceed. The speculations on this subject have been founded in the afoined unity of the soul. Physiologically speaking, there is not the slightest ground for supposing such a part to exist in the brain. Our remarks on the functions of the brain and parts connected with it, will be found under the articles Brain, Life, and Nervous System. See also Mental Philosophy.

Sir Isaac Newton confiders the universe as the fenforium of the godhead.

SENTELIUS, LODOWICUS, in Biography, a disciple of Henry Izaac, and in 1530 appointed chapel-master to the duke of Bavaria. Many of his compositions are in the Dodecachordon of Glareanus, with great encomiums.
He was in high favour with Martin Luther, a good judge of music: and Saladin Haydon, in 1540, calls him the prince of German musick.

SENTENCE, in Lexis. A: a judgment passed in court by the judge upon 1. prouestos either civil or criminal.

Sentences are either defective, which put an end to the lult and controversy, and regard the principal matter in question; or interrogatory, which determine only some incidental matter. The latter. &c.

There are sentences of absolute, exclamation, &c. Superior judges may either confirm or annul the sentences of inferior ones.

Every sentence must be in writing, on a stamp, and it must be pronounced in the presence of both parties; otherwise sentence given in absence of one of the parties is void.

Sentences. Three are conformable, one is conformable, and the Roman Civil Law, it is allowed to appeal three times; so that there must be three conformable sentences before the decisions of the judges can take effect. The first degree of jurisdiction is in the bishop's official; from him an appeal lies to the metropolitan, from the metropolitan to the pope, or immediately to the pope. If the appeal come from the metropolitan to the pope, the pope is obliged to delegate judges in partes; and then if the three sentences passed in these three stages be conformable, there is no further appeal; but if one of them annuls another, new judges are to be required of the pope for a fourth sentence; and thus they sometimes proceed to a sixth or seventh sentence.

This number of jurisdictions is found infinitely prejudicial to the public, and vexations to private persons.

Sentence, in Grammar, denotes a period, or a set of words comprehending some perfect sense or sentiment of mind.

Every sentence comprehends at least two words.

Mr. Harris, in his Hermes, p. 17, &c. confidering that the leading powers of the soul are those of perception and volition, observes, that every sentence, in reference to these powers, will be either a sentence of affection, or a sentence of volition: and he describes it as a compound quantity of found significant, of which certain parts are themselves also significant. Thus he distinguishes a sentence from a word, which is a found significant, of which no part is of itself significant.

The business of pointing is, to distinguish the several parts and members of sentences, so as to render the sense of it the clear, apt, and full, possible. See Punctuation.

Every sentence there are two parts necessarily required; a noun for the subject, and a definite verb; whatever is found more than these two, affects one of them, either immediately, or by the intervention of some other, by which the principal is affected.

Again, every sentence is either simple or conjunct: a simple sentence is that consisting of one single subject, and one finite verb. A conjunct, or compounded sentence, consists of several subjects, and finite verbs, either expressly or implicitly; or it consists of two or more simple sentences connected together.

A simple sentence needs no point or distinction, only a period to close it; as, A good man loves virtue for itself. In such a sentence, the several adjuncts affect either the subject, or the verb, in a different manner. Thus the word good expresses the quality of the subject, virtue the object of the action, and, for itself, the end of it. Now none of these adjuncts can be separated from the rest of the sentence; for if one be, why should not all be? And if at all, the sentence will be made in almost a many parts as there are words.

But if several adjuncts be introduced in the same sentence, either to the subject, or to the verb, the sentence becomes conjunct, and is to be divided into parts.

In every conjunct sentence, as many subjects, or as many finite verbs as there are, either expressed or implied, so many distinctions may there be. Thus, My hopes, fears, joys, pains, all centre in you; and thus Cicero, Catiline, abus, exceptus, eos qui excepti. The reason of which parting is obvious; for as many subjects or finite verbs as there are in a sentence, so many members does it really contain; whenever, therefore, there occur more nouns than verbs, or contrariwise, they are to be conceived as equal; thus, as every subject requires its verb, so every verb requires its subject, with which it may agree; excepting, perhaps, in some figurative expressions.

Indeed there are some other kind of sentences which may be ranked amongst the conjunct kind, particularly the absolute prepositions, as it is called. Thus, Physicians, the bye laws; once discovered, think the cure half effected; where the words, by our once discovered, are equivalent to, when the cause of the disease is discovered. So also in nouns added by apposition, as, The Scott, an handy people, endured it all, so also in vocative cases and interjections, as, This, my friend, you shall allow me: and, What, for heaven's sake! would be at?

The case is much the same when several adjuncts affect either the subject of the sentence or the verb in the same manner, or at least something by which one of them is affected, as, A good, wise, learned man is an ornament to the commonwealth; where the several adjectives, denoting so many qualities of the subject, are to be separated from one another. Again, when I say, Tell voice, countenance, gesture, terrified him, the several nominative cases denote so many modes of the verb, which are likewise to be distinguished from each other. The case is the same in adverbs, as, He behaved himself modestly, prudently, virtuously. In the first example, the adjuncts immediately affect the subject; in the third, the verb; in the following one, another adjunct, as, I saw a man laden with age, ficknels, wounds.

Now, as many such adjuncts as there are, so many several members does the sentence contain; which are to be distinguished from each other, as much as several subjects or finite verbs; and that this is the case in all conjunct sentences, appears hence, that all these adjuncts, whether they be verbs or nouns, &c. will admit of a conjunction copulative, by which they may be joined together. And wherever there is a copulative, or room for it, there a new member of a sentence begins. For the other partitions, &c. of sentences, see Colon, Semicolon, and Period.

Sentence is also used, in Rhetoric and Poetry, for a short pithy remark, or reflection, containing some sentiment of use in the conduct of life.

Such as Difcent juftitiam monit, & non tenacem divos; or, A temeris auxilium multum est, &c.

Sentences, father Boile observes, render poems useful; and, besides, add I know not what further, and spirit, which pleases. But there is no virtue which is not accompanied with some dangerous vice. Too many sentences give a poem too philosophical an air, and sink it into a kind of gravity; this is left fit for the majesty of a poem than the fluidity of a learned man, and the quantities of a dogmatist. Such thoughts not only contain, but inspire a certain calm wisdom, which is directly opposite to the passions, and cools them. 
them both in the harpers and in the speaker. Lastly, the affection of speaking sentences leads a person to trilling and impertinent ones, instances of which we have an abundance in Seneca’s tragedies. Petronius recommends it to authors to disguise their sentences, that they may not stand glaring above the thread or ground of the discourse.

**SENTER HABOUR, in Geography, a cove in the N.W. part of Lake Winnipigooe.**

**SENTENHEIM, a town of France, in the department of the Upper Rhine; 10 miles N.E. of Besf.**

**SENTICA, in Ancient Geography, a town of Spain, in the Tarragonenis, alligned by Ptolemy to the Vaccans.**

**SENTICE, a country of Macedonia, according to Livy.**

**SENTITI, a people of the Maritime Alps, S.E. of the Bodanici, mentioned by Ptolemy, who alligns to them the town of Dina.**

**SENTIMENTS, in Poetry, and particularly dramatic, are the thoughts which the severer persons express, whether they relate to matters of opinion, passion, boudelies, or the like.**

The manners form the tragic action, and the sentiments explain it, discovering its causes, motives, &c. The sentiments are to the manners, what these are to the fable. In the sentiments, regard is to be had to nature and probability; as man, for instance, mult speak as a man; a lover, as a lover; a hero, as a hero. The sentiments, in great measure, are to sustain the character. The word sentiment, in its true and old English sense, signifies a formed opinion, notion, or principle; but of late years it has been much used by some writers to denote an internal impulse of passion, affection, fancy, or intellect, which is to be considered rather as the cause or occasion of our forming an opinion, than as the real opinion itself.

**SENTINEL, GREAT, in Geography, an island in the East Indian sea, about 10 miles in circumference; 20 miles S.W. from the Greater Andaman. N. lat. 11° 30'. E. long. 92° 40'.**

**SENTINEL, LITTLE, a small island in the East Indian sea, about 8 miles from the Little Andaman. N. lat. 10° 59'. E. long. 92° 23'.**

**SENTINEL, CENTRY, or Sentry, in War, a private soldier placed in some post to watch any approach of the enemy, to prevent forpriles, and to stop fuch as would pass without orders, or without discovering who they are. They are placed before the arms of all guards, at the tents and doors of general officers, colonels of regiments, &c.** The word is modern; it is not long since they said, To be on the scout, in the same fense as we now say, To stand sentry, &c. Menage derives the word a sentiando, from perceiving.

**Sentinel perdus, is a sentinel placed at fome very advanced and dangerous point, whence it is odds that he never returns. See Perdue.**

The sentinel’s word, when he challenges, is, Who is there? Qui vive, or Qui va là! Stand! Demure la!

**SENTINUM, in Ancient Geography, a town of Italy, in Umbria, according to Strabo and Ptolemy.---Allo, a town of Italy, belonging to the Senones, S.W. of Suafa.**

**SENTINUS, a river of Italy, in Picenum.**

**SENTO, in Geography, a river of Naples, which runs into the Adriatic; 3 miles S.E. of Lanciano.**

**SENTOU, a town of China, of the third rank, in Se-tchuen, on the river Kincha; 22 miles N.E. of Pei.**

**SENTUR, a town of Egypt; 9 miles N.W. of Fayoum.**

**SENEUS, in Ancient Geography, a river of Hibernia, according to Ptolemy, who places its mouth on the western coast, between the mouths of the Alcon and of the Dar,—Allo, a river of India, in the country of the Sines, according to Ptolemy, who says, that it was connected with the Coniaris, at a great distance from its mouth.**

**SENZA, an Italian preposition, implying, in Myfes, without; as in Handel’s organ concertos, when passages are to be wholly left to the violins, fenza organo implies, without the organ; fenza violo, without the tenor; fenza batta, without the base, &c.**

**SENZARSKAIA, in Geography, a fortress of Russia, in the government of Toboli; 80 miles S. of Yalutorof.**

**SEODA, a sea-port of Japan, on the S. coast of the island of Nippon; 105 miles E. of Mexico. N. lat. 37° 30'. E. long. 159° 10'.**

**SEON, in Ancient Geography, a town of Palestine, in the tribe of Issachar, according to Joshua. Eusebius says, that in his time there was a place of this name at the foot of mount Tabor.**

**SEON St. Henry, in Geography, a town of France, in the department of the Mouths of the Rhone; 4 miles N. of Marseille.**

**SEOUJI Kiamen, a port of Chinefe Tartary, in the country of the Mongulis; 23 miles S.W. of Kara Hotun.**

**SEPARABLE MODES. See Mode.**

**SEPARATE Affect. See Affect.**

**SEPARATE, Penuminate of the. See Penuminate.**

**SEPARATE Island, in Geography, a small island in the Chinefe sea. N. lat. 3° 6'. E. long. 107° 45'.**

**SEPARATED Flowers, in Botany, are fo called when the flaments and pifilis are fo situated in different flowers of the fame species. Hence it appears that separated flowers are confined to fuch plants as are either monceous, dioceous, or polygamous. They are termed by Linneus, Diclines.**

**SEPARATION, among Horses, the teeth usually called incisors, by which the animal separates or bites off a portion of his food for chewing. See Teeth.**

**SEPARATION, in Navigation, the fame with what we more usually call departures.**

**SEPARATION of Men and Wife. See Divorce.**

**SEPARATION, Waters of. See Water.**

**SEPARATION Day, in Geography, a day in the Straits of Magellan, on the coast of Terra del Fuego; 10 miles S.E. of Cape Pillar.**

**SEPARATISTS, in Ecclesialfical History, a religious sect in England, so denounced from their setting up a separate church, different from that established by law. See Dissenters, &c.**

At prefer, Separatists is rather the name of a collection of sects than of any particular one; but nearer their original, there was that agreement among them, that one name ferved them all. Their division into Presbyterian, Anabaptists, Independents, &c. is a more modern thing.

The Separatists, Hornius tells us, Hift. Eccl. are such as under Edward VI. Elizabeth, and James I. refuced to conform to the church of England, and who were firft called Puritans, then Separatists, and laftly, Nonconformits.

The firft leader of the Separatists is Bolton, who, upon quitting the party he had formed, was succeeded by Robert Brown, from whom the Separatists were called Brownits.**

**SEPARATORIUM, the name of a surgical instrument used for separating the pericranium from the skull.**

**SEPARATRIX, in Arithmetic, denotes the point, or comma, which separates and diftinguishes decimals from integers; thus, 465:32 or 465:32.**

**SEPARI,
SEPH, a mountain of the Eaul, probably about Armenia. (See Gen. x. 30.) This mountain seems to have been the habitation of the Sepharvaim and of the Supleus, mentioned by geographers.

SEPHARVAIM, a people who were brought by Shalmanezer into Palebne, to supply the place of the Israelites, whom he carried away from Samaria to a country beyond the Euphrates (2 Kings, xviii. 24. 31.) A.M. 3253, B. C. 752. Their former habitations seem to have been on the mountains of Sephar, and the Sopires or Supleus, who, according to Herodotus (lib. i. iii. vii.) were the only people that inhabited between the Colchian and the Medes, who were probably the Sepharvaim. The Scripture speaks (Izaias, xxxvi. 13; 2 Kings, xix. 13.) of the city of Sepharvaim, which was probably the capital of these people, and the king of Sepharvaim was the god of these people. See 2 Kings, xviii. 34. 16. xxxvii. 13; 2 Kings, xix. 13.

SEPHIROS, a word used by Paracellus and his followers, to express a sort of dry and hard impomthum, or kind of spurious firrhus.

SEPHIROTH, a Hebrew word signifying brightnesses; and the cabalists give the name of Sephiroth to the motl secret parts of their science.

SEPHORIS, in Ancient Geography, a famous city of Zebulun, and the capital of Galilee; afterwards named Doclea; 18 according to some, and according to others 19 miles from Tiberias. It was not far from Tabor and the great plain. Josephus represents it as the largest and best city in Judea, and lates, that it became the capital of it, after Nero had given Galilee to the younger Agrippa. The first city of Galilee in going from Ptolemais was Sephoris. Joseph. de Bello, l. i. c. 23. l. iii. c. 1.

SEPHOURY, or Saphene, in Geography, a town or village of Palestine, anciently Sephor or Sephoris, which was once the strongest town of the country, and capital of Galilee, before Tiberias; called also Doclea. Here was held one of the five judicatures of Palestine. It was fortified by Herod, and destroyed in the time of Constantius, on an insurrection of the Jews. It was once much venerated as the habitation of Joachim and Anna, parents of the blefled Virgin; 12 miles N.W. of Tiberias.

SEPPIA, in Ancient Geography, a mountain of the Peloponnesus, in Arcadia, to the left of mount Geronte, near a place called Tricene, upon which Egyptus, the son of Elatus, died from the king of a serpent, and where he was buried, according to Paulus. Sepia, in Natural History, the Cuttle-fish, a genus of the Vermes-Mollusca clafs and order, of which the generic character is as follows; the body is fleshy, receiving the breath in a sheath, with a tubular aperture at its base; it has eight arms, beset with numerous warts or suckers, and in molt species two pedunculated tentacles; the head is short; the eyes large; the mouth resembling a parrot's beak. Their annual inhabit various seas, and in hot climates some of them grow to an enormous size; they are armed with a dreadful apparatus of holders furnished with suckers, by which they fasten upon and convey their prey to the mouth; they have the power of squirting out a black fluid resembling ink, and which is said to be an ingredient in the composition of Indian ink; the hole in the back is converted into a panicle: the eggs are deposited upon sea-wood, and exactly resemble a bunch of grapes; at the moment the female deposits them they are white, but the male pafs over them to impregnate them, and they then become black; they are round, with a little point at the end, and in each of them is enclosed a living cuttle-fish, surrounded by a gelatinous fluid. There are eight species, of which five are natives of this country.

* Octopus. The specific character of this species is, that the body has no tail or appendage; it has no pedunculated tentacles, or longer arms. It is found in the Mediterranean and Indian seas, in the latter of which it sometimes grows to a vast size; the arms are said to be eight or nine fathoms long. In these seas the Indians never venture out without latches in their boats, to cut off the arms, should it attempt to fall upon them under water. This species is characterized by the shortness of the body, which is rounded behind; the arms taper to a point, joined at the base by a membrane or web, and covered within with two rows of alternate suckers. When opened this animal is said to exhibit so brilliant a light as to illumine a large room.

* Squilla. Body without tail or appendage, and surrounded by a margin; it has two tentacles, or longer arms. This is found on our own coasts, and also in other oceans, and is frequently the prey of the whole tribe, and of plajfe; its arms are frequently eaten by the conger-eel, and are reproduced; the bony scale on the back is that which is fold in the heaps; and the black matter which it fquirs out to daeken the waters round it, and elude the purfuit of its enemies, is sometimes used as ink. The body was eaten by the ancients, and it is even now used as food by the Italians. The body of this species is ovate, the margin crenate, and interrupted at the bottom; eight of the arms are short, and pointed; the two tentacles are four times as long as the others; they are rounded, and the tips are very broad, and furnished within with numerous suckers.

* Unguiculata. The body of this is without a tail or appendage; the arms are furnished with hooks, and is found in the Pacific ocean. The body is rounded behind; the arms are furnished with hooks, which are retracable within their proper sheaths instead of suckers.

* Hexapus. The body of this is tailed, four or five-jointed; arms only fix in number. This also is found in the Pacific ocean. The body is about half a foot long, and the thickness of a finger; arms furnished with very minute suckers, which fick fall to whatever it fixes on.

* Media. Body long, slender, cylindrical; the tail is finned, pointed, and carinate on each side; it has two long arms. It inhabits the ocean, and in some respects it resembles the S. officinalis. The body ends in a point, and is furnished with a membrane on each side, commencing about the middle of the body.

* Loligo; the Calamary. The body of this is subcyindrical, tubulate, and furnished with a flattened sharp-edged rhombic membrane at the tail on each side. This is found in divers parts of the ocean, and is from nine to twelve inches.
inches long. The body is of a reddish-brown, with two longer arms or tentacula; the eyes are of a fine blue; the cartilaginous plate or bone in the back is long, lance-shaped, and transparent; it has sometimes been placed as a species of the pennatula.

* SEPILA. The body of this species has two rounded wings or processae behind. It is found in the Mediterranean and European seas, and is very small. The body is short, rounded behind, with a round membrane or fin at the lower extremity; it has two long arms.

Tunicata. The body of this species is entirely enclosed in a black pellicular membrane, with two femicircular wings or processae behind. This is an inhabitant of the Pacific ocean. The body is very large, and is said sometimes to weigh one hundred and fifty pounds, and is convertible into palatable and pleasant food.

SEPAICE, in Italian Myfic, signifies that the part it is joined to may be repeated or not, at pleasure.

SEPIAS, in Ancient Geography, a promontory of Thebais, in Magnesia, at the entrance of the Pelagic gulf, according to Ptolemy. Cape Sepias is now the promontory of St. George's.

SEPUSSA, an island situated on the coast of Asia Minor, in the Ceramic gulf, according to Pliny.

SEPOORY, in Geography, a fortress of Hindooftan, in the cirearc of Ghoub; 18 miles S.W. of Narwa.

SEPOU, a town of Hindooftan; 12 miles S.W. of Agra.

SEPRA, or SIPRA, a river of Hindooftan, which rises near Indore, joins the Callifind in the cirearc of Kitchwara, and, united with other streams, forms the Chumbul.

SEPIO, a town of Italy, in the department of the Onona; 20 miles N.W. of Milan.

SEPS, in Zoology, the name of a very peculiar animal of the lizard or lacerta kind, but seeming as if of a middle nature between that genus and the snakes, and appearing rather a serpent with feet than a lizard.

It is a small species; its body is rounded, and its back variegated with longitudinal lines of black; its eyes are black; it has ears, and a small and very slender tail. What appears molten sanguine in it is, that it has four legs, with feet divided into toes; the first pair are placed very near the head, the other by the anus; the scales are laid in a reticulated manner, they are of an oblong figure, approaching to a rhomboides, and laid longitudinally; its belly is white, with a flight call of blue, and it has no tails near the end of the finot. Columba took five living young ones out of the body of one of this species, some of which were included in membranes, and others loose, as is the case in the fetus found in the viper.

The bite of the sepas is said to occasion an instant putrefaction of the flesh of the whole body.

SEPT MONCEL, in Geography, a town of France, in the department of the Jura; 2 miles E. of St. Claude.

SEPTA, in Antiquity, were inclosures, or rails made of boards, through which perfous went in to give their votes in the assemblies of the Romans.

The word also signifies divisions, and, in that sense, is used to express the plates of spar, which separate or divide the tail of the lusus Helmontii, thence called by Dr. Hill, sectoria; which see.

SEPTALIUS, or SEPTALUA, LOUIS, in Biography, an Italian phisician of celebrity, was born at Milan, in February, 1527. He evinced from his early childhood, a strong inclination to the pursuits of literature, and at the age of sixteen defended some theses on the subject of natural philosophy with an acuteness of reasoning far above his years, and which excited the surprize of the audience, among whom was the archbishop of Milan. It was now suppos'd that he would follow the steps of his ancestors, both mat'rinal and paternal, who had been much distinguished at the bar; but his inclination led him to the medical profefion, and he accordingly repaired to Pavia, for the purpose of commencing the study of it. Here he proceeded with the fame success, and obtained the degree of doctor in his 21st year, and was even appointed to a chair in this celebrated university in his 23d year. In his professorial capacity, through fo young, he gave fo many demonstrations of his talents and acquisitions, that he soon became known to the most distinguished men of his time. Nevertheless, at the end of four years from the time of his appointment, he determined to relinquish the professorial dignity, for the purpose of exercising his medical skill in his native city. While he was engaged in the practice of his art at Milan, Philip III, king of Spain, selected him for his historiographer. But though fully sensible of the value of this compliment, yet neither this, nor many other more congenial honours, that were offered to him, could induce him to quit his native city, to which he was ardently attached. He was invited by the elector of Bavaria to a professorship in the university of Ingoldstadt; by the grand duke of Pisga, to a chair at that place; and by the city of Bologna to a similar appointment in their schools; and the senate of Venice, by fill more considerable offers both of honour and reward, laboured affiduously to bring him to the university of Padua. But he declined all these opportunities of elevation, content with the esteem and affection of his fellow-citizens, which he amply obtained; and with the domestic felicity, which the society and education of his family, conferring of seven sons and six daughters, contently afforded him. The only honour which he accepted was the appointment of chief phisician to the slate of Milan, which Philip IV. conferred upon him in 1627, as a reward for his virtues and talents. In the year 1628, the plague visited Milan. Septaluis gave all the aid in his power to his fellow-citizens, and in the midst of his labours to alleviate the difficulties occasioned by this fatal calamity, he was himself seized with the disease. He had scarcely recovered from this attack, when he was suddenly surpris'd by a fit of apoplexy, which left him speechless, and paralytic on one side. From this, however, he recovered in a great measure, and lived several years afterwards, but in a state of feebleness and imperfect health. He died in September 1633, in consequence of an attack of dysentery, at the age of 81. Septaluis was a man of acute powers, and solid judgment, and was reputed extremely successful in his practice. He was warmly attached to the doctrines of Hippocrates, whose works he never ceased to study. He was author of the following works: "In Librum Hippocratis Coi, de Acribus, Aquis, et Locis, Commentari quinque," 1590; "In Aristotelis Problematum Commentaria Latina," tom. i, 1602, ii, 1607; "De Nevis Liber," 1606. In this work Septaluis has not displayed his usual judgment; for he attributes the nevis, or mother-spots, to the imagination of the pregnant mother, and deduces from their appearances many practical inferences, which are as unfounded as the notion of their origin. "Animadversionum et Cautionum Medicarum Libri duo, septem aliss additis," 1629. This is a valuable work, the result of 40 years of practice, and equal to any of its contemporaries of the 17th century. "De Margaritis Judicium," 1618; "De Peste et Pestiferis Affeditis Libri V." 1622; "Analyticarum et Animaliarum Differtationum Libri II." 1626; "De Morbis ex mueronata
SEPTA, in Natural History, the name of a large class of fossils, called by some ludus Holmantis, and by others the nester tiris. They are defined to be fiddle-shaped, not inflamable, nor soluble in water, naturally found in broken detached mafles of a moderately firm texture and dainty hue, divided by several septa, or thin partitions, and composed of a spongy matter greatly debased by earth, not giving fire with steel, fermenting with acids, and in great part dissolved by them, and calcining in a moderate fire.

Of this class there are two distinct orders of bodies, and under these six genera. The septa of the first order are those which are usually found in large masses of fiddle-shaped uniform construction, but divided by large septa, either into larger or more irregular portions, or into smaller and more equal ones, called rudi.

Those of the second order are such as are usually found in smaller masses of a cancellated structure, formed by various incrustations round a central nucleus, and divided by very thin septa.


The peculiarity of character in Septas, with regard to the prevalence of the number seven, in the parts of construction, is not so constant as Linnæus seems to have imagined; hence Thunberg was induced to refer this genus to Crafula.

L. urocoho has given the name of Septas to a plant in Didyma Mirus Angiosperma, which, according to Professor Martin, is allied to Thunbergia.

SEPTA, in Ancient Geography, a town of Asia Minor, in Phrygia, according to the tolemy.

SEPTEM AGUA, a town of the Sabines, situated on an eminence, and commanding the Ruma river, or the fine Neapolitan valley. It is impounded by the abbe Chiapui to be the present Pont Grispoli.
That likely to find any such quality; these were chalk, common salt, and tactual powders. He mixed twenty grains of crab's eyes, prepared with six drachms of ox's gall, and an equal quantity of water. Into another phial he put an equal quantity of gall and water, but no crab's eyes. Both these mixtures being placed in the furnace, the putrefaction began much sooner where the powder was, than in the other phial. On making a like experiment with chalk, its septic virtue was found to be much greater than that of the crab's eyes; nay, what the doctor had never met with before, in a mixture of two drachms of flesh, with two ounces of water and thirty grains of prepared chalk, the flesh was reduced into a perfect mucus in a few days.

To try whether the tactual powders would also dissolve vegetable substances, the doctor mixed them with barley and water, and compared this mixture with another of barley and water alone. After a long maceration by a fire, the plain water was found to swell the barley, and turn mucilaginous and foul; but that with the powder kept the grain to its natural size, and though it softened it, yet made no mucilage, and remained sweet.

Nothing could be more unexpected, than to find sea-salt a hastener of putrefaction; but the fact is this: one drachm of salt preserves two drachms of fresh beef in two ounces of water, above thirty hours uncorrupted, in a heat equal to that of the human body; or, which is the same thing, this quantity of salt keeps flesh sweet twenty hours longer than pure water; but then half a drachm of salt does not preserve it above two hours longer. Twenty-five grains have little or no antifeptic virtue, and ten, fifteen, or even twenty grains, manifestly both hasten and heighten the corruption. The quantity which had the most putrefying quality, was found to be about ten grains to the above proportion of flesh and water.

Many inferences might be drawn from this experiment: one is, that since salt is never taken in aliments beyond the proportion of the corrupting qualities, it would appear that it is sublervient to digestion, chiefly by its septic virtue, that is, by softening and resolving meats; an action very different from what is commonly believed.

It is to be observed, that the above experiments were made with the salt kept for domestic uses. See Pringle's Observ. on the Difefes of the Army, p. 348, seq. See Salt and Scoury.

From some experiments of Mr. Canton, it appears likewise, that the quantity of salt contained in sea-water hastens putrefaction; but since that precise quantity of salt which promotes putrefaction the most, is less than that which is found in sea-water, he concludes it probable, that if the sea were less salt, it would be more luminous. See Luminousness of the Sea.

SEPTEMIÉ, Fr. Septima. Lat. Setima. Ital. the seventh. Broffard has been the guide of all subsequent musical lexicographers. He has been very awkwardly translated by Gräffino; Gräffino has been followed in the last folio edition of Chambers; and Roufleau, who writes clearly and elegantly, has retained the mixture of theory, ratios, and the useful jargon of major and minor tones and semi-tones, with practice, to much, as to render the useful knowledge of this important interval totally unintelligible to young students in harmony; to whom we shall address all we have to offer on the subject of the present article, referring scientific enquirers to Harmonics, Ratios, and the definitions of major and minor tones and semi-tones.

The 7th in music, is one of the principal discords; some say the only original discord, as all the rest are derived from it. The 2d and the 9th are only inventions of the 7th. The 4th in itself is a concord, and only made a discord by another discord being struck upon it; but the 2d and the 9th, however derived from inversion, are discords to the ear at all times and in all places.

There are three kinds of 7ths used in practical harmony: the minor, or flat 7th, ten semi-tones, or half notes, above the base; the major, or sharp 7th, eleven semitonic intervals above the base; and the extreme flat 7th, only nine half notes above the base or lowest note, as B♭ B♭ , and F♭ F♭ .

In counterpoint and thorough-bass, the 7th is accompanied by the 9th, or common chord, from which its harmony only differs by the addition of that single found from the triad. And as a base, in practice, is called fundamental, by being accompanied only with the common chord, the addition of the 7th to this common chord does not rob the base figured with a 9th of its title of fundamental.

The 7th in bounding notes is prepared in the 3d, 5th, 6th, and 8th, and resolved on the 6th, 3d, and 5th. Dr. Pepusch has given an excellent chapter on 7ths prepared and resolved in the treble; and to his instructions for 7ths prepared and resolved in the base, p. 37 of the text, we cannot subscribe. See Pepusch, and Analysis of his Treatise on Harmony.

The 7th is the only discord which need not be always prepared. The sharp 7th, which the French call la note faiblest, till about the middle of the last century, was only used in re-creative; but since that time it has been rapidly increasing in favour; first in German symphonies, and afterwards in songs, and every species of elegant music. Its chord is generally indicated by a 37, a sharp 7th; but different matters frequently use the following numerical expressions of this chord: 37, 57, 77, and 79. Its origin is an appoggiatura organized.

The extreme flat 7th gives what has been termed by Roufleau the enharmonic chord, containing entirely of flat 3ds, whence twelve modulations may be acquired, by making each note of the chord the sharp 7th, or leading note to a new key; by which means these three chords G♭ 7 7 7 7 G♭ 7 7 A♭ 7 give 36 modulations. See Music, Plates, and Intervals, Chords, Modulation, and Counterpoint.

SEPTIER, or SETIER, a French measure, differing according to the species of the things measured.

For dry measure, the septier is very different in different places and different commodities; as not being any vessel of measure, but only an estimation of several other measures.

At Paris, the septier of wheat consists of two mines, the mine of two minots, and the minot of three bushels or boiffaux, and 12 septiers are a maid. The boiffau contains 16 litrons. A maid of wheat weighs about 2880lbs. poids de marc; and a septier, 240lbs. But a maid of oats contains 24 septiers. The boiffau is a cylinder 8 inches 2½ lines in height, and 10 inches in diameter; its contents are, therefore, 664 French cubic inches, or 780 English ditto; hence 11 septiers of Paris are = 6 English quarters, and 11 boiffaux = 4 English bushels. A maid of salt contains also 12 septiers, and a septier, 4 minots, 16 boiffaux, 256 litrons, or 4006 meforceus, weighing about 400lbs. poids de marc, or 432lbs. avoirdupois. At Abbeville 18.87 septiers are equal to 10 English quarters, and each septier is 9364 cubic inches.
SEP

inches. At Amiens, 85 79 lepers = 10 English quarters, and each leper = 2005 cubic inches. At Arles, 47 40 lepers = 10 English quarters, and each leper = 5928 cubic inches. At Boulanger, 16 32 lepers = 10 English quarters, and each leper = 10 554 cubic inches. At Calais, 16 95 lepers = 10 English quarters, and each leper = 10 144 cubic inches. At Cetté, 420 lepers = 10 English quarters, and each leper = 3 272 cubic inches. At Lige, 94 14 lepers = 10 English quarters, and each leper = 1837 cubic inches. At M. St.Epplier, 53 21 lepers = 10 English quarters, and each leper = 3 337 cubic inches. At Nantes, 19 68 lepers = 10 English quarters, and each leper = 8 599 cubic inches. At Paris, 18 38 lepers = 10 English quarters, and each leper = 9 260 cubic inches. At St. Valery, 18 38 lepers = 10 English quarters, and each leper = 9 260 cubic inches.

The leper is also a liquid measure at Paris and in other parts of France, and in Geneva. A muid of wine at Paris and in some other parts of France, contains 30 lepers, 144 quarts, or 288 pints, and 280 pints without the keg. The pale contains 23 chapters, 4 dem-lepers, or 8 pottins, in all 474 French cubic inches, or 574 English dittos; so that a French pale is nearly equal to an English quart; and a muid of wine contains 71 English gallons.

At Geneva, the char, wine measure, contains 2 lepers; the leper, 24 quarters, or 48 pots, and the leper is about 12 English gallons; 8 37 lepers are = 100 English gallons wine measure, and each leper = 2760 cubic inches.

SEPTIMANCA, SIMANCAS, in Ancient Geography, a town in the interior of Hispafia Citerior, belonging to the Vacceans. In the itinerary of Anthony it is marked on the route from Emerita to Saragossa, between Amallubrica and Nivaria. It was situated on the Duris, S. of Pallentia.

SEPTIEMIN. See SEPTIMAN.

SEPTIMINICIA, a town of Africa Propria, upon the route from Thysdrus to Acre, between Madalama and Tabata, according to the itinerary of Antonine.

SEPTIMONTIUM, among the Romans, a festival celebrated in December, on all the seven hills of Rome; whence also it had this name, being otherwise called Agonalia.

SEPTIZON, SEPTIZONIUM, in the Ancient Architecture, a term almost appropriated to a famous mausoleum of the family of the Antonines, which, Aur. Victor tells us, was built in the tenth region of the city of Rome, being a large insalated building, with seven flages or stories of columns.

The plan was square, and the upper stories of columns falling back much, rendered the pile of a pyramidal form, terminated at top with the statue of the emperor Septimius Severus, who built it.

It had its same septizon, septizonium, from septem and zona, q. d. seven zones or girdles, by reason of its being girt with seven rows of columns.

Historians make mention of another septizon, more ancient than that of Severus, built near the Thermae of Antonine.

SEPTUAGESIMA, in the Calendar, denotes the third Sunday before Lent, or before quadragesima; and quinquagesima is the next before quadragesima, then sevagesima and septimegasiia: these were all days appropriated by the church to acts of penance and mortification, by way of preparing for the devotion of the lent enfuing.

It is suppos'd by force to take its name from its being about seventy days before Easter; pope Telephorus first made it a feast day, and appointed Lent to commence from it.

The laws of king Camillus ordained a vast ban from literature, from septagesima to quinquagesima. (See Quinquagesima.) From septagesima to the octaves after Easter, marriage is forbidden by the canon law.

SEPTUAGINT, LXX, or the Seventy, a term滥用 among divines and critics, for a version of the Old Testament out of Hebrew into Greek, and to have been performed by seventy-two Jewish interpreters, in obedience to an order of Ptolemy Philadelphus.

The ancient, till Jerome's time, universally believed, that the Seventy were united persons, not more translators, grounding their belief on a fabulous history of this version given by Arintheus; who tells us, that the high-priest Eleazar chose six doctors out of each tribe for this office, which made the number of seventy-two; and that these being shut up each in his several cell, each translated the whole; and without seeing what any of the rest had done, they were found to agree to a letter.

The learned Dr. Holy, " De Bibliorum Textibus Originarios," &c. who seems to have studied the origin of the Greek version more accurately than any critic before him, has laboured very successfully in detecting the false story of Arintheus; and he has likewise proved, that this version was made by the Jews living at Alexandria, for the use of themselves, and many thousands of their brethren, who were then settled in Egypt, and who, living among the Greeks, generally used the Greek language. And he has also proved, that the whole Hebrew bible was not translated into Greek at once, but that different parts were translated at different times; that the Pentateuch was translated first, about 285 years before Christ; that only the Pentateuch was read in the synagogues till about 170 years before Christ, when Antiochus Epiphanes, their cruel persecutor, forbade them to recite any part of the law; that soon after this prohibition, the Jews translated into Greek Isahah, and the following prophets, for the use of the temple at Heliopolis and the Alexandrian synagogues; and that the other books were translated afterwards, with different degrees of skill and care, at various times, and by various persons. See also on this subject Prideaux's Connect, vol. iii. p. 38. &c. Brett's Difertation on the ancient Version of the Bible, published in Bishop Watson's Collection of Tracts; Domp's Canon, Walton's Prolegomena, &c. &c. See ALEXANDRIAN Copy, and GREEK BIBLE.

SEPTUAGINT, Chronology of the, or Seventy, is an account of the years of the world, very different from what is found in the Hebrew text, and the Vulgate; making the world 1466 years older than it is found in these latter.

The critics are much divided as to the point of preference. Baranius prefers the account of the Seventy; and H. Vossius makes an apology for it. The two last and most fire

uous advocates in this dispute, are father Pezzan, a Bernardine, and father Le Quien, a Dominican; the former of whom defends the chronology of the Septuagint, and the latter that of the Hebrew text. See SACRED CHRONOLOGY.

SEPTUM, in Anatomy, a name applied to various parts of the body; generally such as separate contiguous cavities.

The SEPUM Auricularum in the heart is placed between the two auricles. See HEART.

SEPTUM Cerebri and Cerebelli, the falicform processes of the dura mater. See BRAIN.
SEP

SEPULCHRUM, the partition between the ventricles of the heart. See Heart.

SEPULCHRUM Breviarii, the partition between the two lateral ventricles of the brain. See Brain.

SEPULCHRUM Narium, the partition between the nostrils. See Nose.

SEPULCHRUM Pelvisferum Penis. See the description of the penis under Generation.

SEPULCHRUM Serrit. See Generation.

SEPULCHRUM Thoracis, the mediafimum, which forms the partition between the two sides of the chest. See Lung.

SEPULCHRUM Transectum, or Musculares, the diaphragm. See Diaphragm.

SEPULCHRUM Septum, in Ancient Geography, a people of Gallia Narbonenfis, who inhabited the town of Bittere, according to Phily. In procfs of time a province of their territory was denominated Septimania.

SEPU, in Geography, a town of Aftatic Turkey, in the government of Sivas; 40 miles S.E. of Sivas.

SEPULCHRAL, SEPULCHRALS, something belonging to sepulchres or tombs.

SEPULCHRAL Column. See Column.

SEPULCHRAL Inscriptions, are the fureft monuments we have of antiquity.

SEPULCHRAL Lamps. See Lamp.

SEPULCHRAL, or SEPULCHRALS, is also the appellation of a fcet; thus called from their supposed principal error, which was, that by the word hell, whither the Scripture tells us Jesus Christ descended after his death, they understood no more than his grave or sepulchre. See Hell.

SEPULCHRALS Pecunia. See Pecunia.

SEPULCHRE, SEPULCHRUM, a tomb, or place, dedicated for the interment of the dead.

The term is chiefly used in speaking of the burying-places of the ancients; those of the moderns we usually call tombs.

Besides the usual sepulchres for the interment, either of the whole body, or of the ashes of the burnt, the ancients had a peculiar kind, called cenotaphia, being empty sepulchres made in honour of some persons, who, perhaps, had no burial at all; from a superfluous opinion, that the soule of those who wanted burial wandered a hundred years before they were admitted to pass into the Elysian fields. See Burial and Cenotaph.

The pyramids are supposed to have been built as sepulchres for the kings of Egypt. And the oblikts had generally the same intent.

Sepulchres were held facred and inviolable, and the care taken of them was deemed a religious duty, grounded on the fear of God, and the belief of the soul's immortality. Thofe who searched or violated them, have been odious to all nations, and always severely punished.

The Egyptians call their sepulchres _eternal house_, in contradiiction to their houses and palaces, which they called _inni_; by reaon of the short fojourn we have in the one, in comparison of our long _lay_ in the other. The efternal pilgrimages are all made with defign to visit the holy sepulchre, that is, the tomb of Jesus Christ. Nobody enters here but bare-footed, and with abundance of ceremonies. The Turks exact twenty-four crowns of each pilgrim, whom devotion carries to the holy sepulchre.

SEPULCHRE, St., or the Holy Sepulchre, gives the deno-
mation to an order of regular canons, anciently inlfituted in Jerusalem, in honour of the holy sepulchre.

They ascribe their institution to Godfrey of Boulogne, who, they fay, upon his taking Jerusalem in the year 1099, placed canons in the patriarchal church of the Holy Sepul-

chre, which indeed is true, but then they were not regulars.

In effeot, it was Arnoul, who, of archdeacon of the church of Jerusalem, got himfelf elected patriarch of it, that, in 1114, firft obliged his canons to live in community, and to follow the rule of St. Augustine.

From the Holy Land numbers of these canons were brought into Europe, particularly into France by Louis the Younger; into England by king Henry; into Poland by Jaxa, a Polish gentleman; and into Flanders by its counts.

But the order was afterwards suppressed by Innocent VIII., and its effeots given to that of Our Lady of Bethlehem, which ifelf cealing, they were bellowed, in 1484, on that of the knights of St. John of Jerusalem, and the infitution did not take place in Poland, nor in several provinces of Germany, where they flill subsift: their general is in Poland: their habit, father Heliot observes, has been different in different places.

SEPULCHRE, St., or the Holy Sepulchre, is also the name of a military order, established in Palentine, as some fay, by Godfrey of Boulogne, but according to others by his facceflor, Baldwin.

However, it is certain there were none but canons in the church of St. Sepulchre till the ear 1114; and it is no more than probable, the knights were only inlfituted upon the ruins of the canons, four hundred years after, and that by pope Alexander VI. in order to excite rich and noble perfons to visit the holy places, by giving them the title of _knights of the Holy Sepulchre_, and to this end, inlfituting an order under that name, of which he referred the quality of mater to himself and his faucceflors.

Leo X. and Clement VII. granted to the guardian of the religious of St. Francis, in the Holy Land, the power of making thefe knights; which power, firft granted _vis a vis_, was afterwards confirmed by a bull of Pius IV. In 1558, the knights of this order in Flanders, chose Philip II. king of Spain, their mater, and afterwards his fon; but the grand master of the order of Malta prevailed on him to reign; and when afterwards the duke Nevers alomed the fame quality in France, the fame grand mater, by his interest and credit, procured a like renunciation of him, and a confirmation of the union of this order to that of Malta.

SEPULCHRI Prestitum. See Prestitum.

SEPULVEDA, John Genesius, in Biography, an eminent Spanish divine, born in the diocefe of Cordova in 1491. He became distinguished for his knowledge of law, philofoophy, and divinity, and was, on account of his great learning, nominated by the emperor Charles V. hiftoriographer and theologian. His fame was chiefly owing to his version of Aristotle into the Latin language. When in the height of his reputation, he was engaged in a controversy from which he derived no honour. It is thus related :

At the time that the celebrated Las Cafas, bishop of Chiapa, was pleading the caufe of the oppressed Indians before the court of Spain, Sepulveda, induced by some Spaniards who had tyrannized over that people, wrote a book in the Latin language, by way of dialogue, in which he undertook to prove, that the wars of the Spaniards in the Indies were just, and founded on their right to subdue the people of that new world; that it was the duty of the Indians to submit to be governed by the Spaniards, on account of their own inferiority in knowledge and wisdom; and that if they would not voluntarily acquiesce in the Spanish dominion, they might and ought to be compelled by force of arms. Sepulveda, to add weight to his argument, declared that his whole object was to establish the right of the kings of Castile and Leon to take possession of their domain in the
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his real, and to detain them, subject to the order of the court. It ill suits on the return of the forfeit at arms, in which it was certified that the defendant had secreted himself.

Sequestrations were first introduced by Sir Nicholas Bacon, lord keeper, in the reign of queen Elizabeth; before which the court found some difficulty in enforcing its processes and decrees: and they do not seem to be in the nature of processes to bring in the defendant, but only intended to enforce the performance of the court's decree.

Sequestration, in London, is made upon an action of debt: in which case, the action being entered, the officer goes to the shop or warehouse of the defendant, when there is nobody within, and puts a padlock upon the door, &c. using these words, "I do sequestrate this warehouse, and the goods and merchandizes therein of the defendant in the action, to the use of the plaintiff," &c. and having put on his seal, makes return of it to the compter; and after four court days, the plaintiff may have judgment to open the doors, and appraise the goods by a serjeant, who takes a bill of appraisement, having two freemen to appraise them, for which they are to be sworn at the next court holden for that compter; and then the officer puts his hand to the bill of appraisement, and the court giveth judgment.

However, the defendant in the action may put in bail before satisfaction, and so dissolve the sequestration; and after satisfaction may put in bail ad diem prorogandum debita, &c.

Sequestration, Sequestration, in Chemistry, a term used by some writers to express separation.

SEQUESTRO HABENDO, in Law, a writ judicial for the disbursing a sequestration of the profits of a church-benefice, granted by the bishop at the king's commandment, in order to compel the parson to appear at the suit of another. The parson, upon his appearance, may have this writ for the release of the sequestration.

SEQUIN, ZECAIN, Zecchio, a gold coin struck at Venice, Genoa, Rome, Milan, Piedmont, and Tuscany, and in several parts of the grand signior's states.

Ablancourt derives the word from Cicizium, or Cicixeni-um; as supposing the sequin first struck at Cuzium: Menage, from the Italian zecchino, of zecca, the name of the mint at Venice. At Florence, pieces of 3 sequins are called Ruffoni (see Ruspono); zecchini or sequins, called Gigliati, weigh 2 denari 23 grains, and are worth 131 lire or 20 palii. The Roman and Genoa sequins circulated here are valued at 13 lire; Venetian sequins at 132 lire. The sequin Gigliato weighs 532 English grains, and the gold is 232 carats fine; it is therefore worth 91.6d. sterling. At Rome 100 francoloni, or 50 zecchini, are exchanged for 100 fendi Roman, more or less. At Genoa, the sequins are valued at 13 lire 10 foldi. In 1607 the Roman sequins were valued here at 14l., and the Venetian at 14l. 17s. The weight of the sequin at Genoa is 70 grains of gold 232 carats fine, and its value is 91.5d. At Leghorn the sequin is current for 13 lire 6 foldi 8 denari, of moneta buona, and for 13 lire 18 foldi 3 denari of moneta langua. At Lucca in Italy the sequin pales for 141 lire; Venetian sequins are taken at the same as other Italian sequins, and German ducats at 14 lire 6 foldi. In the island of Malta, Venetian sequins pass for 6 fendi; the scudo current money being worth 20. d. sterling. At Marseille, Italian sequins pass for 11 livres 2 sous, more or less. At Milan, sequins, weighing 2 denari 204 grains, are valued at 15 lire 4 foldi. At Parma the sequin is valued at 45 lire, the lira being worth 23d. nearly.

At Rome, the zecchini or sequins are current at 21½ paoli, with their doubles and halves in proportion. The sequin is to weigh 2 denari 21½ grains, or 52½ English grains, and the gold is 232 carats fine; so that it contains little more than 52 grains of pure gold, and is therefore worth 91. 3d. sterling. At Tunis, a Venetian sequin pallies for 2 piastres, 32 apfers, more or less. At Venice, the gold coins of the old republic are zecchini or sequins, with halves and quarters. The sequin is commonly reckoned at 22 lire, but it bears a fluctuating agio, which in the year 1805 was 37 per cent.: 68½ zecchini or sequins are to contain a Venetian mark of fine gold; and are said to have no alloy; the quantity of alloy, however, is small and uncertain. The Venetian sequin weighs 54 English grains nearly, and it is therefore worth 91. 6d. sterling.

The aßay of the Genoa sequin is better than the English standard of 22 carats, and its value, &c. according to the mint price of gold in England, viz. 3/. 17½. 10½d. per oz is as follows: viz. the aßay 1 carat 32½ grains, weight 2 dwt. 53 grains, contents in pure gold 53.4 grains, and value in sterling 91. 53d. The sequin of Milan is better than the English standard; its aßay is 1 car. 3 grs., its weight 2 dwt. 53 grains, its contents in pure gold 53.2 grains, and its in sterling value is 91. 52d. The sequin or two-ducat piece of Naples, of 1762, is worse than Eng. aßay.; its aßay is 1 car. 22 grs., weight 1 dwt. 203 grains, contents in pure gold 53.4 grains, and its in sterling value 73d. The sequin of Piedmont (and half sequin in proportion) is better than Eng. aßay.; its aßay is 1 car. 23½ grs., weight 2 dwt. 53½ grains, contents in pure gold 52.9 grains, and value 91. 45d. The sequin of Rome, coined before 1760, is better than Eng. aßay.; its aßay is 1 car. 2 grs., weight 2 dwt. 43½ grains, contents in pure gold 51.4 grains, and value 91. 14d. The aßay of the sequin coined since 1760 is 1 car. 32½ grs., its weight 2 dwt. 43½ grs., its contents in pure gold 53.6 grains, and its value 91. 53d. The zecchino or sequin (the half and quarter in proportion) of Venice is better than the English standard; its aßay is 1 car. 33½ grs., its weight 2 dwt. 52½ grs., its contents in pure gold 53.6 grains, and its value 91. 53d.

The impressions on the Italian sequins are as follow: on that of Genoa, St. John the Baptist holding a croos; legend, NON SURREXIT MAJOR, i.e. a greater has not arisen, and the date; reversé, the arms of Genoa with a crown; legend, DUXX ET GUB. RÉPUBL. GENU. I. D. doxe and governor of the republic of Genoa. On that of Milan, the head of the reigning emperor of Germany, with name and title this; JOSEP. H. D. G. R. IMP. S. AUG. G. H. ET P. REGES. A. A. i.e. Joseph the second, by the grace of God, emperor of Rome, emperor of Austria, king of Germany, Hungary, and Bohemia, archduke of Austria; reversé, arms of Milan; legend, MEDIO LANI ET MANTUAE: duke of Milan and Mantua. On that of Venice, a man holding a croos, and another kneeling before him with the doge's name, as ALOY. MOC. (Alvayus Mocenigo), and the letters s. m. v. e. n. e. one above the other near the edge of the piece, i.e. Sanctus Marcus Venetus; also the letters d. v. x. DUXX, duke or doge, placed in the same manner above the knobbing figure: reversé, a whole length figure of St. Mark, holding a book, and surrounded with flares; legend, ST. T. X. P. D. Q. T. REGIS ISTE DUCA, supposéd by Muratori in his "Antiquitates Italicae Medii Aevi," to denote, SIT TIBI CHRIJE DATUM, quod (vel quia) tu regis Iste ducatum, i.e. To thee, O Christ,
O Christ, be it (this coin) given, because thou governest (universally). He, St. Mark, governs the duck. Muratori doubts this interpretation and supposes that it might have been originally ". The legend, however, is curious, as being both an hexameter verse and a monikith rhyme.

The half and quarter sequins bear the same muntteniations, but the legend on the reverse is, Egg sum, i.e. I am the light of the world.

At Cochin, on the Malabar coast, Venetian sequins are worth 72panams, of which 20 are reckoned for a rupee. At Goa, Venetian sequins are worth 16good tings, each of which is worth about 7½d. feeling. At Surat, the weight of a Venetian sequin is reckoned at 24 valls, of which 8½ make 1 oz. troy.

The gold coins of Turkey are the sequin or chequen, called the sequin funduch, coined in the year 1764; 100 of these weigh 110 Turkish drahms, or 5415 English grains, and are about 23 carats fine. The sequin funduch at Constantinople passed at first for 3½ piastres, or 4½ apers; but its price was gradually raised to 4 piastres.

In 1769 most of them were called in for a new coinage. There is another sequin, called mahbub, or zermahbub, and ingerly; the nisef, or half mahbub; and the roubbie, or one-third dito: 100 mahubs, 200 nisies, or 300 roubbies, were to weigh 8¼ Turkish drahms, or 4061 English grains: they were at first 22 carats fine; but in 1781 were reduced to 19½ carats; and in subsequent coinages they have been still more debased. Venetian sequins pass at present for 94 piastres. At Alexandria in Egypt the sequin, called funduncle, is worth 146 medini; that called zumabob is valued at 120 medini, 40 medini being a piastre. At Grand Cairo in Egypt, contracts are made in funduncle and mahbub sequins; the former are reckoned at 146 medini, and 3 mahubs are equal to 4 pataejas, so that the mahbub is worth 120 medini. The only coins allowed by the Turkish government to be struck at Cairo are the mahbub (or zermahbub) sequins, and medini: 40 medini are valued at 19½d. feeling, so that the mahbub is worth 41. 9¼d. feeling. Mahubs, however, of inferior value, are coined by the Beys in Egypt, and generally pass for 110 medini. The Turkish coins are current at Patras in the Morea. Some European gold ducats and sequins circulate in Persia. The sequin funduch of Constantinople of 1773 is worse than the English standard: its assay is 2 car. 26 gr.; its weight 2 dwt. 52 ½ gr.; its contents in pure gold 43.4 gr., and its feeling value 71. 83d. The sequin funduch of 1789 is worse than the English standard: its assay is 2 car. 33 ½ gr.; its weight 2 dwt. 52 ½ gr.; its contents in pure gold 42.0 gr., and its value 71. 73d.

The double sequin mahbub of Constantinople of 1773 is better than the English standard: its assay is 1 car. 33 ½ gr.; its weight 3 dwt. 44 gr.; its contents in pure gold 73.1 gr., and its value 125. 11½d. The sequin mahbub of 1789 is worse than the English standard: its assay is 2 car. 22 ½ gr.; its weight 2 dwt. 13 gr.; its contents in pure gold 28.9 gr., and its value 51. 10d. The sequin of Cairo of 1773 is also worse than the English standard: its assay is 3 car. 04 gr.; its weight 1 dwt. 15 ½ gr.; its contents in pure gold 31 gr., and its value 51. 54d. The sequin of Cairo of 1789 is also worse than the English standard: its assay is 5 car. 24 gr.; its weight 1 dwt. 15 ½ gr.; its contents in pure gold 26.9 gr., and its value 46. 04d.

As the representation of men and animals is forbidden by the Mahometan law, the Turkish coins have no other imitations but inscriptions stating the names, titles, deficient, &c. of their sultans, with the date of the hegra, or Mahometan era. They are in the Arabic language, and the following translations from the principal cases of sultan Selim (1566) may serve as a specimen, all the rest being in the form of style of these compositions.

The sequin mahbub has on one side, " Sultan Selim, son of Mulufa Khan, may he be victorious, and his value be blest, struck at Slanbul (Constantinople) in the year 1203;" and on the reverse, " Sultan of the two lands, and sovereign of the two less, sultan by inheritance, son of a sultan."

The words, " May he be victorious, and his value be blest," are occasionally used by the Turks at the end of their prayers. By the "two lands," are meant Europe and Asia; and by the "two less," the Black Sea and the Archipelago. The latter is also called here the White Sea.

The sequin funduch has on one side, " Sultan Selim, son of Mulufa Khan;" and on the other, " Struck at Slanbul, in the year 1203;"

The imitations of sequins of different periods mostly answer to either of the foregoing descriptions; but the sequins coined at Cairo, under sultan Abdulhamid in 1773, have their inscriptions as follows: " Sultan Abdulhamid, son of Ahmed Khan, may his value be blest, struck in Egypt in the year 1787;" and on the reverse, the titles as on the sequin mahbub of Selim.

The pieces of two, three, four, and five sequins bear the same inscriptions as the single sequin, and are sometimes also encircled with ornaments.

The sequins of the Barbary States are coined in the name of the grand seigneur, and are only distinguished by the words, "Struck at Tunis, Tripoli," &c. They bear on the reverse the titles as on the sequin mahbub of Selim.

Kelly's Un. Cambill.

SERA, in Ancient Geography, a town of Senaca, which had the title of metropolis, according to Ptolemy.

SERA, in Geography, a town of Hindoostan, and capital of a district, once a considerable subah, conquered by Hyder Ali; taken from the dominions of his son Tippoo, and given to the Nizam in the year 1800; 58 miles N.W. of Bangalore. N. lat. 13° 28'. E. long. 75° 54'.—Also, a town of Hindoostan, in Guzerat; 24 miles S. of Dungarpour.

SEERA CAPRIOIA, a town of Naples, in the province of Capitanata; 14 miles S.S.E. of Termoli.

SERAB, a district of Adiribiztan, or Azerbaijan, and a town, 15 miles E. of Tabris.

SERABIS, in Ancient Geography, a river of Hispania, in the Tarragonensis. Ptolemy.

SERACH, in the Turkish Military Orders, an officer who holds the stiring of the caza of the janizaries in charge, attends him when he goes out on horseback, and serves him as a mel linger on all occasions. After this office he has the title of shous; and after he has passed through this, he has the same office under the age of the janizaries. Pococke's Egypt, p. 165.

SERACONYA, in Geography, a town of Bengal; 38 miles E.S.E. of Ismailbad.

SERACORRO, a town of Africa, in Bamburra; 80 miles W.N.W. of Segu.

SERAES, or SERIKAS, a town of Persia, in the province of Khorsan; 180 miles N.W. of Herat. The Bedouin has its source near this place.

SERAFFINI, in Biography, an Italian singer, with a feeble soprano voice, but so good an actor, that in 1754, when Metalasfo's "Attilio Regolo," let by Halle, was performed in London, in the last scene of this opera, which ends with an accompanied recitative, without an air, he was constantly encored; but perhaps it was the poet who

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SER AGANORE, in Geography, a town of Hindoothan, in the Carnatic; 5 miles S.S.W. of Ootacoor.

SERAGE, in Ornithology, an English name for a bird of the larus, or gull-kind, more usually called the sea-swallow, and by authors larus.

SERAGIO, in Geography, a town of the island of Corfica; 6 miles S. of Corve.

SERAGLIO, a district of Italy, south of Mantua, in which Augustus had some palaces; called also "Virgian Fields."

SERAGLIO, formed of the Turkish word serai, which is borrowed from the Persian seraw, signifying a boyce, among the Levantines denotes the palace of a prince or lord.

At Constantinople they say, the seraglio of the ambassador of England, or France, &c. of Honour.

The seraglio is used, by way of eminence, for the palace of the grand feignior at Constantinople, where he keeps his court, and where his concubines are lodged, and where the youth are trained up for the chief pets of the empire.

It is a triangle about three Italian miles round, wholly within the city, at the end of the promontory Chrysoceras, now called the Seraglio Point. The buildings run back to the top of the hill, and from thence are gardens that reach to the edge of the sea. It is inclosed with a very high and strong wall, upon which there are several watch towers: and it has many gates, some of which open towards the sea-side, and the rest into the city: but the chief gate is one of the latter, which is constantly guarded by a company of cafooeches, or porters; and in the night it is well guarded towards the sea.

The outward appearance, du Loir tells us, is not beautiful, in regard the architecture is irregular, being cantoned out into separate edifices and apartments, in manner of pavilions and domes. No stranger, it is said, has ever yet been admitted to the inmost parts of the seraglio. See SULTANA.

The old seraglio is the place where the emperor's old mistresses, who have died or who have been deposited, and the fultanas that have belonged to the deceased grand feignior, are kept.

They are here fed and maintained with some luxury, and served with much attention, but they can no longer go out of this place of retirement; for it would not be decent, in the estimation of the Mussulmans, that a slave, suppos'd to have enjoyed the favours of a sultan, should pass into the arms of another man.

The harem is a quarter of the seraglio in which the females are kept. This is soon replenished, becaufe traders come from all parts to offer young slaves, and the pachas and great men are eager to present beauties capable of fixing the attention of the sovereign; thus hoping to obtain instantly his good graces, and place about his person the women who at some future time may be useful to them.

It is very difficult, and perhaps impossible, to learn exactly the manner in which the female slaves are treated in the harem of the grand feignior: never has the eye of the observer penetrated into this abode of hatred, jealousy, and pride; into this abode where pleasure and love have so feldom rekindled. But, according to the account of the women, whose profession calls them thither, the reader may reprefent to himself three or four hundred black eunuchs, malicious, peevifh, tormented by their impotence, cursing their nullity, endeavouring to counteract the female flaves intrusted to their charge; then a confiderable number of young women, whose hearts would willingly expand, whose fonfees are moved at the idea of the pleasures which they wish in vain to know, jealous of the happy flaves which they are perfuaded that their rivals enjoy, cursing the overfeers who perplex them, solely taken up with their toilet, with their fads, and with all the nonfence which idlenes and ignorance can fuggelt to them; feking, rather from vanity than from love, every means of pleasing a master, too frequently difpainful. We may reprefent to ourselves, in short, a fultan young or old, malfiered by ridiculous prejudices, without delicacy, often whimifical or capricious, alone in the midst of five or fix hundred women, all equally beautiful, in whom he gives birth to defires which he is unable to gratify, who enjoys with them no pleasures but fuch as are too eafy and without prudence, in which the heart has no fhare, and we may have a f true idea of what paffes in the harem of the grand feignior.

The charge of the women is intrusted only to black eunuchs, whose mutilation is fuch, that there remains no trace of their sex. Oriental jealoufy has very rightly judged, that fuch creatures were rather capable of infliring sentiments of hatred and contempt, than of affection and friendship, which would not have failed to take birth, if the charge of the harem had been intrusted to women. It was not enough to condemn thefe unfortunate females to long privations, never to let them know of love only what was to excite in them defires, it was even neceffary to deprive them of the conflation of opening their heart in the bosom of friendship.

The chief of the black eunuchs, called kiflar-agaj, is one of the greatest perfonages of the empire; he is who carries to the female flaves the will of his master; he it is who announces to them the happyflses which they have to pleaf him. Independently of the authority which he exercises in the harem, he has the superintendence of all the imperial moqifes; he is charged with the general administration of all the pious foundations which relate to them; he has the pre-eminence over the chief of the white eunuchs, and, what is more flattering to a slave, he more frequently approaches his master, and more commonly enjoys his confidence. His income is very considerable.

The kllifin-rekili is the second eunuch of the seraglio; he replaces the kiflar-agaj, when he dies, or is turned out of office. He has the general administration of the inferior imperial treasure, which must be distinguished from the private treasure of the grand feignior, administered by the khanadar-agaj, one of the pages of confidence. There are some other eunuchs raised in dignity, fuch as he who belongs to the queen-mother, he to whom the care of the princes is intrusted, those who serve the royal moqif of the fultana Valida, whiter the flaves of the grand feignior go to fay their prayers; he who has the particular superintendence of the apartment of the hajfeke; and a few others whose functions are less important.

The white eunuchs do not approach the women; they are employed out of the harem, and in the particular service of the fultana. They have the charge of the gates of the seraglio; they superintend and intruct the pages. Their chief is called capou-agaj. (See CAPO-AGAJ.) For an account of other officers of the seraglio, see BOSTANGI-BASCHI, ICHOGLAN, and CAPO-AGAJ.

Balzac observes, that the seraglio at Constantinople is only a copy of that which Solomon anciently built at Jerusalem, for his wives and concubines. For a particular description
SERAPIS, in Geography, a town of Bengal; 28 miles N. of Mauludah.

SERAPH, or SERAPHIM, in the Hierarchy of Angels, a spirit supposed to be of the first or highest rank. The seraphs, or rather sefaraph, make that chas of angels, supposed to be the most inflamed with divine love, by their nearer and more immediate attendance on the throne, and to communicate their heat to the inferior and remoter orders: hence their name, which is formed from the Hebrew root 5517, to burn, inflame.

Seraph is also said to be the name of a Turkish gold coin, worth about 57. florins.

Seraph's head, in Heraldry, is used to denote a child's head, with three pair of wings, two in chief, two in fess, and two in base.

Seraphic, something belonging to the seraphan.

Mr. Boyle has a treatise of seraphic love, i.e. of divine love, or the love of God.

In the schools, St. Bonaventure is called the Seraphic Doctor, from his abundant zeal and fervour.

St. Francis, founder of the Cordeliers and Franciscais, is called the Seraphic Father, in memory of a vision he saw on mount Alverna.

Seraphim. See Seraph.
Rudb. Elyt. v. 2. 204. Orchidæ Etruria; Petiv. Gazoph. t. 128. f. 1—3? Telficti species tertia; Matth. Valgr. v. 2. 233. f. 1. Dalech. Hist. 1551.)—Lateral segments of the lip erect; middle one ovate, smooth.—Native of open mountainous situations in the south of Europe. Dr. Sibthorp gathered it in Zante, as well as in Greece, and we readily ascribe to the opinion of a learned German writer, in the Allgemeine Literatur-zeitung, for June 1807, n. 133. 1066, that this plant, and not Iris tuberosa, is probably the true nobilis of Dioecorides. The root conflicts of two stalked, roundish knobs, like others of this tribe, but rather smaller. Stem a foot high, clothed in the lower part with lanceolate, sheathing, smooth leaves. Spike of from two to eight flowers, with a large, concave, purplish-grey bractea to each. Calyx ribbed, of the same colour as the bracteas, and pointed like them, three quarters of an inch long. Lip twice that length; its disk whitish, with a dark red, oblong, undivided elevation at the base, and two rounded, erect, lateral lobes of the same colour; the central lobe dependent, ovate, pointed, undulated, purplish, veiny, smooth. Haller justly refers both to the above synonyms of Rudbeck to this species.

2. S. cordigera. Heart-handed Serapis. Linn. Sp. Pl. 1342. Willd. n. 2. Att. n. 2. Sm. Fl. Græc. Sicibh. t. 932, unpublished. Andr. Repof. t. 475. (Orchis montana italicæ, flore ferrugineo, linguæ oblongæ; Rudb. Elyt. v. 2. 203 f. 18. O. Etruria, linguæ ferruginea piolaris; Petiv. Gazoph. t. 128. f. 4.)—Lateral segments of the lip erect; middle one heart-shaped, hairy.—More frequent than the foregoing in the south of Europe, and north of Africa, in the same kind of situations. We gathered it in July 1787, in pastures at St. Orfeke, near Genoa. The whole plant, especially the bulb and flowers, are larger than in S. Lingua, and the whole spike is of a more dingy hue. The colour, however, of the different parts is variable in both. The broad hairy lip of cordigera, with a divided glandular elevation at its base, is sufficiently characteristic. We trust we are right in the citation of Rudbeck, and that he misquotes Matthiolus.

Willdenow's S. oxyglossis, founded solely on Petiver's t. 128. f. 5 & 6, appears to us too uncertain to be adopted, though we doubt not that some distinct species of this order, and perhaps of this genus, are still latent in Italy.

Serapias, in the Materia Medica, the official name of the dried root, called falan.

SERAPION, of Alexandria, in Biography, lived about the year 260 before Christ, or in the 125th Olympiad, and is ascribed to Celsus to have been the founder of the empirical sect of physicians, and accused by Galen of vaunting himself, and of mal treating the character of Hippocrates. (See Empiric.) He was probably a contemporary of Philinus, to whom also the origin of the fame-fect has been attributed. See Celsus, Praef.

SERAPION, JOHN, or JOHN, the Son of Serapion, an Arabian physician, lived between the time of Mene and Rhazes, and was probably the first writer on physic in the Arabic language; for it appears that Mene, like his predecessor Aaron, or Ahrun, wrote in the Syriac tongue. Haly Abbas, when giving an account of the works of his countrymen, describes the writings of Serapion, as containing only an account of the cure of disease, without any precepts concerning the preservation of health, or relating to surgery; and he makes many critical observations, which, Dr. Freind observes, are sufficient proofs of the genuine existence of the works ascribed to Serapion, from their truth and correctness. Rhazes also quotes them frequently in his "Continent." Serapion must have lived towards the middle of the ninth century, and not in the reign of Leo Haurus, about the year 720, as some have stated. One circumstance remarkable in Serapion, Dr. Freind observes, is, that he often transcribes the writings of Alexander Trallian, an author with whom few of the other Arabians appear to be much acquainted. This work of Serapion has been published, in translations, by Gerard of Cremona, under the title of "Practica, Dieta Breviaria," and by Torinus, under that of "Therapeutica Methodus." See Freind's History of Physic, and Sprengel Geschichte der Arzneikunde, ii. 365.

Some confusion appears to exist respecting another Serapion, whom Sprengel calls the younger, and places 180 years later than the former, and who was probably the author of a work on the materia medica, entitled "De Medicamentis tam simplicibus, quam compositis." This work bears intrinsic evidence of being produced at a much later period, since authors are quoted who lived much posterior to Rhazes. It is probable that this work, which might obviously have been composed in the latter part of the eleventh century, (for Aventzor, who wrote in that century, is quoted in it,) is the same with that which is often cited by Constance, the African, under the name of Joannes Damascenus, a name which some authors have erroneously given to the elder Serapion, instead of the subject of the present article; and some to Mefue; to the latter of whom Freind has shewn that it could not belong. See Freind and Sprengel, as above quoted.

SERAPIONIS Portus et Præmonstrariorum, in Ancient Geography, a port and promontory of Ethiopia, between Efinna emporium and Tonice emporium, according to Ptolemy.

SERAPIS, in Mythology, an Egyptian deity, who was worshipped under various names and attributes, as the tutelary god of Egypt in general, and as the patron of several of their principal cities.

Tacitus informs us, that he was worshipped as a kind of universal deity that represented Ecclepius, Oforis, Jupiter, and Pluto; and he was sometimes taken for Jupiter Ammon, the Sun, and Neptune; and the honours that were rendered to him at Alexandria were more solemn and extraordinary than those of any other place.

Learned writers have differed in opinion as to the time of the introduction of this deity into Egypt: some have supposed that he was known and worshipped in this country long before the time of the First Ptolemy, and that he was the same with their Aphis; Serapis being no other than Aphis or Esous, i.e. Aphis in his coffin. Accordingly, they say, that while the sacred bull, which the Egyptians worshipped for their great god, was alive, he was called Aphis; and that when he was dead and buried in his coffin, he was called Serapis, that is, Aphis in foro, and thus they derive his name by corruption from sarapis: and some have even imagined that the patriarch Joseph was worshipped under this title; but to this etymology it has been objected, that as the Ptolemies first brought the Greek language into Egypt, if Serapis had been an ancient god worshipped in that country before the Ptolemies reigned there, his name could not have had a Greek etymology.

According to the learned Mr. Bryant, sar signifies any thing noble; and Oforis, the great husbandman, who had been exiled in an ark, was styled sar-apis, which signifies illithrus genitor, the great father of mankind. But, he observes, that there was likewise the term sar, from whence came the sarapis of the Greeks, which signified a beur or coffin, and also a place of internment. Hence the temple where the dead Aphis was deposited, had the name of Sar-apis, rendered inaccurately sarapis.

Plutarch,
Phæareth, who did not know this, then fancied that some people in Egypt would not allow Serapis to have been a god: the difpute was about the found of a word: no Egyptian could deny the divinity of the god Serapis; but Serapis had another meaning; and this was the term in debate. Upon the whole he concludes, that the demon, or deified man, was Serapis, and that Serapis was the tomb of Apis. Analysis of Ancient Mythology, vol. ii. p. 428.

Others have maintained, that Serapis was not originally an Egyptian deity, and was worshipped in that country, but an adventitious god brought thither from abroad. The ancient place of its mention, according to Ptolemy, was on the coast of the Propontis, on the Thracian side, over against Hieras; and there Jason, when he went on the Argonautic expedition, sacrificed to him. Thence its image was brought to Sinope in Pontus; and from Sinope, Ptolemy, the first of that name, in obedience, as it is said, to a supernatural direction, brought it to Alexandria, and set it up in one of the suburbs of that city, called Rhakasis, where it was worshipped by the name of Serapis; and this new god had in that place, soon after, a very famous temple erected to him, called the Serapeum. This temple, says Annius Marcellinus, did, in the magnificence and ornaments of its buildings, exceed all other edifices in the world, next to that of the Capitol at Rome. Hence Serapis became the god of the court, and led the Egyptians almost to forget their ancient gods. The provinces vied with each other in building temples to him, and burning incense on his altars. The most ancient temple, according to Pausanias, was that at Memphis.

And this, say the advocates of this opinion, was the first time that this deity was either worshipped or known in Egypt.

Ptolemy found great difficulty in obtaining this image; but the inhabitants of Sinope, being oppressed with a grievous famine, were relieved by Ptolemy with a fleet of corn, and in return they consented to part with the image of their god.

The statue of Serapis, according to Macrobius, was of a human form, with a basket or buflfet on his head, resembling plenty, and referring, as some say, to the history of Joseph's supplying the Egyptians with corn; or, according to others, to the relief of Sinope by Ptolemy: his right hand leaned on the head of a serpent, whose body was wound round a figure with three heads, of a dog, a bull, and a wolf; in his left he held a measure of a cubit length, as a wolf to take the height of the waters of the Nile.

Those who maintain that Serapis was a foreign god, unknown to the Egyptians before the time of the Ptolemies, argue, that Herodotus, who dilates in his account of the Egyptian gods, makes no mention of Serapis; which he probably would have done, if he had been one of the great gods of that people. Moreover, the Iliac tableau, upon which so many Egyptian deities appear, presents us with nothing that resembles Serapis. Besides, Tacitus relates, that Serapis appeared in a dream to Ptolemy, under the figure of an exquisitely beautiful young man, and ordered him to feed two of his most faithful friends to Sinope, a city of Pontus, where he was worshipped, and to bring his statue from thence. Ptolemy, having communicated this vision, deputed a select embassy to Sinope, and from thence the statue of that god was brought. Hence it is concluded that he was unknown in Egypt before this event.

On the other hand, those who contend that Serapis was one of the great gods of Egypt, where he was worshipped before the time of the Ptolemies, allege, that before the testimony of Tacitus can be admitted, it must be proved that Serapis was the deity actually worshipped at Sinope, whereas, they say, that the god to whom that city paid adoration was Pluto; and that the same Serapis was not given to him till his statue was brought unto Egypt. Ptolemy tells us, that he had not that name when he came into Egypt; but upon his arrival at Alexandria, he took the name which the Egyptians gave to Pluto, which was Serapis. When Pausanias relates, that the Alexandria was received from Ptolemy the worship of Serapis, he says, at the same time, that there was already at Alexandria a very magnificent temple of that god; and another, not to grand, but of great antiquity, in the city of Memphis. Tacitus himself, when he says that Ptolemy, after Serapis was brought into Egypt, built a flatly temple to him in the place named Rahasis, affirms also, that there was another smaller one, consecrated to the same god, and to Isis; which proves, that not Serapis was not worshipped in Egypt till the time of the embassy to Sinope, but only that the worship of that god, perhaps neglected for a long time, was re-established there with solemnity. The silence of Herodotus, and the omission in the Iliac table, may be accounted for by the following considerations. Though it is true that Herodotus set apart his second book for the history of the Egyptian religion, yet we cannot be sure that he has omitted none of their gods. Besides, having spoken fully of Osiris, who was perhaps the same with Serapis, he might think it needless to say any thing particularly of the latter. The same observance is applicable to the Iliac table. Although a great number of the Egyptian gods may be found there, yet it cannot be affirmed that they are all there, and much less that they can all be distinguished by their particular symbols. The proof drawn from the diversity of representations is yet less conclusive. The Egyptians varied exceedingly with respect to the figures of their gods, and the symbols annexed to them. The figures frequently bore a vast number of attributes, which could not agree to a single divinity. These are what have been called the Pantheon figures, which represented several deities; as any one may be convinced by viewing some of those of Isis, of Harpocrates, and others. From these, and from other considerations, many learned men have inferred that Serapis was an Egyptian god, known and worshipped by that people long before the time of the Ptolemies; and that he was the same with Pluto; and though the testimonies of Tacitus and Plutarch, above cited, were less conclusive than they are, yet one of the finest statues of that god, at whose feet we see the three-headed Cerberus, would leave no room to doubt. See a print of this figure in Montfaucon's Antiquity, tom. ii. p. 185. Antiquarians have furnished us with several other figures, always known to be those of Serapis by the calathus, or a kind of bonnet which he wore upon his head. Sometimes he is joined with Isis, and represented like a young man, and then he is taken for Osiris or the Sun; frequently like a bearded old man, very much resembling Jupiter, whose name he also bore; at least, from the time that the Greeks became masters of Egypt. Varro says, that there was a law which forbade saying, under pain of death, that Serapis had been a mortal man.

We shall here add, that Osiris was variously represented, sometimes by a sceptre and eye, to express his power and providence; at other times, by the image of a hawk, because of its sharp flight, swiftness, and other qualities; and in later times, in a human form, in a posture not very decent, signifying his generative and nutritive faculty; but the greatest adoration was paid to his living image, the bull.

The image of Isis was usually in the form of a woman, with cow's horns on her head, representing the appearance
of the moon in her incease and decrease, and holding the sistrum (a kind of cymbal) in her right hand, and a pitcher in her left; the former signifying the perpetual motion there is in nature, and the other the fecundity of the Nile. But sometimes she was represented as Cybele, having her body full of breaths, to express her nourishing of all things.

It is observed, that when Serapis was introduced into Egypt, at the period above-mentioned, as writers have inferred from the silence of Herodotus, and of other authors who wrote before the times of the Ptolemies, he brought in with him among the Egyptians, a new way of worship: for till the time of the Ptolemies, the Egyptians never offered any bloody sacrifices to their gods, but worshipped them merely with their prayers and frankincense; but the tyranny of these princes having forced upon them the worship of two foreign gods, viz. Saturn and Serapis, they in this worship first introduced the use of bloody sacrifices among that people. And so averse were the Egyptians to this mode of worship, that they would never suffer any temple to be built to either of these gods within any of the walls of their cities, but they were always erected in their suburbs: and they seem to be only Egyptians of the Greek original who conformed to this practice, and not those of the old race. See Exod. viii. 26, 27. Prid. Conn. vol. iii. p. 15, &c.

The famous temple of Serapis at Alexandria was destroyed by order of Theodosius; and the celebrated statue of this deity was broken in pieces, and its limbs carried first in triumph by the Christians through the city, and then thrown into a fierce fire, kindled for that purpose in the amphitheatre. As the Egyptians ascribed the overflowing of the Nile, to which was owing the fertility of that country, to the benign influence of their god Serapis, they concluded, that, now he was destroyed, the river would no longer overflow, and that a general famine would ensue; but when they observed, on the contrary, that the Nile swelled to a greater height than had been known in the memory of man, and thereby produced an immense plenty of all kinds of provisions, many of the pagans, renouncing the worship of idols, adored the God of the Christians. Ancient Univ. Hist. vol. vi. p. 417.

The figure of Serapis is found on many ancient medals.

SERAPIU, in Ancient Geography, a place of Egypt, beyond the Nile, between Hero and Clidmo, according to the Itinerary of Antonine.

SERAQUINO, in Geography, an island in the Grecian Archipelago; 8 miles N.E. of Scopelo.

SERARIUS, NICHOLAS, in Biography, a learned Jew, was born at Ramherrillers, in Lorraine, in 1555. He studied at Cologne, where he entered into the society of the Jews, and afterwards was for twenty-four years a professor of the languages of philosophy and theology at Wurtzburg. He died at Mentz in 1609, having, besides his employment in teaching, occupied himself in the composition of a vast number of works, which were printed collectively at Mentz, in 3 vols. folio. Of these, the most esteemed were "Commentaries on several Books of Scripture," "Prolegomena on the Holy Scriptures," "Trihexedrum, seu de celeribus tribus, apud Judaeos, Pharisæorum, Sadduceorum, et Elenorum Seificus." This last work was afterwards printed at Delft, with the addition of the treatises of Driusius and Scaliger on the same subject. Serarius was a strenuous defender of the church of Rome against the reformers, and wrote several works against Luther and his followers. Cardinal Baronius gives him the title "of the luminary of the Germanic church." Dupin says, that the Prolegomena of Serarius have a great deal of erudition, but that he handles his questions in too scholastic a manner, and mixes up too much controversy in them: he thus furns up the literary character of this author; "Serarius," says he, "was very learned, and well versed in the languages, and in topics relating to the Holy Scriptures: he is not equally exact in ecclesiastical history, nor equally powerful in controversy. He wrote with ease, but without politenes. In treating on a subject, he often defends to impertinent and tedious trilling, and sometimes wanders from the point to attack the Protetants, and diffuses controversial questions."

SERASAPOUR, in Geography, a town of Hindooftan, in Bahar; 18 miles W. of Bahar.

SEASKER, a Turkish word, composed of fer, which in Perzian signifies head, and after, i.e. soldiers. This is a military degree, that admits of no superior, somewhat like generalissimo, and is a title given to those who command on the frontiers, or are detached with a considerable body of troops.

SERASPARE, in Ancient Geography, a town of Asia, in the Leffer Armenia, and in the prefecture of Rhanena, according to Ptolemy.

SERASS, in Ornithology, a bird of the same genus with the colum, which comes yearly to Surat in the Eait Indies, from mount Caucafus, and distinguished by a plication of the alperia arteria; which is designed to anwer similar purposes with that of the colum.

SERAT, SERED, or Sredo, in Geography, a town of Hungary, on the river Waag; 27 miles E. of Prefburg.

SERATZ, a town of Scelavonia; 28 miles N.W. of Polzega.

SERAVEN, in Ornithology, the name given by Buffon to the Loxia Aarhus, which lee.

SERACOURT, in Geography, a town of France, in the department of the Aine; 6 miles S. of St. Quinten.

SERAVI, a town of Egypt, on the E. branch of the Nile; 21 miles N. of Cairo.

SERAUSTH, a town of Candahar; 30 miles S.W. of Cabul.

SERAY, a town of Hindooftan, in Bahar; 12 miles N. of Chuoprah. N. lat. 25° 18'. E. long. 84° 53'.—Also, a town of Hindooftan, in Boggicund; 20 miles W. of Rewah.

SERAYA, a town of Hindooftan, on the right bank of the Jumnah; 42 miles S.E. of Agra.—Also, a town of Hindooftan, in Bahar; 10 miles S. of Bertiah. N. lat. 26° 28'. E. long. 86° 53'.

SERBADJE, a town of Egypt, on the E. bank of the Nile; 20 miles N. of Cairo.

SERBAJEE, in the Eastern Military Orders, is a captain in the horse in the service of the grand siegior.

SERBAR, in Geography, a town of Peria, in the province of Mekran; 50 miles N.N.W. of Kidge.

SERBATIS, Yisser, in Ancient Geography, a river of Africa, in the eastern part of Mauritania Cenaraeis, which discharged itself into the Mediterranean, to the E. of Rufugine colonia. Ptolemy places its mouth between Modunga and Ciffa.

SERBI, a people of Asiatic Sarmatia, who dwelled with the Orinix and Vali, between the Ceraunius mountains and the river Rha, according to Ptolemy.—Also, a people called likewiev Seythians, who inhabited a territory towards Dalmatia.

SERBINUM, a town of Lower Pannonia, along the Danube.

SERBONIS, LAUS, or Serbonis lake, a lake which was situated between Egypt and Palestine, near mount Cafius;
fun; and miles by different authors has been assigned to Egypt, Syria, Palestine, or Judea. Strabo says that it was 150 miles long. Strabo assigns to it 150 miles of length, and 200 of breadth. It had communicated with the Mediterranean by an opening which was filled up in the time of Strabo. The fable says that Typhon lay at the bottom of this lake, and the Egyptians called it the breathing-hole of Typhon.

SERBOKA. See Schwarzkopf.

SERBOKI LAKE. See Dead Sea.

SERBURA, the name of a dog, assigned by the mythological legends of the Hindoos, as an attendant on Yama, the regret of their infernal regions. The name means varied, or spotted, and reminds us of the three-headed Cerberus of western fable. It might as well be written Cercura; and when we add that another of his names is Trifora, or three-headed, and that he is to be represented, we can no longer doubt of their identity, and of the fable of one nation being borrowed from the other, or both from a common source. See Triedram, and Yama.

SERCELLI, in Geography. See Sherwood.

SERCHIO, a river which rises in the duchy of Modena, and after traversing the flat of Lucca, runs into the Mediterranean, 4 miles N.N.W. of Pisa.

SERD, a town of Persia, in the province of Adrbeitza; 15 miles N. of Tabris.

SERDAN, a town of Persia, on the Kerman; 83 miles S.S.W. of Kerm.

SERDAR, O, town of Portugal, in the province of Alentejo; 30 miles W.N.W. of Ouirique.

SERDAPO, a town of Hungary; 2 miles S. of Sarat.

SERDOB, a town of Russia, in the government of Saratov, on the Donetz, near its source; 72 miles N.W. of Saratov. N. lat. 52° 50'. E. long. 45° 36'.

SERDOBOL, a town of Russia, in the government of Viborg, on the lake Ladoga; 60 miles N.N.E. of Viborg. N. lat. 61° 12'. E. long. 30° 14'.

SERDEZ KANEN, a cape on the N.E. coast of Russia, in the Frozen sea, so called from its fputed resemblance to a heart. N. lat. 64° 30'. E. long. 170° 25'.

SERE, in Falconry, the yellow between the beak and eyes of a hawk.

SERE, in Geography, a river of Spain, which runs into the sea, 6 miles S. of Penafiel.

SEREA, a town of Abyaffia, near lake Dombra; 90 miles E.N.E. of Mitre.

SEREBRANKA, a gulf of Russia, on the W. coast of N. W. Zembla. N. lat. 75° 35'. E. long. 52° 14'.

SERECH, a town of Persia, in the province of Segelsson, or Sedlan; 84 miles S.S.W. of Kerm.

SERED, SERET, or Sabor, a town of Cordillan, on the Tigris, S. of Zok, supposed to be the ancient Tigranocerta, a city built by Tigranes, and intended by him for the capital of Armenia, and peopled with inhabitants collected from all parts of Asia. It was taken and plundered by the Romans under Lucullus in the year 69 B.C. It is now peopled by 5000 Curius, Syrians, and Chaldeans, and governed by a prince subject to that of Zok; 75 miles S.E. of Dezarbek.

SERED. See Sarat.

SEREEK, a town of Persia, in the province of Mekran, and the residence of the chief of Jajk; it contains a large mud fort, and 600 huts, situated four miles from the sea, and six from the hills. The country between Jajk and this place contains numerous plantations of palms, and abundance of wheat. Jajk is tributary to the Imam of Mufcat, and pays 2,500 rupees a-year. It lies two miles from the sea.

and eight from the hills, and the town consists of 2,500 huts, defended by a mud fort.

SEREGIPPE. See Servia.

SERELIANN, a town of Tyrol; 38 miles N.E. of Trent.

SERENNO, a town of Italy, in the duchy of Milan; 10 miles N. of Milan.

SERELI, Feather of a Hawk, the name which answers to pinions in any other fowls.

SERELON, in Geography, a town of Spain, in the province of Eltrimadura; 20 miles S. of Placentia.

SERA, a river of Chili, which runs into the South Pacific ocean, near Coquimbo; which fee.

SERENA, Curta, in Medicine, the name as a marosus. See Guitta Serena.

SERAINE, an evening concert, given by a lover under the window of his mistress. It generally consists of instrumnental music; sometimes, however, vocal is added.

These pieces in Italy are also called sonate. The mode of sonatas, says Rouleau, has been long discontinued, unless by the common people; and its discontinuance is to be lamented. The silence of the night, which banishes all distraction, gives music additional charms, and renders it more delicious. In the summer of 1720, this was not the case at Venice, six years after Rouleau's Dictionary was written; as we find in our journal, during the month of August of that year, the following memorandum. "The people here (at Venice) during summer, seem to begin to live only at midnight. Then the canals are crowded with gondolas, and St. Mark's square with company; the banks too of the canals are all peopled, and harmony prevails in every part. If two of the common people walk together arm in arm, they seem to converse in song; if there is company on the water, in a gondola, it is the same; a mere melody, unaccompanied with a second part, is not to be heard in the city: all the ballads in the streets are sung in do. Luckily for us, this night, August 7th, a bargain, in which there was an excellent band of music, consisting of viols, flutes, horns, bagpipes, and a kettle-drum, with a pretty good tenor voice, was on the great canal, and floated very near the house ware we lodged; it was a piece of gallantry, at the expense of an innumerator in order to serenade his mistress. Shakespeare says of nocturnal music, "Methinks it sounds much sweeter than by day.

Silence befo PST the virtue on it—I think

The midnightal, if the should sing by day,

When every goose is cackling, would be thought

No better a musician than the wren."

Whether the time, place, and manner of performing this music, gave it adventitious and collateral charms, we will not pretend to say; but all we know is, that the symphonies formed to us are admirable, full of fancy, full of fire; the passages well contrived; sometimes the graceful, sometimes the pathetic preserved; and sometimes, however strange it may be thought, even noisy and harry had their effect.

SERAINE, SERENITY, a quality or title of honour given to certain princes, and chief magistrates of republics. The king of England is styled, the most serene; the same term is also applied to the doges of Venice. The pope and the sacred college, writing to the emperor, to kings, or the doges, give them no other title but that of most serene. Indeed the Venetians let the title of serenity above that of highness.

In 1646, Wicquart observed, there was a clashing between the courts of France and Vienna, because the emperor Mm refused...
refused the king of France any other title than that of ferene. Bishops also were anciently addressed under the title of ferene.

The kings of France, of the first and second race, speaking of themselves, use no other quality but notre ferenité.

The emperor gives no other title to the king of England, nor even to any other king, excepting the king of France. The king of Poland, and other kings, give it to the electors. The emperor, writing to the electors, or other princes of the empire, only uses the term délection; but in treating with them he uses électoral ferenité to the electors, and ducale ferenité to other princes.

SERENÉ, in Geography, a small island in the Red sea. N. lat. 22°. E. long. 39° 30′.

SERENT, a town of France, in the department of the Morbihan; 13 miles N.E. of Vannes.

SERENUS, Sammonicus, Quintus, in Biography, a Roman physician in the reigns of Severus and Caracalla, who was afflicted at a banquet by the order of the late mentioned emperor. He left an immense library, said to contain twenty thousand volumes, to his son, who was preceptor to the younger Gordian, to whom he presented this valuable bequest. Serenus was the author of several works on history and the products of nature; and also of a medical work in verse, which has passed through a multitude of editions, under the title of "Carmen de Medicina." He was superstitious in the choice of his remedies, and especially in that which he proposed for the Semterian fever, which consisted in wearing about the neck, suspended by a linen thread, a piece of paper, on which was written the word Abracadabra in the form of a triangle. Eloy Dict. Hist. de la Méd.

SERENZ, in Geography, a town of Hungary; 9 miles W. of Tokay.

SERERES, a people of Africa, in the vicinity of Cape Verd, differed into several small republics, which unite into one body against a common enemy. Their laws are merely those of nature. They wear no clothing, and they have little or no idea of a Supreme Being or future life: nevertheless they seem to be inoffensive, unacquainted with strong liquors, indolent, and hospitable to strangers.

SERES, in Ancient Geography, a name given to those people who were situated to the east of India, and who, by the investigations and discoveries of the moderns, are supposed to have inhabited Serica. They were renowned for their justice, according to Mela, and for their longevity of 200 years, according to Strabo. They had an insect which produced filks, says Paulaneris. (See Serica.) People of the same name were also established in the northern part of Taprobana.

SERET, in Geography. See Serit.

SERETIUM, in Ancient Geography, a town of Dalmatia. Dion Cassius reports, that Tibérius was obliged to raise the siege of this town, but that it was afterwards taken by the Romans.

SERETINA, in Geography, a town of Russia, in the government of Irkutsk, on the Angara; 24 miles E.S.E. of Balaganskoi.

SERGA, a town of Russia, on the Volga; 40 miles S. of Astrakan.

SERGAG, a town of Russia, in the government of Nizni Novgorod; 48 miles S. of Nizni Novgorod. N. lat. 56° 30′. E. long. 45° 42′.

SERGE, in Commerce, a woollen quilted stuff, manufactured on a loom with four treddles, after the manner of ra-7 ions, and other fluffs that have the whale. The goodness of serge is known by the quilting, as that of cloth by the spinning.

Of serges there are various kinds, denominated either from the different qualities of them, or from the places where they are wrought. The most considerable is the London serge, now highly valued abroad, particularly in France, where a manufacture has been carried on with good success, under the title of serge façon de Londres.

Serge, Manufacture of London. For wool, the longest is chosen for the warp, and the shortest for the woof. Before either kind is used, it is first scoured, by putting it in a copper of liquor, somewhat more than lukewarm, composed of three parts of water, and one of urine. After having flaked long enough therein for the liquor to disolve, and take off the grease, &c. it is stirred briskly about with a wooden paddle; then taken out of the liquor, drained, and washed in a running water; dried in the shade, beaten with flisks on a wooden rack, to drive out the coarser dirt and filth, and then picked clean with the hands. Thus far prepared, it is greased with oil of olives, and the longest part, defined for the warp, is combed with large combs, heated in a little furnace for the purpose. To clear off the oil again, the wool is put in a liquor composed of hot water, with soap melted in it: whence being taken out, wrung, and dried, it is spun on the wheel.

As to the shorter woof, intended for the woof, it is only carded on the knee with small cards, and then spun on the wheel, without being scoured of its oil. Note, the thread for the warp is always to be spun much finer, and better twisted than that of the woof.

The wool both for the warp and the woof being spun, and the thread divided into skains, that of the woof is put on spools (unless it have been spun upon them) fit for the cavity or eye of the shuttle; and that for the warp is wound on a kind of wooden bobbins to fit it for warping. When warped it is stiffened with a kind of size, of which that made of the shreds of parchment is held the best; and when dry is put on the loom.

When mounted on the loom, the workman raising and falling the threads (which are passed through a reed), by means of four treddles placed underneath the loom, which he makes to act transversely, equally and alternately, one after another, with his feet, in proportion as the threads are raised and lowered, throws the shuttle across from one side to the other; and each time that the shuttle is thrown, and the thread of the woof is crossed between those of the warp, strikes it with the frame to which the reed is fastened, through whose teeth the threads of the warp pass; and this stroke he repeats twice or thrice, or even more, till he judges the crossing of the serge sufficiently close: thus he proceeds till the warp is all filled with woof.

The serge now taken off the loom is carried to the fuller, who fulls, or scourcs it in the trough of his mill, with a kind of fat earth, called fullers-earth, first purged of all stones and filth. After three or four hours scouring, the fullers-earth is washed out in fair water, brought by little and little into the trough, out of which it is taken when all the earth is cleared; then, with a kind of iron pincers, or ployers, they pull off all the knots, ends, flaws, &c. from the surface on either side; and then returning it to the fulling trough, where it is worked with water somewhat more than lukewarm, with soap dissolved therein for near two hours: it is then washed out till such time as the water becomes quite clear, and there be no signs of soap left; then it is taken out of the trough, the knots, &c. again pulled off, and then put on the tenter to dry, taking care as fast as it dries to stretch it out both in length and breadth till it be brought to its just dimensions. When well dried, it is taken off the tenter, and dyed, thorn, and pricked.
SERGENTIUM, in Ancus Geography, a town situated in the interior of Sicily. Ptolemy.

SERCIEV, in Geography, a town of Russia, in the government of Tobolsk, on the Ledy; 72 miles N. of Enelmak.

SERGIEVSK, a town of Russia, in the government of Upha; 180 miles W. of Upha. N. lat. 54. E. long. 54 44'.

SERGIEVSKAIA NOVA, a fortress of Russia, in the government of Upha, on the Samara; 56 miles N.W. of Orenburg.

SERGIESK, a town of Russia, in the province of Uf hug, on the Vma; 52 miles N.E. of Yarenf.—Ato, a town of Russia, in the province of Ekaterinburg; 48 miles S.W. of Ekaterinburg.

SERGILUS, in Botany, a genus formed by Gartnert, t. 2. 429. t. 174. F. 6. of the Linnaean Caled flopura, Chrysocoma, n. 2, Browne Jan. 316. t. 34. f. 4, by the following character.

Calyx somewhat turbinate, imbricated with chief-prefixed, unequal, slightly membranaceous scales. Flowers all perfect and fertile, five-crest. Receptacle naked. Down capillary, tufted at the summit.

The above author remarks that this plant "differs in its receptacle, as well as seed-down, from Caled, but from Chrysmum in the seed-down only, so that it is near akin to the latter. The leaves seem to be sometimes opposite, but are generally very remote, as well as extremely minute." The only species known is

1. S. flopura. Native of the coldest mountains of Jamaica. Browne says it has the habit of our European broom, being the only tree of the same appearance, observed by him in that country. Swartz has not noticed this plant.

See Caleda and Chrysocoma.

SERGINES, in Geography, a town of France, in the department of the Yonne, and chief place of a canton, in the district of Sens; 9 miles N. of Sens. The place contains 14,843, and the canton 10,994 inhabitants, on a territory of 260 kilometres, in 18 communes.

SERGNALE del Conda, a river of Brazil, which runs into the bay of All Saints.

Sereino, or Servino, a capancity or province of Brazil, which chiefly produces cattle, grain, and tobacco, for which last Brazil is particularly celebrated.—Alfo, a capital of the district, situated near the coast of the Atlantic, on a river of the same name, which runs into the Atlantic, S. lat. 12°. The town is distant 140 miles from St. Salvador. S. lat. 11° 42'. W. long. 38° 36'.

SERGIUS I., pope, in Biography, was descended from a family at Antioch, but was himself born, and brought up at Palermo. He came to Rome in the time of pope Adeodatus, and entering among the clergy of that capital, was ordained priest by Leo III. On the death of Conuin, in the year 687, there was a great schism respecting his successor, one party espousing the cause of Theodore the archpriest, and the other that of Pafulchad the archdeacon. The principal persons of Rome, not being able to bring them to an agreement, concerted in the choice of Sergius, and put him in possession by force. Theodore instantly resigned his claim, but Pafulchad did not give up his pretensions for a considerable time. He at length, however, submitted. The second year of the pontificate of Sergius was rendered memorable by the arrival at Rome of Cendalad, king of the West Saxons, who came to receive baptism from his hands, and who died soon after he had submitted to that rite. In 690 the emperor Julian III. assembled a council at Constantinople, in which a number of canons were passed. Five of these were opposed by the pope, among which was one condemning a former canon of the church, that forbade ecclesiastical persons to have any connection with their wives after ordina-

tion. Sergius not only resisted these persons, but the account invalidates all the pretensions of the pope, and so much exasperated the emperor, that he sent him as a bearer with an order to appear at his court, and to offer his hands to Constantiniople. The latter, finding it so much to his disadvantage, he dared not execute his commission, and was glad to quit Rome in safety. In 699, Sergius consecrated Willibald bishop of the Franks, recommended to him by Pepin the elder, as a person every way adapted to deprecate the conversion of that heathen people. Sergius died in the year 701, in the 14th year of his pontificate. He had the reputation of much learning and virtue, and is said to have repaired and enriched several churches, which added, in those times, very much to his celebrity.

SERGIUS II., pope, a Roman, was elected in 844, on the death of Gregory IV. He had a competitor in John, deacon of the Roman church, who took possession of the Lateran, but was expelled by the nobility. Sergius was consecrated immediately after his election, without waiting for the imperial confirmation. Lothaire, the emperor, so much reftent this seeming humility, that he sent into Italy his son Lewis, whom he had declared king of Lombardy, with a powerful army, attended by his uncle Drogo, archbishop of Metz. This prince, after cruelly ravaging the ecclesiastical state, marched to Rome, and entered the city amidst the acclamations of the people. He proceeded to the Vatican church, in great solemnity, with the pope, and was afterwards crowned by the latter as king of Italy. Sergius now gladly took the accursed oath of allegiance to the emperor, and received a confirmation of his election. This pontificate, short as it was, is marked by the predatory incursions of the Saracens, who fall upon the Tiber, burnt the suburbs of Rome, and pillaged the churches of St. Peter and St. Paul without the walls. Sergius died in 847. The famous festa-famula, or holy fair-cate at Rome, was erected during the pontificate of Sergius II.

SERGIUS III., pope, a prebendary of the church, though elected by a party, in 897, after the death of Theodred I., was not able to enter upon the duties of his office. A more powerful party supported John IX., and Sergius was glad to seek his safety by flight from the city. He lay in concealment for seven years, during which he contrived to engage in his interest his relation Adelbert, marquis of Tuscany, by whose affidavit he was enabled to expel Chrifopher, who had forcibly intruded into the pontifical seat, and placed himself there in the year 924. Sergius, who is termed by Baronius, and apparently with good reason, "one of the most wicked of men," had a scandalous connection with the infamous Marozia, who with her mother Theodora, and her sister of the same name, at that time almost entirely governed Rome, and dispossessed of the holy see. Marozia, who had already been a disciple of the marquis Adelbert, bore a son to the pope, who was afterwards raised to the papal throne under the name of John XI., such is the purity of the holy bishops of the Roman church. Sergius received a solemn embassy from Leo, emperor of the East, on account of the refult of the patriarch Nicholas to confirm the fourth marriage of Leo, as forbidden by the Greek church. Sergius, as there was no hindrance to the number of successive marriages in the Roman church, not only approved the marriage of Leo, but sent legates to Constantinople to confirm it. The patriarch, however, could not be prevailed upon to admit its legality. Sergius died in 911. He rebuilt the Lateran church.

SERGIUS IV., pope, a native of Rome, whose family name is said to have been Peter Buccspore, or in English, M M 2. H.
Hog's-snout, was bishop of Albano at the time of his election to the papal see in 1089, after the death of John XVIII. Little is recorded of the transactions of this pontiff: he sent a legate into France to consecrate a monastery in the diocese of Tours, which the archbishop of that see regarded as an encroachment upon his jurisdiction; he also determined a dispute between the abbots of Hamburgh and the bishop of Verden. He was greatly respected for the mildness of his disposition, and his liberality to the poor. He died in 1012.

Sergius I., patriarch of Constantinople, is well known in ecclesiastical history for the support which he gave to the doctrine of the Monothelites. He was a Syrian by birth, and born of parents who adhered to the heresy, as it was denominated, of the Monophysites. He was raised to the patriarchal dignity in the year 610. The emperor Heraclius, being devious of re-uniting the perfecuted Nertorians to the Greek church, and having held conferences with persons of influence in that sect, was affurred by them, that there would be no difficulty in terminating the controversy, provided the Greeks would assent to the following proposition, "that in Jesus Christ there was, after the union of the two natures, but one will, and one operation." Sergius thought this proposition might be adopted without the smallest injury to the truth; and without derogating from the authority of the council of Chalcedon, which had condemned the doctrine of a single nature: in consequence of this decision, the emperor illused an edict in the year 630 in favour of the doctrine of the fuge-avit. This hope of concord was soon frustrated, by the violent opposition of Sophronius, a monk, and patriarch of the see of Jerusalem, who also endeavoured to gain pope Honorius to his party, but Sergius was beforehand with him, and had perused his homilies to approve the doctrine in question. In order to quiet the commotions in the church, Heraclius, in 633 illused an edict conformed by Sergius, which was entitled "Euthysis," or an exposition of the faith in which all controversies on the question "whether in Christ there were one or two operations," were prohibited, though the edict plainly inculcated the doctrine of one will. Sergius died in the same year, and his memory was afterwards anathematized in several councils.

Sergode, in Geography, a town of Hindoostan, in Bednore; 8 miles S.W. of Saccaratam.

Sergom, a town of Hindoostan, in Baglana; 25 miles N. of Baffien.

Sergour, a town of Hindoostan, in Bednore; 25 miles W. of Saccaratam.

Sergian. See Sergian and Keriman.

Seriana, in Botany, could hardly be supposed to have been designed to commemorate a person of the name of Sergian; yet such was the intention of Plummer. The Rev. father Philip Sergeant, a native of Calais, of the order of Minims, in Provence, an able botanist, but more able physician, practised medicine at Rome for 25 years, with so much success, as to gain the high esteem of all ranks of people. His departure from that city caused the deepest regret, but he was welcomed at Paris with no less exultation." Plummer, from whom we take this account, named the genus Sergiana but Linneux, who united it to Paulinia, by accident, as it seems, altered the word, as he adopted it for a specific name, to Seriana. So it now remains, the genus having been restored by recent authors; nor do the botanical claims of the reverend father appear sufficiently great, to make us licentious about the precise mode of spelling the name of his plant.—Plum. Gen. t. 34. t. 35. —"Schumacher in Act. Hill. Nat. Hist. v. 3. p. 2." Wildl. Sp. Pl. v. 2. 464. (Paulinia; Lamarck Illust. t. 318. f. 1, 2, 3.) —Clays and order, Odandria Trigyna. Nat. Ord. Tribulata, Linn. Sapindi, Jull. Gen. Ch. Call. Peranthis inferior, of five ovate, concave, spreading, permanent, unequal leaves. Cor. Petals four, obovate-oblong, twice the length of the calyx, furnished with claws; 10 of the petals more distant than the rest. Nectariferous tube; one of four oblong scales, inserted into the claws of the petals; the other of four glands at the base of the petals. Stam. Filaments eight, filiform, short; anthers oval, ovate, two-lobed. Pist. Gemen superior, filiformed, obovate, with three furrows; styles three, combined at the base, recurved; stigmas filiform, obure. Peric. Capulis three, globose, combined longitudinally, each of one cell, not burbling, dilated at the base into a half-ovate membranic wing. Seeds solitary, ovate.


Of the fruit sufficiently distinguishes this genus from Paulinia, see that article, however familiar the flowers, and habits of the plants.

1. S. funata. Wildl. n. 1. "Schumacher, as above, t. 12. f. 1." (S. scandens, triphylla et racemosa; Plum. Gen. 34. Lc. t. 119. f. 2. Paulinia Seriana; Linn. Sp. Pl. 524. Jacq. Obst. fale. 11. t. 61. f. 2.) —Wings of the capules dilated below their infection. Leaves ternate; leaflets ovate-lanceolate, finnated and toothed.—Native of South America. Neither this, nor any other of the genus, is known in our gardens. The stam is angular, furrowed and downy, climbing by means of tendrils. Leaves alternate, filiformed; leaflets about two inches long, veiny, tapering at the base; roughish to the touch, though somewhat shining, above; paler beneath. Flowers small, in compound downy clusters. Wing of each capule near an inch long.

2. S. diversicata. Wildl. n. 2. "Schumach. t. 12. f. 2." (Paulinia diversicata; Swartz Ind. Occ. v. 2. 606.)—Leaves twice ternate; leaflets ovate, acute, entire, filiformed, shining. Common footstalks without wings.—Native of the woods of Jamaica. Stem climbing to a great height, zigzag, with a few distant flat prickles, angular, smooth. Footstalks two inches long, furrowed, smooth. Leaflets filiformed, the leaf of the middle one winged. Tendrils axillary, divided at the extremity. Panicles from the same point, on long footstalks, their branches racemose, alternate, spreading. Flowers white.

3. S. caracafana. Wildl. n. 3. (Paulinia caracafana; Jacq. Hort. Schorb. v. 1. 52. t. 99.)—Wings of the capules not dilated below their infection. Leaves twice ternate, leaflets oblong, acute at each end, dimly toothed. Common footstalks without wings.—Native of the Caracas, from whence we presume it was sent by Dr. Martier to the flowers at Vienna, where it flowers in the summer. The numerous flowers climb by tendrils to a great height. Leaves smooth; leaflets elliptic-oblong, two or three inches in length. Flowers white, in compound cylindrical elefters, each cluster on a long footstalk, accompanied by two strongly revolute tendrils at the top of the footstalk.


5. S. spectabilis. Wildl. n. 5. "Schumach. t. 12. f. 4." —Wings of the capules dilated below their base. Leaves twice ternate; leaflets ovate; the terminal one abrupt. Foot-
Footballs winged.—Native of the Wt Indies. Communicated by Mr. J. Banks, from Muller's herbarium. This has much of the habit of B. serrulata, but the winged footballs, and obtuse leaves, differ from it essentially. We do not find any tendrils under the flowers, as Schumacher notes, nor are the leaves, as Wildenow says, quite entire.

6. S. mexicana. Wildl. n. 6. (Paulonia mexicana; Linn. Sp. Pl. 535; excluding Plukenets and Hender son synon.) — Schumach, t. 11. f. 3.;—Leaves twice ternate; leaflets obovate, entire, all coriaceous. Footballs winged. Clusters aggregate.—Native of Mexico. Axin to the leaf, but the entire leaves, and compound inflorescence dilligent it. The clusters, each of which is simple, are ranged alternately, in one large panicle. Wildenow says Schumacher's figure is taken from the specimen of the Linnean herbarium. With this Linneus at one time confused the true Paulonia mexicana, to which the figure of Hender son better answers. The Linnean specimen wants fruit, and yet its habit, colour, and leading characters, are so near the Serrana we have just been describing, that it can scarcely be doubted of its belonging to this genus.

7. S. angehysiceps. Wildl. n. 7. (S. caudatus, eme phylla et racemosa; Plum. Gen. 34. t. 1. t. 113. f. 1.);—Leaves twice ternate; leaflets linear-lanceolate, acute, entire. —Native of South America. Nothing can be less like the leaf, with which Linneus confounded this narrow-leaved species, whose clusters moreover are pubescent. We know it only from Plummer's figure.

8. S. lupulina. Wildl. n. 8. "Schumach. t. 12. f. 5. ":—Wings of the capsules half-oval. Leaves twice ternate; crenate, rarely rounded; the terminal leaflets nearly rhomboid; the lateral ones ovate. Footballs lightly winged. —Native of South America. Clusters almost simple, the length of the leaves, and accompanied by two tendrils. Schumacher.

9. S. lucida. Soland. MSS. Wildl. n. 9. Schumach. as above, p. 188. ":—Wings of the capsules half-oval. Leaves twice ternate; leaflets ovate, acute, serrated. Footballs feebly winged.—Native of Santa Cruz. The upper surface of the leaves is highly polished, and strongly reined. Clusters in some meadow compound, accompanied by two spiral tendrils. Communicated by Sir J. Banks, to the younger Linneus.

10. S. truxumata. Wildl. n. 10. (S. scandens, polyphylla et racemosa; Plum. Gen. 34. t. 1. t. 112. Paulinia truxumata; Linn. Mant. 256. Jacq. Off. f. 11. f. 62. f. 11; Amer. t. 160. f. 32? S. polyphylla; Jacq. Off. f. 61. f. 10.) —Leaves thrice ternate; leaflets ovate, obtuse, wavy. Footballs winged. Clusters aggregate.—Native of South America, or the West Indies. The clusters are not accompanied by tendrils, but form a sort of panicule, as in S. mexicana. See Pauliniana, n. 8.

There seem to be more species, of which incomplete specimens or descriptions exist, but with which we are not sufficiently acquainted to reduce them to order. Nor is the genus, in every case, to be ascertained, for want of the fruit, so essential in differentiating Serrana and Paulinia.

SERIANE, Smer, or Etrich, in Ancient Geography, a town of Asia, in Syria, situated in the mountains S.E. of Chalea, at the 35th degree of latitude. It appears by its ruins to have been formerly a large town.

SERIATE, in Geography, a town of Italy, in the department of the Serio: 3 miles E.S.E. of Bergamo.

SERICA, in Ancient Geography, an oriental country, the position of which was indicated very vaguely by the writers of antiquity, but which has been, it must be acknowledged, more precisely ascertained by Ptolemy. Its situation and history, however, have been more accurately delineated by M. d'Anville, in an interesting memoir entitled "Recherches Geographiques et Historiques pour la Sublime Asie." M. d'Anville refutes the opinion of those who supposed that the Seres described by Ptolemy corresponded to the western part of China; and he adopts the opinion of M. de Gennes, in his History of the Huns, that it belonged to the country of the Chinese towards the west. M. d'Anville adds, that with the exception of a small angular territory at the extremity of the province of Shen, towards the N.W., China formed no part of Seres. In speaking of Sarytha, on the other side of the Imaus, Ptolemy mentions a passage in this mountain, which was the habitat of merchants that traded with the Seres. Continuous to this station, according to Ptolemy, is a country called Cala, which M. d'Anville supposes to be the name of Caligar, called by the Chinese Nam. In proof of their identity it may be alleged, that the tables of Nafir-Uddin and Ulaph-Beigh allude to Caligarr 44° of latitude, and that Ptolemy makes the latitude of Cala 43°, differing only by one degree. Ptolemy mentions the river Orchards, which M. d'Anville supposes to be the Prophe. Another river near the limits of Seres, mentioned by Ptolemy, is that called Baius, which, in its course towards the Neb, is joined by the lateral branch of another river purling the same direction, and those circumstances correspond with that of the present Etzine. The Bautes, as M. d'Anville apprehends, reside itself in certain lagunes, at the entrance of the deted called by the Tartars Cabi, and by the Chinese Shao-on. Only informed concerning the Bautes of Ptolemy, M. d'Anville was able to settle the position of Seres, the metropolis of Serica. For according to the ancient geographers, this town is very near the point where the left branch of the Bautes separates from it, and a town is actually found at the eastern branch of the Etzine, towards its source. This town must therefore correspond to the Seres of Ptolemy, and bear the name of Can-tcheou. It is the first considerable town that occurs at the entrance of the Chinese province of Shen. This town belongs to a particular country known to the Orientals under the name of Tangut. Tangut may therefore probably be the country anciently inhabited by the Seres, of which Serica was the capital. Another decisive proof that Can-tcheou is the Seres metropolis of Ptolemy, is deduced from the circumstance that this town, according to the Greek geographer, is 38° 39' of latitude, and that the latitude of Can-tcheou, according to the Jesuit astronomers, is 3° 1', the difference being only 25'; Ptolemy places the Etzine about Serica. But Elledon or Eldeko signifies a charis, and some of the Sichians, called by the Greeks Hamaxobis, or persons living in charis, it has been inferred, that the people bore the name of Elledone, in the Seres of Ptolemy, were merely those whose habituation was in charis, and it is also added, that a part of the country of the Seres had borne the name of Eygur, and that the nation who occupied a part of this country is called by the Chinese Kao-tche, a word which signifies high charis.

Sera, according to Ptolemy, is bounded to the W. by Scythia, on the other side of the Imaus; to the S. by unknown territories, and by a part of India beyond the Ganges and the Sines; the other boundaries are unknown. Its principal mountains are the Asibi, which compass the Seres to the N.; the A Kasich, which extend to the Seres by their eastern parts; the Asimac in the country; the eastern part of the Casian mountains; mount Thargus, called also Ithagurus; the mountains Emozi and Serica. The chief rivers are the Ochardes or Ochardes, which rise in the A Kasichan mountains; and the Bautes, which springs from Mount Caullaus. The north of Seria was inhabited by Anthro-
throphopagi; below these were the Annibi, bearing the name of "these mountains; the Axacii and the Sizyeses, below whom were the Damnæ; the Piadax extended themselves to the river Oedhars. The Garinaz and the Nabbanæ lay more to the east than the Annibi. To the S. was the country called Almiræa, where were the mountains of the same name; the Ildones, or Effides, were situated to the S., and extended themselves to mount Callius; and these formed a powerful nation; the Thraoni lay to the E., and below them the Vishurangi; the Afpacare lay to the S. of the Ildones, and below them the Bataz; the Otororochææ were situated to the S. The principal towns were the Damnæ, Piada, Albireæ or Almiræa, Tharrana or Thraoni, Ildœon, Serice, Afpacara, Drofache, Pabiana, Affagana, Thogara, Daxata, Orotana, Otororochra or Otororoccan, Solana, and Serà Metropolis. It appears from the article Little Bucharía, to which we refer the reader, that no region but this can correspond to Ptolemæy's Serica.

SERICH, the name of a feed used in the food of the Egyptian Coptics. It is produced by an herb called amim, and is pounded and put into oil. In this they dip their bread, which is always new, being baked as often as they eat, in small flat cakes; these they dip in this oil with raw onions, or else they break the cakes to pieces, and put them into a syrup of sugar, made when the canes are green. See Egypt, p. 183.

SERICORA, in Geography, a town of Persia, in the province of Mazanderan; 15 miles N.E. of Afterabat.

SERICUM, Silk. See Silk.

Sericum is also a name given by several chemical writers to the flowers of zinc raised by sublimation in an inclined open crucible. These flowers are not reducible into zinc again, and are of a fibrous texture, and a beautiful bright white colour. This has made them be called also the philosophic cotton, and others have named them the aqua fixa philosophorum.

SERIDIA, in Botany, a generic name given by Juffieu to those species of Centaurea which are included under the sixth section (Stech) of that genus. Jull. 173. See Centaurea.

SERJEANT, or SERJEANT, a term in our Law, applied to fundry offices. Serjeant at law, or of the coif, is the highest degree taken in the common law, as that of doctor is in the civil law.

The first mention which judge Blackstone has met with of serjeants, or countors, is in the latt. of Welt. 1. 3 Edw. 1. c. 29. But M. Paris, in his life of John II. abbot of St. Alban's, which he wrote in 1255, 59 Hen. III. speaks of advocates at the common law, or countors (quos bani narratores vulgari appellamus) as of an order of men well known; and the antiquity of the coif appears from the same author's Hist. of England, A.D. 1259. Serjeants were anciently called servientes ad legem, and servientes narratores; Mr. Selden adds, that they were also called doctores legis; though others are of opinion that the judges are more properly the doctores legis, and serjeants, the bachelors of law.

Spelman observes, that however a serjeant may be richer than all the doctors of the Commons, yet a doctor is superior in degree to a serjeant, for the very name of a doctor is magisterial, but that of a serjeant ministerial. Hence, the doctors are seated and covered when they plead, but the serjeants stand uncovered at the bar, excepting for their coif.

As these are fuppos'd the most learned and experienced, there is one court appropriated for them to plead in by themselves, which is the Common Pleas, where the common law of England is most strictly observed; but they are not prohibited pleading in other courts; and all judges, who, by custom, must first be serjeants, call them brothers.

Serjeants at law are bound by a solemn oath to do their duty to their clients; and by custom the judges of the courts of Westminster are always admitted into this venerable order, before they are advanced to the bench; the original of which was probably to qualify the puifné barons of the exchequer to become justices of assize, according to the exigency of the statute of 14 Edw. III. c. 16.

They are called by the king's mandate, or writ, directed to them, commanding them to take upon them that degree, by a day assigned. See Barrister.

Out of these, some are made the king's serjeants to plead for him in all causes, especially in cases of treason; and one is usually appointed, called premier serjeant. See Counsel and Precedence.

Serjeants at Arms, are officers appointed to attend the perfon of the king, to arrest traitors, and perfons of quality offending, and to attend the lord higheward when he fits in judgment on any traitor, &c.

These officers were first instituted by king Richard I. in imitation of a corps of the same name, formed by Philip Augustus, king of France, when on a crusade, to guard him against the subjects of the old man of the mountain, famous for their daring affronts. Of these by statute (13 Ric. II. c. 2) there are not to be above 20 in the realm.

The duty of these serjeants originally was to watch round the king's tent in complete armour, with a mace, a bow, arrows, and a sword, and occasionally to arrest traitors, and other offenders, about the court, for which the mace was deemed a sufficient authority. They were called the valourous force of the king's errand, in the execution of justice; they held their places for life; their number was originally twenty-four, all persons of approved worth, and not under the degree of the son of a knight; but afterwards the sons of gentlemen were admitted into the body. In the reign of Edward I. the serjeants at arms were allowed two marks for winter, and the fame for summer robes; their pay in that of Edward II. was 12 d. per diem, when they attended on horfeback, and 8d. when they attended without a horfe. Their allowance, when absent from court, on the king's affairs, was 12d. each by the day; and under, another head they appear charged at 26s. 8d. each for winter, and 20s. for summer. They were besides entitled to certain fees from persons arrested, in proportion to their rank and degree. According to the orders given by Thomas of Lancaster, confable at the siege of Caen, Sept. 3d. 1417, a serjeant at arms was to appear in the king's presence, with his head bare, his body armed to the feet with the arms of a knight riding, wearing a gold chain with a medal, bearing all the king's coats, with a pemon royal, or mace of silver, in his right hand, and in his left hand a truncheon. In the 7th of Hen. VII. they were ordered to attend the army. The number of this corps has varied exceedingly. In the reign of Edw. IV. they were reduced to four; in that of Edw. VI. they were increas'd to twenty-two, and in the succeeding reign to twenty-three; but by king James I. retrenched to sixteen, and afterwards to eight.

Such is the number now at court, at 100l. per annum salary each; they are called the king's serjeants at arms, to distinguish them from others; they are created with great ceremony, the perfon kneeling before the king, his majesty lays the mace on his right shoulder, and says, Rise up serjeant at arms, and esquire for ever. They have, besides, a patent for the office, which they hold for life.

They have their attendance in the preference-chamber, where the band of gentlemen-pensioners wait; and receiving the king at the door, they carry the maces before him to the chapel door, whilst the band of pensioners (and foremoft, and make a lane for the king, as they also do when the king goes to the house of lords.

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Thus, of the former kind, we have

\[ \frac{1}{a + b} = (a + b)^{-1} = \frac{1}{a} - \frac{b}{a^2} + \frac{b^2}{a^3} - \frac{b^3}{a^4} + \&c. \]

\[ \frac{1}{a - b} = (a - b)^{-1} = \frac{1}{a} + \frac{b}{a^2} + \frac{b^2}{a^3} + \frac{b^3}{a^4} + \&c. \]

and a variety of others. And of the latter,

\[ \frac{1}{a^2} + \frac{2}{a^3} + \frac{3}{a^4} + \frac{4}{a^5} + \frac{5}{a^6} + \&c. \]

\[ \frac{1}{a^2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \&c. \]

Many of which are still irreducible to any equivalent finite function.

Series also receive several different denominations according to certain circumstances attending their formation, the law which they follow, the form of the function to which they are reducible, \&c. \&c. as arithmetical, geometrical, converging, diverging, reciprocal, \&c. series.

Series, Convergent, are those in which the terms decrease, or become successively less and less; as

\[ 1 + \frac{1}{2} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \&c. \]

Series, Divergent, are those in which the terms continually increase; as

\[ 1 - 2 + 2^2 - 2^3 + 2^4 - 2^5 + \&c. \]

Series, Neutral, are those in which all the terms are equal to each other; as

\[ 1 - 1 + 1 - 1 + 1 - 1 + \&c. \]

This arises from the division of 1 by 1 + 1, and is therefore equal to \( \frac{1}{2} \).

Series, Indeterminate, is sometimes used to denote a series, whose terms proceed according to the powers of some indeterminate letter or quantity; as

\[ \pi + \frac{1}{2} \pi^2 + \frac{1}{3} \pi^3 + \frac{1}{4} \pi^4 + \&c. \]

Other writers, however, mean by this denomination those series whose sums are indeterminate in any finite form.

Series are again either ascending or descending.

Series, Ascending, are those in which the powers of the indeterminate quantity continually increase; as

\[ 1 + a x + b x^2 + c x^3 + d x^4 + \&c. \]

Series, Descending, are those in which the powers decrease in the numerator, or increase in the denominator; as

\[ 1 + a x^{-1} + b x^{-2} + c x^{-3} + d x^{-4} + \&c. \]

or

\[ 1 + \frac{a}{x} + \frac{b}{x^2} + \frac{c}{x^3} + \frac{d}{x^4} + \&c. \]

Series, Circular, are those whose sums depend upon the quadrature of the circle; thus,

\[ 1 = \frac{1}{3} + \frac{1}{5} + \frac{1}{7} \]

\[ 1 = \frac{1}{3} + \frac{1}{5} + \frac{1}{7} - \&c. \]

and

\[ 1 = \frac{1}{3} + \frac{1}{5} + \frac{1}{7} \]

are circular series; the former being equal to one-twelfth of the circumference of a circle whose radius is 1; and the latter equal to one-sixth of the square of the semi-circumference to the same radius.

Series, Logarithmic, are those which express, or whose sums depend upon the logarithms of numbers; as

\( (a - 1) - \frac{1}{3} (a - 1)^{3} + \frac{1}{5} (a - 1)^{5} - \frac{1}{7} (a - 1)^{7} + \&c. \)

which is equal to the hyperbolic logarithm of \( a \).

Series, Arithmetical, are those whose successive terms differ from each other by a certain and determinate quantity; as

\[ a + (a + d) + (a + 2d) + (a + 3d) + \&c. \]

\[ a + (a - d) + (a - 2d) + (a - 3d) + \&c. \]

Series, Geometrical, are those whose successive terms are some multiple or submultiple of those immediately preceding them; as

\[ a + r a + r^2 a + r^3 a + r^4 a + \&c. \]

\[ a + \frac{r}{a} + \frac{r^2}{a} + \frac{r^3}{a} + \&c. \]

Series, Fractional, are those whose terms are all fractional; as

\[ \frac{a}{b} + \frac{a}{b + c} + \frac{a}{b + 2c} + \frac{a}{b + 3c} + \&c. \]

Series, Trigonometrical, are those which relate to trigonometrical lines or quantities; as

\[ \sin a + \frac{1}{2} \sin a + \frac{1}{3} \sin a + \frac{1}{4} \sin a + \&c. \]

\[ \tan a - \frac{1}{3} \tan a + \frac{1}{5} \tan a - \frac{1}{7} \tan a + \&c. \]

which are each expressions for the length of a circular arc, the former in terms of the sine, and the latter in terms of the tangent.

Series, Exponential, are those which arise from the expansion of, or whose sum depends upon exponential quantities; as

\[ 1 + \frac{x}{1} + \frac{x^2}{2} + \frac{x^3}{3} + \frac{x^4}{4} + \&c. \]

which is equal to \( e^x \), \( e \) being the number whose hyperbolic logarithm is 1.

Series, Recurring, are those in which each term has a constant relation to a certain number of the preceding terms.

See Recurring Series.

Series, Law of \( a \), is used to denote that relation which subsists between the successive terms of a series, and by which their general term may be denoted; thus the series

\[ 1 + \frac{2}{3} x + \frac{8}{15} x^2 + \frac{16}{35} x^3 + \frac{128}{315} x^4 + \&c. \]

may be put under the form

\[ 1 + \frac{1}{3} x + \frac{1}{3} x^2 + \frac{1}{3} x^3 + \frac{1}{3} x^4 + \&c. \]

where the law by which it may be indefinitely continued is manifest; and from which we draw the general term, viz.

\[ 2 \cdot 4 \cdot 6 \cdots 2(n - 1) x^{n-1}. \]

Series, Interpolation of, See Interpolation.

Series, Reversion of, See Reversion.

Series, Summation of, is the finding the sum of a series, whether the number of its terms be finite or infinite; the various methods of performing which is treated of in the subsequent part of this article.
Method of series is used in a general sense to denote the principle upon which different authors have treated this subject, as well with reference to the reversion and interpolation of series, as to the finite and approximate summation of them.

The doctrine of series is certainly one of the most important subjects of mathematical investigation, and has been very appropriately denominated by James Bernoulli the sect. undaer of analysis; being our only hope and last resort, in a variety of difficult problems, which had defied to every other method of computation.

The summation of series, and the quadrature of a curvilinear space, are intimately connected with each other, as well in their origin as in their subsequent progress. We have flitted under the article Quantities, that Archimedes was the first who found the area of a curvilinear space, which he effected by means of the summation of an infinite series upon geometrical principles, and which is the first instance on record of such an operation; from which time, for nearly two thousand years, little or nothing was attempted relative to this subject; but about the middle and the latter end of the 17th century, it began to attract the general attention of mathematicians, and has since that time been pursued with a degree of perseverance and success commensurate with its great importance, and the general progress of analysis during the same period.

Wallis, in his Arithmetic of Infinites, seems to have been the first amongst the moderns who drew the attention of mathematicians to the doctrine of series. Lord Brouncker, sir Christopher Wren, Mercator, and James Gregory, also pursued the subject with considerable success, exhibiting the quadrature and rectification of different curves under the form of infinite series.

In 1668, Leibnitz published in the Leipzic Acads a memoir entitled "De proportiones circulii ad quadratum circumscripturn, in numeros rationalibus," in which he gave several numerical series of a very novel kind, whose terms were expressible in finite terms, without, however, accompanying them with their demonstrations; amongst the moit curious of which we may reckon the following: \[ \frac{1}{3} + \frac{1}{8} + \frac{1}{15} + \frac{1}{24} + \frac{1}{35} + \frac{1}{48} + \&c. \]

\[ \frac{1}{2^2 - 1} + \frac{1}{3^2 - 1} + \frac{1}{4^2 - 1} + \frac{1}{5^2 - 1} + \&c. \]

The form of an infinite number of terms of which is equal to \( \frac{1}{3} \); the sum of its odd terms being equal to \( \frac{1}{2} \), and the sum of its even terms equal to \( \frac{1}{2} \): that is

\[ \frac{1}{1} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \&c. = \frac{1}{2} + \frac{1}{1 + 3} + \frac{1}{5 + 3} + \frac{1}{7 + 3} + \frac{1}{9 + 3} + \&c. = \frac{1}{2} \]

\[ \frac{1}{1} + \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{8} + \frac{1}{10} + \frac{1}{12} + \&c. = \frac{1}{2} \]

The sum of an infinite number of terms of the same series, omitting every three terms after the 1st, the 5th, the 9th, &c. as

\[ \frac{1}{1} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \frac{1}{13} + \frac{1}{15} + \frac{1}{17} + \frac{1}{19} + \&c. \]

is equal to the area of a circle of which the inscribed square is \( \frac{1}{4} \).

But if we begin at the second term, and thence omit every three terms, as above, we shall have

\[ \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{8} + \frac{1}{10} + \frac{1}{12} + \frac{1}{14} + \frac{1}{16} + \&c. \]

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This is obviously equal to
\[
\frac{a}{b} + \frac{a}{b^2} + \frac{a}{b^3} + \frac{a}{b^4} + \text{&c.} = \frac{ad}{b^d - b}
\]
\[
= \frac{ad}{b^d - b} + \frac{c}{b^d} + \frac{c}{b^{d+1}} + \frac{c}{b^{d+2}} + \frac{c}{b^{d+3}} + \text{&c.} = \frac{cd}{b^d - b}
\]
\[
+ \frac{c}{b^{d+1}} + \frac{c}{b^{d+2}} + \frac{c}{b^{d+3}} + \text{&c.} = -\frac{cd}{b^d - b}
\]
\[
+ \frac{c}{b^{d+2}} + \frac{c}{b^{d+3}} + \text{&c.} = \frac{cd}{b^d - b^2}
\]
\[
+ \frac{c}{b^{d+3}} + \text{&c.} = \frac{cd}{b^d - b^2} + \text{&c.} = \frac{cd}{b^d - b^2} + \text{&c.}
\]

Each of which series being geometrical, are found by the known rules for such progressions; and it is obvious that all these sums, except the first, are also in geometrical progression; the sum of which, viz. of
\[
\frac{cd}{b^d - b} + \frac{cd}{b^d - b^2} + \frac{cd}{b^d - b^3} + \frac{cd}{b^d - b^4} + \text{&c.}
\]
\[
+ \text{&c.} = \frac{cd}{b(d - 1)^2}
\]
to which therefore adding\[
\frac{ad}{b(d - 1)} + \frac{b(d - 1)}{b(d - 1)^2}
\]
to the sum of the proposed series,

C. of 2.—When the numerators of the fractions proceed according to the triangular numbers. Let
\[
\frac{c}{b} + \frac{3c}{b^2} + \frac{6c}{b^3} + \frac{10c}{b^4} + \text{&c.} = \frac{cd}{b(d - 1)^2}
\]
be the proposed series. This may be resolved as follows: \(\text{viz.}\)
\[
\frac{c}{b} + \frac{c}{b^2} + \frac{c}{b^3} + \text{&c.} = \frac{ed}{b - b^d}
\]
\[
+ \frac{c}{b^2} + \frac{c}{b^3} + \text{&c.} = \frac{2c}{b - b^d}
\]
\[
+ \frac{c}{b^3} + \frac{c}{b^4} + \text{&c.} = \frac{3c}{b^d - b^2}
\]
\[
+ \frac{c}{b^4} + \text{&c.} = \frac{4c}{b^d - b^3}
\]
\[
+ \text{&c.} = \frac{cd}{b^d - b^2} + \text{&c.}
\]
which sums, with the exception of the first, constitute a series agreeing in form with that solved above, and from which we derive \(\frac{cd}{b(d - 1)^2}\) for the sum required.

Cor.—If we make \(a\) in the first series \(= 0\), the sum of that series will be to the sum of the latter, as \(d - 1 : d\); that is,
\[
\begin{align*}
&\frac{a}{b} + \frac{a}{b^2} + \frac{a}{b^3} + \frac{a}{b^4} + \text{&c.} = \frac{ad}{b^d - b} \\
&\text{as } d - 1 : d : \frac{cd}{b(d - 1)^2} + \frac{cd}{b(d - 1)^3}.
\end{align*}
\]
And when the numerators proceed according to the figurate numbers of the first order, \(\text{viz. } 1, 4, 20, 35\); then the sum of this series will be to that of the latter, as \(d : d - 1\); that is,
\[
\begin{align*}
&\frac{4c}{b} + \frac{10c}{b^2} + \frac{20c}{b^3} + \frac{35c}{b^4} + \text{&c.} = \text{the sum of the series}
\end{align*}
\]
In a similar manner is found the sum of the series, when the numerators are squares, cubes, &c. from which the author draws the following results; \(\text{viz.}\)

Nat. Num.
\[
\frac{1}{2} + \frac{2}{2^2} + \frac{3}{2^3} + \frac{4}{2^4} + \text{&c.} = \frac{2}{1}
\]

Trian. Num.
\[
\frac{1}{2} + \frac{3}{2^2} + \frac{6}{2^3} + \frac{10}{2^4} + \text{&c.} = \frac{4}{1}
\]

Fig. 1st order
\[
\frac{1}{2} + \frac{4}{2^2} + \frac{10}{2^3} + \frac{20}{2^4} + \text{&c.} = \frac{8}{1}
\]

Squares
\[
\frac{1}{2} + \frac{4}{2^2} + \frac{9}{2^3} + \frac{16}{2^4} + \text{&c.} = \frac{6}{1}
\]

Cubes
\[
\frac{1}{2} + \frac{8}{2^2} + \frac{27}{2^3} + \frac{64}{2^4} + \text{&c.} = \frac{26}{1}
\]

As an illustration of the second method, that is, of summation by subtraction, we shall give an abstract of James Bernoulli's sixteenth proposition, which is as follows.

Prop.—To find the sum of an infinite series of fractions, whose numerators constitute a series of equal numbers, and denominators, a series of triangular numbers, or of their multiples.

From the series\[
\frac{a}{c} + \frac{a}{2c} + \frac{a}{3c} + \frac{a}{4c} + \frac{a}{5c} = \frac{S}{c}
\]
we subtract\[
\frac{a}{2c} + \frac{a}{3c} + \frac{a}{4c} + \frac{a}{5c} + \frac{a}{6c} + \frac{a}{c} = \frac{S - a}{c}
\]
and we have\[
\frac{a}{2c} + \frac{a}{6c} + \frac{a}{12c} + \frac{a}{20c} + \frac{a}{30c} = \frac{a}{c}
\]
the double of which\[
\frac{a}{c} + \frac{a}{3c} + \frac{a}{6c} + \frac{a}{10c} + \frac{a}{15c} = \frac{2a}{c}
\]
which left is a series of fractions of the form proposed, their denominators forming the series of triangular numbers, multiplied by the constant quantity \(a\). Thus in numbers; if from the series\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \text{&c.} = S
\]
(without regarding what may be the value of \(S\)), we take\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \text{&c.} = \frac{S}{1} + \text{&c.} = S - 1
\]
we shall have\[
\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \text{&c.} = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \text{&c.} = 1.
\]

In the same way we find\[
\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \text{&c.} = \frac{3}{4}
\]
On the same principle, John Bernoulli demonstrated, that the sum of the reciprocals of the natural numbers is infinite. Let
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \text{&c.}
\]
be changed into the equivalent form
\[
\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \text{&c.}
\]
and
SERIES.

...and let this be resolved into the infinite series
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \cdots + \frac{1}{n} + \cdots = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \cdots + \frac{1}{n} + \cdots
\]

Whence it follows, that the sum of
\[
1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \cdots + \frac{1}{n} + \cdots = \text{and ad infinitum} = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \cdots + \frac{1}{n} + \cdots
\]

which equality can only have place when the first sum is infinite.

John Bernoulli afterwards found the sum of the series of the reciprocals of the natural squares, a problem mentioned by his brother, in his illoquium on proposition 17, in which he declared that the solution of it had evaded his industry; and that whoever solved it should receive his warmest thanks.

It should be observed, however, that though James had failed in finding the true sum, he had discovered several curious properties of this series; viz. that the sum of the odd terms, \(1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots\), is the sum of the even terms, \(\frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \cdots\), as 3 to 1. And generally, if we have a series of the reciprocals of any powers whatever, as \(1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots\), the sum of the terms in the odd places beginning at unity, is to the sum of the terms in the even places, as \(n - 1\) is to 1. Hence,
\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots + \frac{1}{2n - 1} + \frac{1}{2n - 1 + \frac{1}{2n - 1} + \cdots + \frac{1}{n - 1} + \cdots = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \cdots + \frac{1}{2n - 1} + \cdots
\]

John Bernoulli's solution of the above problem depends upon the expression for the finite arc in terms of the square, the same as that of Landen, of which we shall speak in the subsequent part of this article, and shall, therefore, only give here the results that Bernoulli drew from his solution; viz. he proved that
\[
1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots + \frac{1}{n} + \cdots = \frac{\pi^2}{6}
\]

and
\[
1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots + \frac{1}{n} + \cdots = \frac{\pi^2}{6} \cdot \frac{\pi^2}{6}
\]

\[\text{etc.} \quad \text{etc.} \quad \text{etc.}\]

where \(\pi\) denotes the semi-circumference of a circle whose radius is 1. Montucla has, by mistake, attributed the first summation of this series to Euler, see page 241, \textit{Histoire des Mathemathiques.}

We shall further notice with regard to the numbers, that we here find the four first terms of the expansion of the binomial
\[
(a + b + c + d + e + f + \cdots)^{n+1}
\]

with the method of finding them by means of quadratrix, cubic, and biquadratic equations, in our articles \textit{Quadratrix, and Surfaces.}

3. \textit{Montmort: Method of Series.} The two methods above illustrated, by means of which the Bernoulli arrived at the summation of various series, are both direct, and are better suited to finding summable series, than to the summation of any series proposed; they are moreover only applicable to such series as continually decrease \textit{ad infinitum.}

In 1712 another interesting correspondence took place on series of a different kind, between M. Montmort, John Bernoulli, and his nephew Nikolaus Bernoulli. They were led to these considerations, in consequence of certain problems relating to the doctrine of probabilities, which at that time began to excite great interest among both the English and French mathematicians. The object here was not the determination of the sum of an infinite number of decreasing terms, but the summation of any finite number of terms, either increasing or decreasing; and the formula of M. Montmort, given at page 65 of his \textit{``Essai d'Analyse fur les Jeux de Hazard,''} second edition, for this purpose, is as follows.

Let \(a + b + c + d + e + f + \cdots\) be the presented series, and \(n\) the number of terms whose sum is required; also, let \(D', D'', D''', D''''\), &c. be the first terms of the first, second, third, fourth, &c. differences; then the sum of the \(n\) terms will be expressed by
\[
n + \frac{n(n-1)}{1 \cdot 2} D' + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} D'' + \frac{n(n-1)(n-2)(n-3)}{1 \cdot 2 \cdot 3 \cdot 4} + \cdots + \frac{n(n-1)(n-2)(n-3) \cdots (n-k)}{1 \cdot 2 \cdot 3 \cdots k} + \cdots
\]

which series will terminate in all cases, no matter of any of the order of differences become zero; but in others it will only give an approximation.

Let it be required, for example, to find the sum of \(n\) terms of the natural series of the squares
\[
1^2 + 2^2 + 3^2 + 4^2 + 5^2 \cdots + n^2
\]

Here \(n = 1, D' = 3, D'' = 2, D''' = 0\); therefore
\[
n + \frac{n(n-1)}{1 \cdot 2} D' = 3 + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} D'' = 2
\]

is the sum required.

If it were the series of triangular numbers,
\[
1 + 3 + 6 + 10 + \cdots + \frac{n(n+1)}{2}
\]

then we should have
\[
n = 1, D' = 2, D'' = 1, D''' = 0; \text{ therefore the sum of } n \text{ terms will be expressed by}
\]

\[
n + \frac{n(n-1)}{1 \cdot 2} D' = 1 + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3}
\]

\(n \in 0\) From
SERIES.

From this general formula are readily drawn the following particular expressions for the sums of the different orders of polygonal and figurate numbers; as also for the squares, cubes, and higher powers.

**Figurate Numbers.**

<table>
<thead>
<tr>
<th>Series</th>
<th>General term</th>
<th>Sum of ( n ) terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 1 + 2 + 3 + 4 + \ldots )</td>
<td>( n )</td>
<td>( \frac{n(n+1)}{1 \cdot 2} )</td>
</tr>
<tr>
<td>( 1 + 3 + 6 + 10 + \ldots )</td>
<td>( \frac{n(n+1)}{1 \cdot 2} )</td>
<td>( \frac{n(n+1)(n+2)}{1 \cdot 2 \cdot 3} )</td>
</tr>
<tr>
<td>( 1 + 4 + 10 + 20 + \ldots )</td>
<td>( \frac{n(n+1)(n+2)}{1 \cdot 2 \cdot 3} )</td>
<td>&amp;c.</td>
</tr>
</tbody>
</table>

where the law of continuation is sufficiently obvious.

**Polygonal Numbers.**

<table>
<thead>
<tr>
<th>Series</th>
<th>General term</th>
<th>Sum of ( n ) terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 1 + 2 + 3 + 4 + \ldots )</td>
<td>( n )</td>
<td>( \frac{n(n-1)}{1 \cdot 2} )</td>
</tr>
<tr>
<td>( 1 + 3 + 6 + 10 + \ldots )</td>
<td>( \frac{2n^2 - n}{1 \cdot 2} )</td>
<td>( \frac{2n(n-1)}{1 \cdot 2 \cdot 3} )</td>
</tr>
<tr>
<td>( 1 + 4 + 9 + 16 + \ldots )</td>
<td>( \frac{3n^2 - n}{1 \cdot 2} )</td>
<td>( \frac{3n(n-1)}{1 \cdot 2 \cdot 3} )</td>
</tr>
</tbody>
</table>

universally; the general term being

\[
\frac{(m-2)n^2 - (m-4)n}{1 \cdot 2}
\]

The sum of \( n \) terms \( = n + \frac{(m-1)n(n-1)}{1 \cdot 2} + \frac{(m-2)n(n-1)(n-2)}{1 \cdot 2 \cdot 3} \).

**Powers.**

<table>
<thead>
<tr>
<th>Series</th>
<th>General term</th>
<th>Sum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 1^2 + 2^2 + 3^2 + 4^2 + \ldots )</td>
<td>( n^2 )</td>
<td>( \frac{n^3}{3} + \frac{n^2}{2} + \frac{n}{6} )</td>
</tr>
<tr>
<td>( 1^3 + 2^3 + 3^3 + 4^3 + \ldots )</td>
<td>( n^3 )</td>
<td>( \frac{n^4}{4} + \frac{n^3}{2} + \frac{n^2}{4} )</td>
</tr>
<tr>
<td>( 1^4 + 2^4 + 3^4 + 4^4 + \ldots )</td>
<td>( n^4 )</td>
<td>( \frac{n^5}{5} + \frac{n^4}{2} + \frac{n^3}{3} - \frac{n}{6} )</td>
</tr>
<tr>
<td>( 1^5 + 2^5 + 3^5 + 4^5 + \ldots )</td>
<td>( n^5 )</td>
<td>( \frac{n^6}{6} + \frac{n^5}{2} + \frac{5n^3}{12} - \frac{n^2}{12} )</td>
</tr>
</tbody>
</table>

&c. &c.

A variety of other series fall under the above general formula of M. Montmort; viz. series of which the sum may be exhibited in a finite form: and in all cases where the successive differences decrease, an approximation may be obtained by it, and that with a considerable degree of facility, when the terms are alternately + and - 1, but when they are all plus, or all minus, except the first, little, if any, advantage is gained by it.

The above method of summation is commonly called the differential method, and was first used for interpolation by Briggs, in the construction of his table of logarithms. Newton also applied it to a variety of interesting problems in his "Methodus Differentialis," but Montmort, as far as we have been able to trace, was the first who employed it in the summation of series.

The following formulae, all relating to the differential method, will not be unacceptable to the reader.

Let \( a + b + c + d + e + f + \&c. \) be any series; make

\[
D' = b - a
\]

\[
D'' = a - 2b + c
\]

\[
D''' = a - 3b + 3c - d
\]

\[
D^{iv} = a - 4b + 6c - 4d + e
\]

\[
D^{v} = a - nb + \frac{n(n-1)}{1 \cdot 2} c - \frac{(n-1)(n-2)}{1 \cdot 2 \cdot 3} d + \&c.
\]

From which last general formula the first term of any order of differences may be found independent of all those which precede it.

Again,
Again, let $N$ represent the $n$th term, and $S$ the sum of $n$ terms; then will

$$N = a + \frac{(n-1)}{1} \frac{D^n}{1} \left( \frac{n-1}{1} \right) \left( \frac{n-2}{1} \right) \left( \frac{n-3}{1} \right)$$

$$S = a + \frac{n}{1} \frac{D^n}{1} \left( \frac{n}{1} \right) \left( \frac{n-1}{1} \right) \left( \frac{n-2}{1} \right) \left( \frac{n-3}{1} \right)$$

which latter expression for the $S$ is, as we have above observed, due to M. Montuça. The same author also published in the Philosophical Transactions for 1718, some other formulae for the summation of series; but as these are nothing more than particular cases of the method of increments, we shall not notice them in this place; but refer the reader to the article INCREMENTS, for an illustration of the method of summation as depending upon these principles, first published by Dr. Brooke Taylor, in his "Methodus Incrementorum," 1715.

4. De Moivre's Method of Series. The next author who made any considerable improvement in this theory was De Moivre, to whom we owe the doctrine of RECURRING SERIES, in the principles of which we have spoken at some length under that article of the present work; we shall not therefore enter again upon the subject in this place, but confine ourselves to an illustration of his method for finding summable series, which is not referred to in the article above mentioned; it was first given by him in his "Miscellanea Analytica," 1730.

Let there be allowed any series, and let this be multiplied by any binomial or trinomial factor, thus that the resulting series will have its powers of $x$ recurring again in the same order; then, by equating the resulting series to $0$, and transposing the negative terms, a new numerical series will arise, the sum of which will be given.

Thus, let there be taken the series

$$1 + \frac{3}{1} \cdot x + \frac{3}{2} \cdot x^2 + \frac{3}{3} \cdot x^3 + \frac{3}{4} \cdot x^4 + \&c. = S.$$  

Multiplying this by $x - 1$, we have

$$-1 + \frac{1}{1} \cdot x + \frac{1}{2} \cdot x^2 + \frac{1}{3} \cdot x^3 + \frac{1}{4} \cdot x^4 + \&c. = (x - 1) S.$$  

Whence, making $x - 1 = 0$, or $x = 1$, we have

$$\frac{1}{1} + \frac{1}{2} \cdot 3 + \frac{1}{3} \cdot 4 + \frac{1}{4} \cdot 5 + \&c. = 1.$$  

Again, assume

$$1 + \frac{1}{1} \cdot x + \frac{1}{2} \cdot x^2 + \frac{1}{3} \cdot x^3 + \frac{1}{4} \cdot x^4 + \&c. = S.$$  

Multiplying by $x^2 - 1$, we have

$$-1 + \frac{1}{1} \cdot x + \frac{2}{1} \cdot \frac{1}{3} \cdot x^2 + \frac{2}{1} \cdot \frac{2}{3} \cdot x^3 + \frac{2}{1} \cdot \frac{3}{3} \cdot x^4 + \&c. = (x^2 - 1) S.$$  

where making again $x = 1$, we have

$$\frac{1}{1} + \frac{1}{2} \cdot 3 + \frac{1}{3} \cdot 4 + \frac{1}{4} \cdot 5 + \&c. = \frac{3}{2},$$  

or

$$\frac{1}{1} + \frac{1}{2} \cdot 3 + \frac{1}{3} \cdot 4 + \frac{1}{4} \cdot 5 + \&c. = \frac{3}{2}.$$  

As another example, let the same series

$$1 + \frac{1}{1} \cdot x + \frac{1}{2} \cdot x^2 + \frac{1}{3} \cdot x^3 + \frac{1}{4} \cdot x^4 + \&c. = S$$  

be multiplied by

$$\frac{1}{(2x - 1)} \left( \frac{3x - 1}{1} \right) = 6x^3 - 5x + 1,$$

and we have

$$1 - \frac{3}{2} \cdot x + \frac{3}{3} \cdot x^2 + \frac{3}{4} \cdot x^3 + \&c. = \frac{3}{2}.$$  

The law of both which series is obvious, the numerators being in arithmetical progression. This method is not much different in principle from the second method of Bernoulli above explained.

5. Stirling's Method of Series. In the recurring series of De Moivre, each term is connected with a certain number of the preceding terms, by a constant and invariable law, but in the series considered by Stirling, in his "Methodus Diferentialium," 1730, each term is a certain function of the number of terms from the beginning, or from some determined term of the series; which function may therefore be considered as the general term, and the method of summation depends on the following principles.

Having first determined the general term of the series in some function of $x$, its distance from the beginning, or some determined term of the series; it follows, that the sum of all the terms to that place will also be some function of $x$. Therefore, if $x$ is made to denote the distance of any other term from the same point, the sum of that term will be the same function of $x$, as the other sum is of $x$; and each term of the series may be considered to represent the difference between two consecutive sums, or the difference between two similar functions, &c. of $x - 1$ and $x$; and the object of the author is to determine what those sums or functions are from the difference between them being given.

To be a little more explicit, if there be any series of quantities

$$a, b, c, d, \ldots \ldots, t^2, t, t', t'',$$

proceeding from the first $a$, by any uniform law, either increasing or decreasing; and if $x$ be taken to represent the distance of any term, as $t$, from the beginning of the series, or from any term in the same, then will $x$ be expressible by some function of $x$; $t$ by the same function of $x + 1$; $t''$ by the same function of $x + 2$, &c. : denoting therefore this function by $f(x)$, we shall have

$$t = f(x - 1), t = f(x), t' = f(x + 1), \&c.$$  

Also if $f^3, f^4, f^5, f^6, \&c.$ denote the sums of all the terms from the beginning to the terms $t^3, t^4, t^5, \&c.$, respectively, these several sums will also be some function of $x + 1, x + 2, x + 2, \&c.$ which we may denote by

$$f^3 = \varphi(x - 1), f^4 = \varphi(x) ; f^5 = \varphi(x + 1) ;$$

whence we draw immediately

$$f - f^0 = t, \&c. -(x - 1) = f(x).$$
SERIES.

Now the function \( f(x) \) is given, being the general term of the series, and the object of enquir} is, from this given function to determine the two functions \( \phi(x) \) and \( \phi(x-1) \), of which it is the difference; for the former of these, \( \phi(x) \), will then be the sum of the terms of the series to the term \( x \) inclusive.

To illustrate this by a familiar example; let the proposed series be

\[ 1 + 3 + 5 + 7 + 9 \]

the general term of which is \( 2x - 1 \); therefore,

\[ \phi(x) - \phi(x-1) = 2x - 1; \]

whence we have obviously \( \phi(x) = x^2 \), for

\[ x^2 - (x - 1)^2 = 2x - 1; \]

therefore \( x^2 \) is the sum of \( x \) terms of the above series.

Again, let it be required to find the sum of \( x \) terms of the series

\[ 1, 7, 19, 37, \ldots \]

of which the general term

\[ f(x) = 3x^2 - 3x + 1, \]

therefore,

\[ \phi(x) - \phi(x-1) = 3x^2 - 3x + 1; \]

conssequently \( \phi(x) = x^3 \), the sum of \( x \) terms of the series.

In these two examples, the finding the sum \( \phi(x) \) from the difference is extremely simple; but in the generality of cases it is far from being so obvious, and even in some, it is impossible to exhibit the sum of the terms in any other manner than by another series; but as in the latter case the transformed series may be made to posses almost no degree of convergency we praise, this method of summation is still attended with important advantages, and even more perhaps in the latter case, than in any other; because moll, if not all, summable series, may be summed on some other principles; viz. either by the method of recurring series, or by the differential method, or by increments; while the transformation of a slowly converging series, into another of rapid convergency, is frequently extremely difficult to effect on any other principle than that of Stirling's, or some other tantamount to it.

From what is stated above it appears, that the principal object of enquir} is, in what manner we are to determine a function from the difference between two states of it being given. In the examples we have chosen for illustration, the function whence the difference is derived is extremely obvious; but this in many cases is, as we have before observed, attended with some difficulty. In this respect the summation of series resembles in a great degree the inverse method of fluxions. There is little or no difficulty in any case in finding the fluxions of any proposed quantity; but the finding of a fluent of any given fluxion is far from possessing the same facility. So also in the present case, if the question was to find the difference between two different states of a given function, we should find the operation direct and simple; but the converse, or the finding the function from the difference being known, is indirect, and frequently difficult to be determined.

It is obvious also, that two different functions, which differ from each other only by some constant quantity, will give the same difference, and, consequently, a given difference may give rise to different functions, the same as happen in finding fluxions, and it will therefore be necessary in this case, as in that, to have recourse to a correction, which will be found in the same manner, as is practised in that calculus, viz. by finding the value of the series, when the variable quantity is made equal to zero, or some determined magnitude.

Of the general Term of a Series.—With regard to the general term of a series, it is difficult, particularly within our limits, to lay down any fixed or constant rule for its determination; it is besides seldom necessary, as the law of the series is commonly presented in the terms of the series itself; we shall leave this determination, therefore, as in fact it must be in most cases, to the ingenuity of the analyst, and shall proceed immediately to the other subjects of investigation.

It may not, however, be amiss to state, that in such cases as have an order of their differences vanish, the general term is always of the form

\[ A^n + B n^{n-1} + C n^{n-2} + D m^{-3} + \&c. \]

where \( m \) denotes the order of the differences that vanish, and \( n \) the number of terms from the beginning. The values of \( A, B, C, D, \&c. \), being found by making \( n \) successively equal to 1, 2, 3, \&c., and equating the results with the \( 1, 2d, 3d, \&c. \) terms of the series.

Of the Transformation of a given Function to an equivalent one of a different Form.—Since we shall confine our investigation only to those series whose terms are either integers or rational fractions, it is obvious that the general term must also be some rational function either of the form,

\[ a + b x + c x^2 + d x^3 + \&c. \]

or

\[ a + b x + c x^2 + d x^3 + \&c. \]

and our object is to transform either of those general forms into others, whence the general function from which they have been derived may be the more readily determined. Different transformations may be employed for this purpose; but the most general, and that, in fact, to which Stirling principally confines himself, is to transform the above general terms into other equivalent ones of the form

\[ A + B x + C x (x - 1) + D x (x - 1) (x - 2) + \&c. \]

or

\[ \frac{A}{x(x + 1)} + \frac{B}{x(x + 1)(x + 2)} + \frac{C}{x(x + 1)(x + 2)(x + 3)} \]

from either of which the general function whence they have been derived may be readily determined. For it is obvious that the first is equal to the difference between the two following functions

\[ A x + \frac{1}{2} B (x + 1) x + \frac{1}{2} C (x + 1) x (x - 1) + \frac{1}{2} D (x + 1) x (x - 1) (x - 2) + \&c. \]

and

\[ A (x - 1) + \frac{1}{2} B x (x - 1) + \frac{1}{2} C x (x - 1) (x - 2) + \frac{1}{2} D x (x - 1) (x - 2) (x - 3) + \&c. \]

For by subtracting these from one another, we have

\[ A + B x + C x (x - 1) + D x (x - 1) (x - 2) + \&c. \]

And therefore, from what has been stated, the first of the above formulæ will be the general sum of that series of which the general term is

\[ A + B x + C x (x - 1) + D x (x - 1) (x - 2) + \&c. \]

And in a similar manner it may be shewn, that the second general form is equal to the difference between the two following functions
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\[
\begin{align*}
A + & \frac{B}{x + 2 (x + 1)^2} + \frac{C}{x (x + 1)} + \frac{D}{x (x + 1) (x + 2)} + \text{&c.} \\
\text{and} & \frac{A}{x + 2} + \frac{B}{(x + 1) (x + 2)} + \frac{C}{(x + 1) (x + 2)(x + 3)} + \frac{D}{x (x + 1) \ldots (x + 4)} + \text{&c.}
\end{align*}
\]

For by subtracting these one from the other, we have

\[
\frac{A}{x (x + 1)} + \frac{B}{x (x + 1) (x + 2)} + \frac{C}{x (x + 1) (x + 2)(x + 3)} + \frac{D}{x (x + 1) \ldots (x + 4)} + \text{&c.}
\]

and consequently the former is the sum of that series whole general term is

\[
\frac{A}{x (x + 1)} + \frac{B}{x (x + 1) (x + 2)} + \frac{C}{x (x + 1) (x + 2)(x + 3)} + \frac{D}{x (x + 1) \ldots (x + 4)} + \text{&c.}
\]

So that the whole difficulty is now reduced to that of transforming any proposed function, expressing the general term of a series into an equivalent function of one or other of the above forms.

To transform a quantity of the form

\[a + bx + cx^2 + dx^3 + &c.
\]

into another of the form

\[A + B x + C x(x - 1) + D x(x - 1)(x - 2) + &c.
\]

By the actual multiplication of the latter formula, we have

\[
\begin{align*}
A &= A \\
B x &= B x \\
C x(x - 1) &= -C x + C x^2 \\
D x(x - 1)(x - 2) &= D x - 3 D x^2 + D x^3
\end{align*}
\]

And equating the coefficients of the like powers of \(x\) in this and the original series, we obtain

\[
\begin{align*}
d &= D \\
e &= C - 3 D \\
b &= B - C + D \\
a &= A
\end{align*}
\]

Whence the values of \(A, B, C, D, &c.\) are determined by means of the known coefficients \(a, b, c, d, &c.\) And the same method may obviously be employed in any other similar case. The following tablet, however, will facilitate the operation; viz.

\[
x = x \\
x^2 = x + x(x - 1)
\]

Now

\[
\begin{align*}
\frac{1}{x} &= \frac{1}{x(x + 1)} + \frac{1}{x(x + 1)(x + 2)} + \frac{2}{x(x + 1) (x + 2)(x + 3)} + \frac{6}{x(x + 1) \ldots (x + 4)} + \text{&c.} \\
\frac{1}{x^2} &= \frac{1}{x(x + 1)(x + 2)} + \frac{3}{x(x + 1)(x + 2)(x + 3)} + \frac{11}{x(x + 1) \ldots (x + 4)} + \text{&c.} \\
\frac{1}{x^3} &= \frac{1}{x(x + 1)(x + 2)(x + 3)} + \text{&c.}
\end{align*}
\]

Or by making

\[
\begin{align*}
A &= a \\
B &= a + b & & C = 2 a + 3 b + 4x & & D = 6 a + 11 b + 6 x + 3 \eta + \lambda \\
E &= 24 a + 50 b + 35 x + 10 \eta + \lambda & & F = 120 a + 274 b + 225 x + 85 \eta + 15 \lambda + \nu
\end{align*}
\]

which

\[+ \text{&c.}
\]

The most general method of performing this transformation is, by actual division to reduce it first to the form

\[
\frac{+ a}{x^2} + \frac{+ b}{x^1} + \frac{+ c}{x^0} + \text{&c.}
\]

see, by actual division to reduce it first to the form

\[
\frac{+ a}{x^2} + \frac{+ b}{x^1} + \frac{+ c}{x^0} + \text{&c.}
\]

To transform any general term of the form

\[
a + b x + c x^2 + d x^3 + &c.
\]

into another of the form

\[
\frac{A}{x(x + 1)} + \frac{B}{x(x + 1)(x + 2)} + \frac{C}{x(x + 1)(x + 2)(x + 3)} + \text{&c.}
\]

\[
\frac{A}{x(x + 1)} + \frac{B}{x(x + 1)(x + 2)} + \frac{C}{x(x + 1)(x + 2)(x + 3)} + \text{&c.}
\]
which values substituted for A, B, C, &c. will give the transformation sought, and which will terminate by one of those expressions becoming zero, when the series is summable, but when it is not the expression itself will become an infinite series, but such that we may give it almost any degree of convergency at pleasure.

Let us now illustrate what has been said by a few examples, remembering that the sum of a series, whose general term is

\[ A + B x + C x (x - 1) + D x (x - 1) (x - 2) = A x + \frac{B}{2} (x + 1) x + \frac{C}{3} (x + 1) x (x - 1) + &c. \]

Let it be propos'd to sum the series of odd numbers,

\[ x + 3 + 5 + 7 + &c. \]

Here the general term is \( 2 x - 1 \), or \( x + 2 \); so that \( a = -1 \) and \( b = 2 \); whence \( A = -1 \), and \( B = 2 \), and \( C = 0 \); whence \( A x + \frac{B}{2} (x + 1) x = x - x + x^2 - x = x^2 \), which is the known expression for the sum of \( x \) terms of the above series.

Again, require the sum of the series,

\[ 1 \cdot 2 + 2 \cdot 3 + 3 \cdot 4 + 4 \cdot 5 + &c. \]

Here the general term is \( x(x + 1) \), or \( x^2 + x \); by the preceding table,

\[ x = x \]

\[ x^2 = x + x (x - 1) \]

Therefore \( A = 0 \), \( B = 2 \), and \( C = 1 \); whence we have

\[ \frac{\frac{B}{2}}{x + 1} x + \frac{C}{3} (x + 1) x (x - 1) = \frac{1}{2} (x^2 + 3 x^2 + 2 x), \]

the sum of \( x \) terms, as required.

But as there is no advantage gained by the application of this method to series of the above kind, nor indeed to any summable series, as there are commonly more readily resolved by some one of the preceding methods than by this, we shall pass immediately to series of the second kind, in which it possesses a facility of application, which is perhaps unattainable by any other principle at present known.

Here we must observe, that after the general term of any series is reduced to the form,

\[ \frac{A}{x(x + 1)} + \frac{B}{x(x + 1)(x + 2)} + \frac{C}{x(x + 1)(x + 2)(x + 3)} + &c. \]

the sum of that series is expressed by

\[ \frac{A}{x} + \frac{B}{2 x(x + 1)} + \frac{C}{3 x(x + 1)(x + 2)} + &c. \]

and the series of the series is expressed by

\[ \frac{1}{4 x(x + 1)} + \frac{1}{8 x(x + 1)(x + 2)} + \frac{1}{16 x(x + 1)(x + 2)(x + 3)} + \frac{1}{32 x(x + 1)(x + 2)(x + 3)(x + 4)} + &c. \]

1. Let it be proposed to find the sum of the infinite series,

\[ \frac{1}{1 \cdot 4 \cdot 7} + \frac{1}{4 \cdot 7 \cdot 10} + \frac{1}{7 \cdot 10 \cdot 13} + &c. \]

where the general term is

\[ \frac{1}{3 x (3 x + 3) (3 x + 6)} = \frac{7}{27} x (x + 1) (x + 2) \]

\( x \) being successively \( 1 \), \( 1 \), \( 2 \), \( 3 \), &c.

Now this is of the required form, \( A = 0 \), and \( B = \frac{1}{27} \); therefore the required sum is

\[ \frac{1}{54} x (x + 1) = \frac{1}{27} \]

by taking \( x = \frac{1}{2} \), its first value. If we took \( x = \frac{1}{2} \),

\[ \frac{1}{2 \cdot 4 \cdot 6} + \frac{1}{4 \cdot 6 \cdot 8} + &c. \]

we should have the sum of all the terms of the series, except the first; if \( x = \frac{1}{2} \), we should have the sum of all but the first two terms, and so on; and it is by this means that we are enabled to give so great a degree of convergency in those series that are not summable; for we may assume any one of the values of \( x \), and by that means give almost any magnitude to the denominators of our converging fractions; and it is only that of the leading terms of the series as are not included must be summed by themselves, and added to the approximation found as above. As this is the great characteristic of Stirling's method, we shall confine our future remarks to one or two examples, which are not summable, in order to illustrate the nature of his approximations.

Let there be proposed the series,

\[ \frac{1}{1 \cdot 2} + \frac{1}{3 \cdot 4} + \frac{1}{5 \cdot 6} + \frac{1}{7 \cdot 8} + &c. ; \]

which is that found by Lord Brounker, for the quadrature of the hyperbola.

Here the general term is

\[ \frac{1}{2 x (2 x + 1)} \]

or

\[ \frac{4 x (x + \frac{1}{2})}{4 x^2 + 2 x} \]

taking \( x = \frac{1}{2} \), \( 1 \), \( 2 \), &c. Now

\[ \frac{1}{4 x^2 + 2 x} = \frac{1}{4 x^2} - \frac{1}{8 x^3} + \frac{1}{16 x^4} - \frac{1}{32 x^5} + &c. ; \]

which is

\[ \frac{1}{4 x^2 + 2 x} \]

when converted into the required form, is,

\[ \frac{1}{4 x^2} \]

where the law of continuation is obvious, and the sum will be expressed by

\[ \frac{1}{4 x} + \frac{1}{16 x (x + 1)} + \frac{1}{48 x (x + 1) (x + 2)} + &c. ; \]

in which the law is also obvious, the co-efficients in the denominator being \( 4 = 2^2 \), \( 16 = 2^3 \times 2 \), \( 48 = 2^4 \times 3 \), \( 128 = 2^7 \times 4 \), &c.; but the series will not terminate, because the original general term \( \frac{1}{4 x (x + \frac{1}{2})} \) includes the fraction \( \frac{1}{2} \).

The original series has, therefore, been converted into another infinite series, but with this advantage attending the latter, that we may give it almost any degree of convergency at pleasure, according to the value we give to \( x \). If we assume \( x = 13 \), which is its value in the 14th term, then the preceding series will exhibit the sum of the original series.
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fured from that term, to which adding the sum of the first
13 terms, we have, for the whole sum,

\[ \text{13 first terms } = \frac{654295656}{18581259} \]

\[ \text{9 first terms of the new series } = \frac{10034719}{18581259} \]

\[ \text{Whole sum } = \frac{-83474178}{18581259} \]

This is true to nine places of decimals, which, if we had
used the original series, would have required the summation of
at least one hundred million of its terms.

Hence the advantage of the transformation, which con-

Now, from what has been said, it appears that

\[ x = a \left(1 + \frac{1}{x}\right) + \frac{1}{x} (x + 1) (x + 2) + \frac{1}{x} (x + 1) (x + 2) (x + 3) + \&c. \]

and consequently the sum will be

\[ \frac{1}{x} + \frac{1}{2 x} + \frac{1}{3 x} + \frac{1}{4 x} + \&c. \]

in which substituting 15 for \( x \), etc. its 15th value, we find,
by summing 15 terms of the new series, and adding that sum =
\(-70957427\), to the sum of the 15 terms of the original series,
we have \( 1.554957659\), we have \( 1.044093065\)
for the whole approximate sum, true to nine places of decimals.

Our limits will not allow of our entering farther upon
this method, and we shall therefore conclude our illustration of
it, by merely giving the author's formula for the sum-

of those series, in which the successive powers of an

\[ x^\sum \times \left(\frac{a}{(1-x)x} + \frac{b}{(1-x)x} + \frac{c}{(1-x)x}(z+1)(z+2) + \&c.\right) \]

where \( A, B, C, \&c. \) represent the terms immediately
preceding those in which they are found.

This latter expression, like those in the preceding pro-

positions, will terminate when the series is summable: in
other cases, it will be itself an infinite series, but such
that we may give it any degree of convergency required.

Simpson's Method of Series. — In 1743 Simpson published
his "Mathematical Dissertations on a variety of Physical
and Analytical Subjects," and amongst other interesting re-
searches in that work, there is one relating to the summation of
series, which is perhaps as general and complete as any
we have yet noticed; at least, if we except (with regard to
approximations) that of Stirling's, above explained. This
method consists in deriving the sum of one series from
that of another being given or known; which former sum is ex-
pressed by a finite or infinite formula, according as the suc-
cessive differences of certain parts of its terms are of definite
or indefinite extent; thus,

\[ a^n + b a^{n+1} x + c a^{n+2} x^2 + d a^{n+3} x^3 + \&c. \]

be any power \( n \) of the binomial \( a + x \), \( n \) being either in-
tegral, fractional, positive, or negative; and the terms of
it be respectively multiplied by any series of quantities,
\( p, q, r, s, \&c. \); and we make \( q - p = D, r - q = D', D'' = D''', \&c. \) being
the first terms of the successive orders of differences, then the sum of

\[ a^n + b a^{n+1} x + c a^{n+2} x^2 + d a^{n+3} x^3 + \&c. \]

be expressed by

\[ f(a + x)^n + D' b x (a + x)^{n-1} + D'' c x^2 (a + x)^{n-2} + D''' d x^3 (a + x)^{n-3} + \&c. \]

which formula will obviously be finite, if any order of the

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be expressed by the fluxional formula

\[(r - p) A + \frac{x A}{x} = B;\]

where, because it is given in finite terms, \(A\) will always likewise be had in finite terms, and consequently, also, the value of \(B\). And in the same manner as we have

\[a x^r + b x^{r+n} + c x^{r+2n} + \&c. = A;\]

we have

\[r a x^r + (r + n) b x^{r+n} + (r + 2n) c x^{r+2n} + \&c. = (r - p) A + \frac{x A}{x} = B;\]

so also

\[\frac{(i - p) B + \frac{x B}{x}}{x} = C \&c. &c.\]

The three preceding cases are the first, second, and third propositions in the author's chapter on series, which contains four other propositions equally general and important; but for these we must refer the reader to the treatise itself.

Since the publication of Simpson's work above referred to, a variety of other treatises have appeared either wholly or in part devoted to this subject, besides numerous memoirs in all the principal academies and learned societies in Europe. It will be impossible to enter upon these at any considerable length within the limits of this article, and we shall therefore merely select two or three of the principal authors whose methods are the most eligible for the purposes of general discussion.

Euler, in this, as in every other branch of analysis, has distinguished himself by the many new lights he has thrown upon this theory, and the general and elegant investigations that he has given of many very interesting problems relating to this doctrine. These investigations are found in various memoirs in the Acta Petrop., and in his "Institutiones calculi differentialis," also in the first volume of his "Introductio in Analysis Infinitarum," many of these, however, may be referred to the Method of Increments and Recurring Series, which have been already treated of under these articles; the theory of circular series is also handled in his usually masterly manner, but for our purpose we shall prefer adopting the method employed by Landen in his "Mathematical Calculations," and shall therefore, in this place, limit our observations to Euler's differential method.

**Euler's Differential Method of Series.**—Let there be posposed the general series

\[S = a x + b x^2 + c x^3 + d x^4 + \&c.\]

in which \(a, b, c, d, \&c.\) are constant and positive quantities, \(x\) being indeterminate. This series Euler transforms into the following equivalent series, *viz.*

\[S = \frac{x}{1-x} a + \frac{x^2}{(1-x)^2} \Delta a + \frac{x^3}{(1-x)^3} \Delta^2 a + \&c.\]

in which \(\Delta a, \Delta^2 a, \Delta^3 a, \&c.\) denote the first terms of the first, second, third, &c. differences of \(a, b, c, \&c.\) observing that the leading term is always supposed to be taken from the following, so that when the terms diminish, this difference will be negative. It is obvious here, as in the other differential series, we have had occasion to notice, that when any order of differences vanish, the transformed series will be finite, but in other cases infinite, the same as that whence it is derived.

Let, for example, the series

\[S = x + 2 x^2 + 3 x^3 + 4 x^4 + \&c.\]

be the one posposed. Here the first differences are \(1, 1, 1, \&c.\) and, consequently, the second differences are zero; that is, we have \(a = 1\), and \(\Delta a = 1\); so that we have

\[S = \frac{x}{1-x} a + \frac{x^3}{(1-x)^2} \Delta a = \frac{x}{1-x}\]

Hence, by substituting \(x = 1, \frac{1}{2}, \frac{1}{3}, \&c.\) we obtain

\[x = 1; S = 1 + 2 + 3 + 4 + \&c. = \frac{1}{1-1} = \infty\]

\[x = \frac{1}{2}; S = \frac{1}{2} + \frac{2}{4} + \frac{3}{8} + \frac{4}{16} + \&c. = \frac{\frac{1}{2}}{1-\frac{1}{2}}^2 = 2\]

\[x = \frac{1}{3}; S = \frac{1}{3} + \frac{2}{9} + \frac{3}{27} + \frac{4}{81} + \&c. = \frac{\frac{1}{3}}{1-\frac{1}{3}}^2 = \frac{8}{5}\]

Again, let the posposed series be

\[S = x + 3 x^2 + 5 x^3 + 7 x^4 + \&c.\]

Here \(a = 1, \Delta a = 2, \Delta^2 a = 0;\) therefore

\[S = \frac{x}{1-x} a + \frac{x^2}{(1-x)^2} \Delta a + \frac{x^3}{(1-x)^3} \Delta^2 a + \&c.\]

Making therefore, as before, \(x = 1, \frac{1}{2}, \frac{1}{3}, \&c.\) we have

\[x = 1; S = 1 + 3 + 5 + 7 + \&c. = \frac{\frac{1}{1}}{1-1}^2 = \infty\]

\[x = \frac{1}{2}; S = \frac{1}{2} + \frac{3}{4} + \frac{5}{8} + \frac{7}{16} + \&c. = \frac{\frac{1}{2} + \frac{1}{2}}{1-\frac{1}{2}}^2 = 3\]

\[x = \frac{1}{3}; S = \frac{1}{3} + \frac{3}{9} + \frac{5}{27} + \frac{7}{81} + \&c. = \frac{\frac{1}{3} + \frac{1}{3}}{1-\frac{1}{3}}^2 = 1\]

Without farther examples, it is obvious, that a most extensive class of summable series may be drawn from this one simple principle, by merely changing the values of \(x\); and those of \(a, b, c, d, \&c.\) being so assumed, that a certain order of their difference may vanish, which will always happen, if they be made to represent any order of polygonal or figurate numbers, or any order of powers whatever. This method, however, is not limited to finding summable series, it may frequently be employed to great advantage in approximating towards the real value of slowly converging series that are not summable in any finite form, as for example, the series

\[1 - \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \&c. = \text{hyp. log. 2;}\]

putting this under the form

\[S = x + \frac{1}{2} x^2 + \frac{1}{3} x^3 + \frac{1}{4} x^4 + \&c.\]

we have \(a = 1, \Delta a = -\frac{1}{2}, \Delta^2 a = \frac{1}{2}, \Delta^3 a = -\frac{1}{2} \&c.\) whence

\[S = \frac{x}{1-x} a + \frac{x^3}{(1-x)^3} \Delta a + \frac{x^3}{(1-x)^3} \Delta^3 a + \&c.\]
will become, by making \( s = -1 \),
\[
S = -\frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \frac{1}{5} = \frac{1}{7} = \text{etc.}
\]
whence, by changing signs, we have
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} = \text{hyp. log. 2}
\]
which latter series, though indefinite like the first, is so much more converging, that 25 terms of it will give a result as true as 10,000 terms of the original series.

The same formula is also applicable to certain diverging series, but we can only give some of the more remarkable results, as
\[
1 - 1 + 1 - 1 + 1 + \text{etc.} = \frac{1}{2} \\
1 - 2 + 3 - 4 + 5 - 6 + \text{etc.} = \frac{1}{4} \\
1 - 4 + 9 - 16 + 25 - \text{etc.} = 0 \\
1 - 3 + 9 - 27 + 81 - \text{etc.} = \frac{1}{4} \\
1 - 1.2 + 1.3 - 1.4 + 1.5 + \text{etc.} = 0.5965473601237
\]
Euler also employed other methods for summable series which we have not referred to either in the above article, or in the articles INCREMENTS or INFINITELY RECURRING SERIES, one of the most general of which is by means of certain fluxional operations; but as this has been carried to a greater extent by Lorgna, in his tract "De Seriesbus convergentibus," we shall defer any further mention of it till we come to an explanation of Lorgna's method.

We ought to give here some account of the differential method of Maferes and Hutton, but our article has already been carried to a greater extent than is usual for mathematical subjects, we must limit ourselves to giving merely the theorems, and leave the application of them to the ingenuity of the reader.

8. **Maferes differential Formula for slowly converging Series.**

Let
\[
a + bx + cx^2 + dx^3 + \text{etc.}
\]
represent any series, and \( D, D', D'', \text{etc.} \) the first terms of the successive order of differences of the-co-efficients \( a, b, c, d, \text{etc.} \) which are supposed continually to diminish, then will the sum of the above series be expreessed by the differential series
\[
a - \frac{b}{1 + x} - \frac{D' x^3}{(1 + x)^2} - \frac{D'' x^3}{(1 + x)^3} - \text{etc.}
\]
which is necessarily converging, provided \( x \) be equal to, or greater than unity. By means of this series, the author finds the circumference of the circle from the series
\[
1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \text{etc.}
\]
true to seven places of decimals, by the summation of ten terms, whereas, in its original form, 10,000 of its terms will only give two decimals correct. For a further illustration of this method, the reader is referred to the Phil. Trans. for 1775, or to the author's Treatise on Converging Series.

9. *Hutton's Method for slowly converging Series.*—This method applies only to those whose terms are alternately plus and minus, as \( a - b + c - d + \text{etc.} \) the total sum of which series is given alternately in excess and defect, by the successive quantities
\[
\frac{a}{2} - \frac{b}{4} + \frac{c}{8} - \frac{d}{16} + \text{etc.}
\]
and each of these quantities, as we have stated above, is an approximation towards the whole sum; the first is in excess, the second in defect, the third in excess, and so on; but each is a nearer approximation than the preceding. The general formula for \( n \) terms is
\[
\left(2^n - 1\right) a - \left(A - n\right) b - \left(B - n^2\right) + \text{etc.}
\]

The method of applying this formula to computation, however, is such, that we must refer the reader for an explanation of it to the author's Miscellaneous Tracts, published in 1801, in 1778, or to the new edition of the same in 3 vols. 8vo, published in 1812.

10. **Lorgna's Method of Series.**—This consists in multiplying the terms of the proposed series by such powers of an inutendeterminate quantity, that the fluxion of the whole series being taken, and then divided by \( x \), there shall result a known series, from which the sum of the original one may be readily derived. Thus, let there be proposed the series,
\[
\frac{1}{\rho + q} + \frac{1}{\rho + 2q} + \frac{1}{\rho + 3q} + \text{etc.}
\]
Multiply each term successively by
\[
x^{\rho + q} + x^{\rho + 2q} + x^{\rho + 3q} + \text{etc.}
\]
and there results
\[
\frac{x^{\rho + q}}{\rho + q} + \frac{x^{\rho + 2q}}{\rho + 2q} + \frac{x^{\rho + 3q}}{\rho + 3q} + \text{etc.}
\]
Make the sum of this series \( S \), and then taking the fluxion on both sides, we have
\[
\frac{q S}{x} = x^{\rho + q} + x^{\rho + 2q} + x^{\rho + 3q} + \text{etc.}
\]
or
\[
\frac{q S}{x} = 1 + x + x^2 + x^3 + \text{etc.} = \frac{1}{1 - x}
\]
whence \( S = \frac{x}{1 - x} \); and consequently,
\[
\frac{q S}{x} = \frac{x^{\rho + q}}{\rho + q} + \frac{x^{\rho + 2q}}{\rho + 2q} + \frac{x^{\rho + 3q}}{\rho + 3q} + \text{etc.}
\]
which, by making \( x = 1 \), becomes the same as the series originally proposed, viz.
\[
\frac{1}{\rho + q} + \frac{1}{\rho + 2q} + \frac{1}{\rho + 3q} + \text{etc.}
\]
It must be observed, however, that in all such expressions, the fluxion must be so taken, as to vanish when \( x = 0 \), and to be perfectly integrable where \( x = 1 \).

By a similar process, the author finds the sum of the series,
\[
\frac{1}{\rho + q} - \frac{1}{\rho + 2q} + \frac{1}{\rho + 3q} - \frac{1}{\rho + 4q} + \text{etc.}
\]
On x

10
to be equal to $\frac{1}{q} \int \frac{x^l}{1 + x^m}$; the fluent being taken under
the same restriction as before. And in nearly the same way
he finds the sum of $n$ terms of the former to be
$$\Sigma = \frac{1}{q} \left\{ \int \frac{x^l}{1 + x^m} - \int \frac{x^{l+n}}{1 + x} \right\}$$
and the latter,
$$\Sigma = \frac{1}{q} \left\{ \int \frac{x^l}{1 + x} - \int \frac{x^{l+n}}{1 + x^m} \right\}$$

In a similar manner, M. Lorgna finds for the infinite sum of
$$\frac{1}{(p + q)^m} \frac{1}{(p + q)^{m+1}} + \frac{1}{(p + q)^{m+2}} + \cdots$$

$$S = \frac{1}{q} \int \frac{x^l}{x^m} \frac{x^l}{x^m+1} \frac{x^l}{x^m+2} \cdots$$
and the sum of $n$ terms,
$$\Sigma = \frac{1}{q} \int \frac{m^n - x^n}{m^n - x^n} \frac{x^l}{x^m} \frac{x^l}{x^m+1} \cdots$$

And $\Sigma = \frac{1}{q} \int \frac{2^n - x^n}{2^n - x^n} \frac{x^l}{x^m}$, when alternately plus
and minus.

For a further illustration of this method, we refer the reader to Clarke's translation of Lorgna's treatise, “De Seriesibus Convergentibus,” 4to. 1779.

11. Circular Series.—We have hitherto, when illustrating
the methods of summation employed by the Bernoullis,
that James, although he had discovered several curious pro-
erties of the series,
$$\frac{1}{1^1} + \frac{1}{2^2} + \frac{1}{3^3} + \frac{1}{4^4} + \cdots$$
had not been able to find its sum; but this his brother
John afterwards effected, and the solution of it is published
in the 4th volume of his “Opera Omnia.” Bernoulli
found this sum to depend upon the rectification
of the circle, shewing that it is equal to one-sixth of the square of
the semi-circumference of a circle, whose radius = 1. This
refult he drew from the known series, which expresses
the sine of an arc in terms of the arc, viz.,
$$\sin x = \frac{x}{2} + \frac{x^3}{2 \cdot 3 \cdot 4} - \frac{x^5}{2 \cdot 3 \cdot 4 \cdot 5} \cdots$$
which, when $\sin x = \varphi$, becomes, after dividing by $x$,
$$\varphi = 1 \frac{1}{3 \cdot 4} \frac{x^3}{2 \cdot 3 \cdot 4 \cdot 5} \cdots$$

Or writing $x = \frac{\varphi}{\varphi}$,
$$\varphi = 1 \frac{1}{3 \cdot 4} \frac{x^3}{2 \cdot 3 \cdot 4 \cdot 5} \cdots$$
Again, multiplying by $z^m$,
$$\varphi = z^m \frac{1}{2 \cdot 3} z^{2m} + \frac{1}{2 \cdot 3 \cdot 4 \cdot 5} z^{3m-4} \cdots$$

Now the sum of the roots of every equation of this form
being equal to the co-efficient of the second term with its sign changed, we have
$$a'' + a''' + a'''' + \cdots$$
or
$$\frac{1}{\varphi^2} + \frac{1}{\varphi^3} + \frac{1}{\varphi^4} + \cdots$$
denoting by $z^l$, $z^m$, $z^n$, &c., or $z^l$, $z^m$, $z^n$, &c., the
successive roots of the above equation.
But we know that the values of $x$, answering to the case
of $\sin x = \varphi$, are $\varphi$, $2 \varphi$, $3 \varphi$, $4 \varphi$, &c.; $\pi$ denoting
the semi-circumference; substituting, therefore, these successive
values of $x$, we have
$$\frac{1}{\varphi} + \frac{1}{\varphi^2} + \frac{1}{\varphi^3} + \frac{1}{\varphi^4} + \cdots$$
$$\frac{1}{\varphi^2} + \frac{1}{\varphi^3} + \frac{1}{\varphi^4} + \cdots$$

Landen's method depends upon exactly the same prin-
ciples; but he has rendered it more general, and exhibits
several very remarkable series of this kind. He first
deduces the formula for expressing the sums of the several
powers of the roots, $a$, $b$, $c$, &c. of any equation
$$x^n + Ax^{n-1} + Bx^{n-2} + Cx^{n-3} + \cdots$$
viz. if $S' = a + b + c + \cdots$
$$S'' = a^2 + b^2 + c^2 + \cdots$$
$$S''' = a^3 + b^3 + c^3 + \cdots$$
then $S' = - A$
$$S'' = - 2 B - A S'$$
$$S''' = - 3 C - B S' - A S''$$
$$S'' = - 4 D - C S' - B S'' - A S'''$$

Then from the series for the sine and cosine of any
arc $x$, viz.,
$$\sin x = x - \frac{x^3}{2 \cdot 3 \cdot 4} - \frac{x^5}{2 \cdot 3 \cdot 4 \cdot 5} \cdots$$
$$\cos x = 1 - \frac{x^2}{2 \cdot 3 \cdot 4} - \frac{x^4}{2 \cdot 3 \cdot 4 \cdot 5} \cdots$$
he derives the sum of their roots, when $\sin x = \varphi$, or
when $\cos x = \varphi$; and then, from the preceding formula for the
sums of the squares, cubes, &c. of the roots of an equation,
draws the values of the several powers of those quantities.
Thus in the series for the cosine, when $\cos x = \varphi$, we
have for the several roots, (denoting the quadrant or $\frac{\pi}{2}$
by $\varphi$,)
$$\frac{1}{\varphi} + \frac{1}{3 \varphi} + \frac{1}{5 \varphi} + \frac{1}{7 \varphi} \cdots$$
there being no second term, but the sum of these squared,
viz.,
$$\frac{1}{\varphi^2} + \frac{1}{3 \varphi^2} + \frac{1}{5 \varphi^2} + \frac{1}{7 \varphi^2} \cdots$$
SERIES.

\[
\frac{2}{3} + \frac{3}{5} + \frac{2}{7} + \cdots = S_n = \frac{1}{6}
\]

In a similar manner we have

\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots = \frac{\pi}{6}
\]

and on the same principle, the sum of the series,

\[
1 + \frac{3}{5} + \frac{1}{7} + \cdots = \pi
\]

may be found, \( n \) being any positive number whatever.

Euler's method is still more general than Landen's, but it depends upon principles of very nearly the same origin; we must, however, limit ourselves to giving a few of the principal results. Representing by \( \pi \) the semi-circumference to radius 1, he shews that

\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots = \frac{\pi}{2}
\]

and

\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots = \frac{\pi}{2}
\]

where the law of the first multiplier is obvious, but the coefficients of \( \pi \), \( \pi \), \&c. are not so easily seen: those for the following powers are \( \frac{3}{5} \pi \), \( \frac{5}{7} \pi \), \( \frac{6}{9} \pi \), \&c.

If each of these series be multiplied by their first fraction, they give

\[
\frac{1}{2^1} + \frac{1}{4^1} + \frac{1}{6^1} + \cdots = \frac{1}{2^1} \cdot \frac{2^1}{1.2.3} \cdot \pi \]

\[
\frac{1}{2^1} + \frac{1}{4^1} + \frac{1}{6^1} + \cdots = \frac{1}{2^1} \cdot \frac{2^1}{1.2.3} \cdot \pi \]

\&c. \&c. \&c. \&c. \&c.

and subtracting these from the first, we have

\[
1 + \frac{1}{3^1} + \frac{1}{5^1} + \cdots = \frac{2^1 - 1}{2^1} \cdot \frac{2^1}{1.2.3} \cdot \pi \]

\&c. \&c. \&c. \&c. \&c.

Again, subtracting the first from these last, we find the sum of the powers under the alternate signs plus and minus, and so on, almost in endless variety.

Other series, whose sums are found in nearly the same manner, are as follows, viz.

\[
1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \cdots = \frac{\pi}{4}
\]

\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots = \frac{\pi}{8}
\]

\[
1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \cdots = \frac{\pi}{16}
\]

\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots = \frac{\pi}{96}
\]

\&c. \&c. \&c. \&c. \&c.

For a great variety of other series of this kind, see Euler's "Introduction to Analysis of Infinites," and his "Institutiones Calculi Difficile," and also Legendre's "Elliptic Functions of the Various Orders of the Transcendentals," 4th ed., where the reader will find series very similar to the above, but which were not found by Euler's method, are treated of, and investigated by him in a very able manner.

We ought perhaps to apologize to such of our readers, who are not interested in mathematical inquiries, for the length to which we have extended this article; but those who are, will not, we presume, be displeased to find a condensed form a general view of the first introduction, and successive improvements, which have been made in this important branch of analysis. We have, of course, been obliged to pass over in silence many authors who have written on this subject; but we have endeavoured to include all those who have introduced into the doctrine any methods distinctly different from those who preceded them, at least, if we except Mr. Spence's method, published in his "Logarithmic Transcendentals," and that of M. Arbogast, given in his "Calcule des Derivations." We had indeed, in the first instance, intended to give a full illustration of the principles of these two authors; but the length to which the article has already extended, and the nature of their notation, which render necessary a considerable degree of previous explanation, put it out of our power to execute this part of our plan, and we can therefore do nothing more than refer the reader for information to the works themselves; we refer him also to the "Calcul des Differences Fines," by La Croix, and to an ingenious memoir by professor Vince, in the 72d volume of the Philosophical Transactions.

As the preceding article is arranged wholly with reference to the historical order of the subject, we intend, in conclusion, to furnish the reader with a general synopsis of the doctrine of series for the advantages of practical operations.

12. General Synopsis for the Summation of Series.—In the following table, \( S \) denotes the sum of a finite number of terms \( (n) \), and \( \Sigma \) the sum of an infinite number.

1. To find whether the sum of any proposed series be finite or infinite; let \( p, q, r \), be any three equidistant terms; then, if \( p (q - r) > r (p - q) \), the sum is finite; but if \( p (q - r) < r (p - q) \), it is infinite.

2. The general term of a series, when any order \( m \) of its differences vanish, is of the form

\[
T = A n^m + B n^{m-1} + C n^{m-2} + \cdots + E
\]

and its sum of the form

\[
\Sigma = A' n^{m+1} + B' n^m + C' n^{m-1} + \cdots + E'
\]

the values \( A, B, C, \&c. \) being found as stated in art. 5, and those of \( A', B', C', \&c. \) in a similar manner.

3. Simple arithmetical Series.

\[
a + (a + d) + (a + 2d) + \cdots + a + (n - 1) d
\]

(1) Infinite \( S = \frac{n}{2} (2a + (n - 1) d) \).

If the series decrease, then \( d \) is negative, and

\[
(S) = \frac{n}{2} (2a - (a - (n - 1) d).
\]

4. Simple geometrical Series.

\[
a + ra + r^2a + \cdots + r^{n-1} a
\]

(2) \( \therefore \frac{a}{1 - r} \).

\[
(S) = \frac{r^n - 1}{r - 1} a
\]

5. Powers
5. Powers of Arithmeticals.

\[ (m + p)^r + (m + 2p)^r + (m + 3p)^r + \ldots + (m + np)^r \]

\[ (S) = \frac{n^{r+1}}{(r+1)p} + \frac{n^r}{2} + \frac{prn^{r-1}}{3 \cdot 4} - \frac{r(r-1)(r-2)}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} p^{n-1} \]

\[ + \frac{1}{6} \frac{r(r-1)(r-2)}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} \ldots \frac{(r-8)}{2} \]

\[ + \frac{1}{42} \frac{r(r-1)(r-2)}{2 \cdot 3 \cdot 4 \ldots 9} p^{n-9} - \text{&c.} \]

continued till they terminate. The co-efficients are the same as \( \frac{1}{A}, \frac{1}{B}, \text{&c.} \).

This form includes all the powers of the natural series, of which we have given the particular forms to the fifth power, under art. 3.


\[ 1 + m + \frac{m(m+1)}{1 \cdot 2} + \frac{m(m+1)(m+2)}{1 \cdot 2 \cdot 3} + \frac{m(m+1)(m+2)(m+3)}{1 \cdot 2 \cdot 3 \cdot 4} + \text{&c.} \]

\[ (S) = \frac{n(n+1)(n+2)(n+3)}{1 \cdot 2 \cdot 3 \cdot 4} \text{to m terms,} \]

See particular results, art. 3.

7. Series of compound Arithmeticals.

\[ (m + p) (p + e) + (m + 2p) (p + 2e) + \ldots + (m + np) (p + ne) \]

\[ (S) = nmp + \frac{n+1}{2} (m + p)e + \frac{(n+1)(2n+1)}{6} e^3 \]

8. Series of compound geometrical Numbers.

\[ (b - m) (c - p) e^i + (b - 2m) (c - 2p) e^{i+1} + (b - 3m) (c - 3p) e^{i+2} + \text{&c.} \]

\[ (S) = \frac{e^i}{1-e} \left\{ b \frac{c}{1-e} - \frac{b - p + cm}{1-e} \right\} \]

\[ \left\{ (b - mn)(c - pn) \frac{(b - mn)n + (c - pn)m}{1-e} + \frac{mp(1+e)}{1-e^2} \right\} \]


\[ 1 + m \times + \frac{m(m+1)}{1 \cdot 2} x^1 + \frac{m(m+1)(m+2)}{1 \cdot 2 \cdot 3} x^1 + \frac{m(m+1)(m+2)(m+3)}{1 \cdot 2 \cdot 3 \cdot 4} + \text{&c.} \]

\[ (S) = \frac{1}{(1-x)^n} \]

10. Series of the Reciprocals of figurate Numbers.

\[ 1 + \frac{1}{m} + \frac{1}{m(m+1)} + \frac{1 \cdot 2}{m(m+1)(m+2)} + \frac{1 \cdot 2 \cdot 3}{m(m+1)(m+2)(m+3)} + \text{&c.} \]

\[ (S) = \frac{m-1}{m-2} \]


\[ \frac{1}{a^m} + \frac{1}{(a+d)^m} + \frac{1}{(a+2d)^m} + \frac{1}{(a+3d)^m} + \ldots + \frac{1}{(a+(n-1)d)^m} \]

\[ (S) = \frac{p^{m-1}}{(m-1)a^{m-1}} + \frac{p^m}{2a^m} + \frac{p^{m+1}}{2 \cdot A \cdot a^{m+1}} - \frac{p^{m+1}}{2 \cdot 3 \cdot 4 \ldots B \cdot a^{m+2}} \]

\[ + \frac{p^{m+1}}{2 \cdot 3 \cdot 4 \ldots C \cdot a^{m+3}} - \text{&c.} \]
where the law of continuation is obvious, \( \rho \) being \( \frac{a}{a + nd} \), and the values of \( \frac{1}{A}, \frac{1}{B}, \frac{1}{C}, \) &c. being derived as follows, we denoting these respectively by \( \frac{1}{\alpha}, \frac{1}{\beta}, \frac{1}{\gamma}, \frac{1}{\delta}, \) &c.

\[
\frac{i}{\rho} = \frac{1}{\delta}
\]

\[
\frac{i}{\gamma} = \frac{3}{\nu} - 2, \nu
\]

\[
\frac{i}{\delta} = \frac{5}{\nu} - 3, \nu - 5, \nu
\]

\[
\psi = \&c. \&c. \&c. \&c.
\]

\[
\varphi = \frac{n}{2m + 4} - \frac{n + 1}{2} \psi - \frac{(n + 1) n(n - 1)}{2 \cdot 3 \cdot 4}, \varphi - \frac{(n + 1) n(n - 1)(n - 2)(n - 3)}{2 \cdot 3 \cdot 5 \cdot 6}, \varphi \&c.
\]

12. Fractional Series of the following Form.

\[
\frac{m}{\beta} + \frac{m(m + \rho)}{\beta(\beta + \rho)} + \frac{m(m + \rho)(m + 2 \rho)}{\beta(\beta + \rho)(\beta + 2 \rho)} + \cdots \frac{m(m + \rho) \cdots (m + (n - 1) \rho)}{\beta(\beta + \rho) \cdots (\beta + (n - 1) \rho)}
\]

\[
(\varphi) = \frac{m}{\beta - \rho - m}
\]

\[
\frac{1}{(\rho + q)(m + r)} \pm \frac{1}{(\rho + 2q)(m + 2r)} + \frac{1}{(\rho + 3q)(m + 3r)} \pm \&c. \frac{1}{(\rho + qn)(m + nr)}
\]

\[
(\omega) = \frac{1}{\beta q n} \int \frac{x^n - x'}{x^2} \frac{dx}{1 + x}
\]

\[
(\beta) = \frac{1}{q} \int \frac{(x^n - x')}{x^n(\beta + x)} \frac{dx}{\beta + x}
\]

where \( \beta \) must be affirmative, and not less than unity.

\[
\frac{a}{b(b + c)} + \frac{a}{(b + c)(b + 2c)} + \frac{a}{(b + 2c)(b + 3c)} + \&c. \cdots \frac{a}{(b + (n + 1)c)(b + nc)}
\]

\[
(S) = \frac{n a}{b(b + nc)} \quad (\Sigma) = \frac{a}{bc}
\]

\[
\frac{a}{b(b + c)} + \frac{a}{(b + c)(b + 2c)} + \frac{a}{(b + 2c)(b + 3c)} + \frac{a}{(b + 3c)(b + 4c)} + \&c. \cdots \frac{a + 2c}{b + (n + 1)c}
\]

\[
(S) = \frac{2ab + ac - bc}{2b(b + c)(b + nc)} n + \frac{(ac + bc)n}{b + (n + 1)c}
\]

\[
\frac{a}{a + 1} + \frac{a + b}{(a + 1)(a + 1 + b)} + \frac{a + 2b}{(a + 1)(a + 1 + b)(a + 1 + 2b)}
\]

\[
(S) = 1 - \frac{1}{(a + 1)(a + 1 + b) \cdots (a + 1 + (n - 1)b)}
\]

\[
\frac{a + c}{(a + b)(a + b + c)}
\]

\[
(S) = \frac{ac(q^n - 1) + abcq^n - bceq(q^n - 1)}{q - 1}
\]
\[
(8) \quad \frac{a}{c} + \frac{a + b}{c q} + \frac{a + 2b}{c q^2} + \frac{a + 3b}{c q^3} + \&c.
\]
\[
(8) \quad \frac{a(q - 1) + b}{c q^{r-1}} (q - 1)^{\frac{1}{r}}
\]

For a great variety of other fractional series, see Clarke's translation of Largna's Series; for the several differential formulae, our articles 3, 6, 7, 8, and 9, which are about this article; for the summation of Recurring Series, see our first article; for the most useful logarithmic series, see LOGARITHMS; and for various trigonometrical series, see the articles SINES, and TRIGONOMETRY.

SERIGNAC, in Geography, a town of France, in the department of the Finiferre; 10 miles N. of Carhaix.

SERIGNAN, a town of France, in the department of the Herault; 6 miles S. of Beziers.

SERIGNI, a sea-port town of the island of Java, in the straits of Sunda, belonging to the king of Bantam.

SERIGO. See Cerigo.

SEMINOA, a town of Italy, on the lake Como; 27 miles N. of Como.

SERJHARYODOU, a town of Chinefe Tartary, in the country of the Mongols. N. lat. 42° 15'. E. long. 105° 34'.

SERIKOTCHE, a town of Persia, in the province of Chorasan or Khorasan; 195 miles N. of Herat.

SERIMSAH, a town of Egypt; 16 miles S. of Damietta.

SERIN, or Serain, a river of France, which runs into the Yonne, between Auxerre and Joigny.

SERIN, or Serinus, in Ornithology, the name of a small bird; a species of the Fringilla in the Linnean System, common in Germany and Italy, and called by the Auritians BERGRIFF, or BIRGREIL. Its back is of a reddish-brown, and its head yellow; the colour being deeper in the male, and paler in the female; the rump is of a beautiful yellowish-green, as is also the breast; the belly is white, and the sides have some oblong blackish spots; the tail, and long feathers of the wings, are black, and a little greenish at their extremities; the beak is very thick, strong, and short, and is very sharp at the point. It is kept in cages, and feeds very sweetly.

SERIN of Surinam. See Pipra Crijata.

SERIN of the Canaries. See Fringilla Canaria.

SERIN of Jamaica. See Fringilla Cana.

SERINDA, in Ancient Geography, a town of India, on this fide of the Ganges, the inhabitants of which paid great respect to the emperor Julian.

SERINE, in Geography, a town of European Turkey, in the province of Macedonia; 44 miles S.E. of Saloniki.

SERINEAH, a town of Bengal, 18 miles S. of Purunah.

SERINETTE, a bird organ, said in the Encyclopédie to be an invention of Barby. The pitch is very high, being in unison with the largest Æolus in French organs, and with our 15th. It is used to teach birds little tunes, by those unable to play on the flageolet. Its compass is only an octave, or 13 pipes, as no scale is ever wanted.

SERINGAPATAM, in Geography, a city in Hindoostan, and capital of Mylore, situated on an island in the Cañary, which is here about five repetitions; it runs over a rocky channel, about 200 or 300 miles from Madras. The length of this island is about 4 miles, and its breadth about four and a half miles; the western side being allotted to the forts, which occupied 2000 yards, distinguished by regular outworks, magnificent palaces, and lofty moleks; for Tippoo and his father were both Mahometans, nor were they averse from the perdition of the Hindoos and Christians. The environs were decorated with noble gardens; and among other means of defence was the "bound hedge," as it was called, consisting of every thorny tree and caustic plant of the climate, planted to the breadth of from 30 to 50 feet. Covered on the north and south by the river, this fortres was defended till the peace of 1792 by a single rampart; the earl and west faces being much weaker, were strengthened by double walls and ditches, by outworks before the gates, by circular work upon the four-cant angle, and by several formidable cavaliers within and upon the southern rampart. The rampart, which is thick and strong, varies in height from 20 to 35 feet and upwards; the whole of the revetment, except the north-west bastion, is composed of granite cut in large oblong pieces, laid in cement, transversely in the walls. The ditches are cut out of the solid rock. A stone glacia extends along the north face. But the interior of the fort has few good buildings, and the town in general is mean. The old Myfor palace being in a ruined state, has been converted into a military flounder. The sultan's palace is a magnificent edifice, in the Asiatic style, but much disfigured by a high wall, and a number of unfinished buildings round it. The great mosque is covered with the finest chunam (or polished cement), and ornamented with lofty minarets. In the year 1792, lord Cornwallis laid siege to this city, and compelled Tippoo, king of Mylore, to a peace, by which he made a cession of great part of his dominions, and agreed to pay three crores and thirty lakhs of rupees towards the expenses of the war. In the year 1799, the British troops, after a short siege of a few days, took it by assault. The loss of the besiegers amounted to 32 officers, and 45 wounded, 181 Europeans rank and file killed, 622 wounded, and 22 missing; 119 natives killed, 420 wounded, and 100 missing. There were in the fort 13,739 regular infantry; and without the fort and in the intrenchments of the island 8100. The loss must have been very great, as in the assault only, 24 principal officers were killed, and seven wounded, besides Tippoo himself, who received a shot in his head. There were found in the forts 373 brass guns, 60 mortars, 11 howitzers, 466 iron guns, and 12 mortars, 444,400 round shot, 520,000 lbs. of gunpowder, and 99,000 muskets, carbines, &c. Within the fort there were 11 large powder magazines, 72 exxence magazines, 11 armories, two cannon foundries, three buildings with magazines for boring guns and muskets, four large arsenals, and 17 other flouehouses, containing accoutrements, swords, and other articles, besides many granaries abundantly floured with provisions of all kinds. Of treasure and jewels the total value was 2,553,804 florin pagodas, or 1,132,216l. sterling. The fall of this city put the whole kingdom of Mylore, with all its resources, into the power of the British government. Tippoo's sons surrendered on the fall of Seringapatam. When the strength of the fortifications of all kinds of this place, and the number of Tippoo's troops and artillery are considered, our repeated successes afford a convincing proof that no climate or fortres can overcome British courage, conduct, and perseverance. N. lat. 12° 31'.

SERINGHAM, an island of Hindoostan, in the river Cauvery, on which are two pagodas, much venerated by the Hindoos, and especially the object of devotion. In 1751 the French took possession of this pagoda, and in the following year it was taken by the English under major Lawrence; 4 miles N.E. of Tritchinopoli.

SERINHAEM,
SERINHAEM, a river of Brazil, which runs into the Atlantic, S. lat. 11° 59'.

SERINO, a town of Naples, in Principato Ultra; 19 miles S. of Florence.

SERINPALLE, a town of Africa, in the country of Cayor, on the left bank of the Senegal. N. lat. 16° 59'. W. long. 15° 5'.

SERINPETA, a town in the river Senegal, where the caños of the country are constructed.

SERIO, a river of Italy, which runs into the Adria at Ponthecce—Also, a department of Italy, composed of the Bergamasco; it contains 1057 inhabitants, who elect 15 deputies. Its capital is Bergamo.


Gen. Ch. Symagynus calyx simplex, composed of linear, nearly equal, erect leaves. Cor. compound, imbricated, uniform, composed of numerous, equal, perfect flowers; proper of one perigon, linear, truncate, five-toothed petals. Stam. Filaments five, capillary, very short; anthers cylindrical, tubular. Pest. German ovate; ille thread-shaped, the length of the flower; stigma two, reflexed. Peric. none, except the unchanging calyx. Synth. oblong, the length of the calyx. Down capillary, feathered, with ten rays hairy at the sides. Recept. chaffy, decussate, as long as the calyx.


3. S. cretifi. Cretan Seriola. Linn. Sp. Pl. 1139. ("Acheiroporus hritusus, dentis leonis folio lentere dete- rate; Vaill. Act. 745.") —Herb rough with hairs. Leaves lanceate,—Native of the island of Candia or Crete. We know not of any figure or description of this species. It reeds on the above quoted authorities.


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Obf. Wilderow and the editor of Hortus Kewensis have not adopted this genus. They refer the several species of it to Artemisia and Stebs.

Gen. Ch. Cal. Peranthus double; outer of five, rosy, imbricated, downy leaves; inner of five, erect, acuminate, awl-shaped, smooth, fleshy leaves, which are twice so long as the outer ones, single-flowered. Cor. of one petal, funnel-shaped, shorter than the inner calyx; limb five-toothed. Stam. Filaments five, capillary; anthers cylindrical. Pest. German between the calyx and the flower; style thread-shaped; stigma rather cleft. Peric. none, except the unchanging, closed calyx. Seed solitary, oblong.

Eff. Ch. Calyx double, imbricated. Corolla of one petal, regular. Seed solitary, oblong, below the calyx.

1. S. cincceum. Heart-shaped Seriphium. Linn. Sp. Pl. 1316. (Starb. cinerea; Willd. Sp. Pl. v. 3. 2450. Tamarictus cincticusus, Cordia folio glabra; Pluk. Mant. 178. t. 297. f. 1.)—Flowers in whorled spikes, spreading.—Native of the Cape of Good Hope, as indeed are all the remaining species. They flower from July to September. Stem upright, branched. Leaves spreading, small, lanceolate, crowded, recurved, glabrous at the base, hoary. Flowers in lengthened spikes, like a fox's tail, pale red, interrupted. Scales of the calyx almost bracty.


The seed-sown of this species being feathered at the tip, induced Linn. to make it a Seriphium.

SERIPHUS, or Seriphos, in Ancient Geography, an island in the Archipelago, and one of the Cyclades, Pp
SERIPPO, a town of Hifpania, in Bética. Pliny.

SERI SOMTOU, in Geography, a district of Thibet, situated between E. long. 95° and 96°, and between N. lat. 30° and 31°.


Gen. Ch. Cal. Perianth superior, divided into five, awl-shaped, erect segments. Cor. of one petal, funnel-shaped; tube short; limb broad, reflexed, five-creft; segments trid, acute. Stam. Filaments five, very short, below the mouth of the tube; anthers oblong, incumbent. Pif. Germin inferior, roundish; style thread-shaped, the length of the corolla; stigma oblong, villous, cloven, reflexed. Peric. Berry roundifh, small, of one cell. Seeds numerous, (according to L'Heritier and Brown only two,) ovate, small.

Eff. Ch. Corolla funnel-shaped, fringed at the mouth. Segments of the limb mostly three-lobej. Berry inferior, with two seeds.


This elegant little shrub produces numerous white flowers, which have the appearance of those of Jasminne, but are without scent, as indeed is the whole plant, until it be squeezed or bruised, when it emits a highly disgusting smell. A variety with double flowers is not uncommon in the gardens about London.

SERIUM, in Ancient Geography, a town of European Sarmatia, in the vicinity of the Borythennes. Ptolemy.

SERKA, in Geography, a town of Nubia; 200 miles S. of Sennar.

SERKESI, a town of Ruffia, in the government of Kaluga; 44 miles W.S.W. of Kaluga. N. lat. 54° 16'. E. long. 34° 34'.

SERKES. See Tserkesh.

SERKIS, a town of Asiatic Turkey, in Caramania; 50 miles W. of Cogni.

SERLIO, Sébastiano, in Biography, an eminent architect, was a native of Bologna, who flourished in the early part of the sixteenth century at Venice, in the character of an architect. He afterwards travelled through Italy, and resided a considerable time at Rome, where he studied the fine arts, and made many drawings of edifices, ancient and modern, and he is said to have been the first who examined, with the eye of a man of science, the remains of ancient architecture. The knowledge which he acquired was given to the public in a complete treatise of architecture, of which he planned several books, and the first that appeared was the fourth in order, comprehending the general rules of architecture, which he printed at Venice in 1537; dedicated to Hercules II. duke of Ferrara. The other six books appeared successively at different intervals, and the different editions made of them prove their popularity. Serlio, in 1541, was invited to France by Francis I. and was by that sovereign employed in the erections at Fontainebleau, where he thenceforth resided, and where he died, at an advanced age, in 1578. Though as an author he was much attached to the principles of Vitruvius in his designs as an artist, he very much neglected them. His school of St. Roch, and palace Grimani at Venice, are built in a grand and magnificent style. Gen. Biog.

SERMAISE, in Geography, a town of France, in the department of the Marne; 19 miles S. of Meurch.ill.

SERMAISES, a town of France, in the department of the Loiret; 7 miles N. of Pithiver. u.

SERMAKI, a town of Sweden, in the province of Tavalland; 170 miles N. of Tavallhus.

SERNANICOMAGUS, in Ancient Geography, a town of Gaul, which, according to the tables of Peutinger, was situated in Aquitanica secunda. It was on the right of the Charente, at some distance N. of Iulcria, according to M. d'Anville; it is the present Cerems.

SERNMATIA, in Geography, a town of Hindooftan, in the fuboh of Agra; 25 miles N.E. of Kerowly.

SERNMATTA, an ifland in the East Indian fea, about 22 miles long, and six broad. S. lat. 8° 6' E. long. 129° 11'.

SERNESOK, an ifland near the W. coast of Greenland. N. lat. 61° 50'. W. long. 47° 43'.

SERRIA, a river which rife near Montegio, in the flate of Genoa, and after pafling by Serravalle, Tortona, &c. runs into the Tanaro.

SERRIN, a town of Italy; 2 miles N.E. of Capo d'Itria.

SERNIONE, a town and castle of Italy, in the Veron, on a neck of land running into lake Gorda, the harbour of which may be shut by means of chaus, defended by a castle. This was the native place of the poet Catullus; 16 miles W. of Verona.

SEMPIONE, in Geography, a town and castle of Italy, in the Veron, on a neck of land running into lake Gorda, the harbour of which may be shut by means of chaus, defended by a castle. This was the native place of the poet Catullus; 16 miles W. of Verona.

SERNOMINATION, Sernocinatio, in Rhetoric, denotes discourse in general, whether held by a person alone, or in company, and is the fame with what is otherwise called discollin.

SERNOMOSUS, Sernologus, an ecclesiastical book composed of sermons, or homilies of pope, and other persons of eminence and sanctity, formerly read at the feafts of the Confellers, the Purification, All Saints, and on every day from Christmas to the octave of the Epiphany. See Homil.

SERNOM, a discourse delivered in public, for the pur- pose of religious instruction and improvement: or a per- spective oration.

As to the choice of subjects for a sermon, they should be such as in the judgment of the preacher seem to be the most useful, and the best accommodated to the circumstances of his audience. The unmeaning applause which the ignorant give to what is above their capacity, common lefeé and common probity must teach every man to despife. Usefulness and true eloquence are inseparable, nor can an any man be justly deemed a good preacher, who is not an useful one. In a sermon, considered as a peculiar species of composition, the first object of attention is its unity; by which we mean, that there should be some one main point, to which the whole strain of a sermon should refer. This unity, however, does not require that there should be no separate heads or divisions in the discourse, or that one thought should again and again be presented to the hearer in different lights. Separate divi- sions or distinct heads, provided that they are numerous
SERMON.

numeros and too minute, serve to aid the composer and the
hearer of a sermon. In order to render them more
striking, and consequently more useful, the subject of them
should be precise and particular. General subjects, though
often chosen by young preachers, because they offer a more
ample supply of matter, without much labour of thought,
and a wider scope for the display of showy talents, are by no
means the most favourable for producing the high effect of
preaching. These subjects, often recurred to, admit of
little diversity and variety. The attention of the hearer is
more certainly engaged and fixed, by forming some particular
view of a great subject, some single interesting topic, and
directing to that point the whole force of argument and
elocution. Here indeed the execution is more difficult, but
the merit and the effect are higher. Moreover, the com-
poser of a sermon should never fludly to say all that can be
said upon a subject; no effect can be greater than this. On the other
hand, the preacher should select the most useful, striking, and
persuasive topics which the text suggests; and with this view
he should consider, that discourses for the pulpit are intended
for information than persuasion, and that nothing is more
opposed to persuasion than an unmeaning and tedious fulness.
Again, in studying a sermon, the preacher ought to place
himself in the situation of a serious hearer; and derive his
principal materials from those views of a subject, and those
arguments and reflections which would operate most favour-
ably and most effectually on his own mind. Above all things,
the preacher should fludly to render his instructions interesting
to the hearers. In this respect, much depends on the delivery
of a discourse, but much will also depend on the composition of
it. Correct language and elegant description are but
the secondary ingredients of preaching in an interesting
manner. The great secret lies, in bringing home all that is
said to the hearts of the hearers, so that every man may be
led to think that the preacher is addressing him in particular.
It is hardly necessary to subjoin a caution here, that perno-
ality should be avoided. For the attainment of the end now
flated, the preacher should avoid all intricate reasonings,
and expressing himself in general speculative propositions, or
laying down practical truths in an abstract metaphysical
manner. As much as possible, the discourse ought to be
carried on in the strain of direct address to the audience;
in the strain of one writing an essay, but of one speaking
to a multitude, and fludying to mix what is called applica-
tion, or what has an immediate reference to practice, with
the doctrinal and discursive parts of the subject. In this con-
nection we may add, that the preacher should adapt his discourses,
with a view of making them interesting, to the different ages, characters, and conditions of
men, and that he should avail himself of any personal or do-

castic occurrence, for imparting either instruction or con-

Some of the most impressive discourses are those that
delineate and exhibit examples founded on historical
facts, and drawn from real life. Many of these may be
found in scripture, which, when they are well chosen, command a
high degree of attention. Bishop Butler's sermon on the
"character of Balaam," affords a specimen of this kind of
preaching. It is of importance to observe, farther, that the
preacher should be cautious not to take his model from
particular fashions that chance to have the vogue. It is the
universal tale of mankind, which is subject to no changing
trends, that alone is entitled to please any authority; and
this will never give its function to any strain of preaching
that is not founded in human nature, connected with use-
ful facts, adapted to the proper idea of a sermon, as a fervent
persuasive oration, delivered to a multitude, in order to make
them better men. Let the preacher form himself upon this


As to the style of sermon, it should be clear, plain, very
peremptory. Pleasure and all things beside, and of course all
external, trivial, or high-sounding words should be avoided; and especially that which is too
metaphorical, or merely philosophical. Dryness of expres-
ding indifferent, but that clearness of expression, adapted
with simplicity, and that weighty and persuasive
which is imparted by the orator, is that which a preacher
ought to attempt to feel, and not merely to affect, and published by the praise and
importance of the pulpit. He need not only employ
metaphors and comparisons, but, on proper occasions, may
poetize the faith of the faithful, may personify moral
things, break out into bold exhortations, and, in general,
command the most passionate figures of speech.

The language of scripture, properly employed, is a great
ornament to sermons; and it may be employed either in the
way of quotation or allusion. But the allusions which the
preacher uses should be natural and easy, and if they be forced, they approach to the nature of 
itra
ds. In a sermon, no points or conceits should appear, no affected
figures and quatrains of expression, which do not spring from the
dignity of the pulpit. It is a strong expulsive style, rather
than a sparkling one, that ought to be studied. Epithets
have often great beauty and force, but it is a great error to
imagine, that we render style flowing and expressive, by
a constancy and multiplied use of epithets.

As to the question, whether it be most proper to write
sermons fully, and commit them accurately to memory, or to
study only the matter and thoughts, and trust the ex-
pression, in part at least, to the delivery, Dr. Blair is of
opinion that no universal rule can be given. Preachers must
adopt either of these methods, according to their different
genus, and we may add according to the situation where they are
settled, and the rank or character of the audience which they
address. It is proper, however, to begin, at least, the practice
of preaching, with writing accurately as possible. He thinks
it also proper to continue, as long as the habits of industry
last, in the practice both of writing and committing to
memory. The practice of preaching is, as our author
says, one of the greatest obstacles to the eloquence of the
orator in Great Britain, where alone this practice prevails.
No discourse which is designed to be persuasive can have
the same force when read as when spoken. We are of opinion,
however, that sermons from memory have little advantage,
in point of effect, above those that are read. An
extemporaneous sermon has this advantage in an eminent degree; but
few excel, and many discourses of this kind are such as
would disgust a judicious, though candid, hearer.

The French and English writers of sermons proceed upon
very different ideas of the eloquence of the pulpit. A
French sermon is, for the most part, a warm animated ex-
oration; an English one, a piece of cool instructive
reasoning. The French preachers address themselves chiefly to
the imagination and the passions: the English, almost solely
to the understanding. The union of these two kinds of
composition, of the French ornamental and warmth with the
English accuracy and reasoning, would form, in Dr. Blair's judgment, the model of a perfect
sermon. The censure which, in fact, the French critics pass on the English preachers is, that they are philosophers and logicians, but not orators. Among the French
Protestant divines, Saurin is the most distinguished; and the late Mr. Robinson of Cambridge
has done a public service by translating many of his discourses into the English language.

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Saurin
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Saunin is copious, eloquent, and devout, though, in his manner, too effecituous. Among the Roman Catholics, the two most eminent are Bourdolus and Maffillon. The French critics differ in their opinion to which of these preachers the preference is due. To Bourdolus they attribute more fidelity and close reasoning: to Maffillon, a more pleasing and engaging manner. The former is a great reasoner, and inculcates his doctrines with much zeal, piety, andearnestnes; but his style is verbose, and abounding with quotations from the fathers, and he wants imagination. Maffillon has more grace, more sentiment, and, as Dr. Blair thinks, may have more genius. He discovers much knowledge, both of the world and of the human heart; he is pathetic and perspicius, and is perhaps the most eloquent writer of sermons which modern times have produced. During the period that preceded the restoration of Charles II., the sermons of the English divines abounded with scholastic catusitical theology, but in their application they adopted more pathetic address to the conceptions of the hearers. Upon the restoration, preaching assumed a more correct and polished form. What ever was earnest and passionate, either in the composition or delivery of sermons, was reckoned enthusiastic and fanatical; and hence that argumentative manner, bordering on the dry and unperspicuous, which is too generally the character of English sermons. Dr. Clark, who excels in a variety of respects, may be esteemed an elegant and instructive composer of sermons, but he is deficient in the power of interesting and feizing the heart. Tillotson’s manner is more free and warm, and he approaches nearer than most of the English divines to the character of popular speaking; and he, even now, one of the best models for preaching. Dr. Barrow is admirable for the prodigious fecundity of his invention, and the concurrence, strength, and force of his conceptions; but less happy in execution, or composition. Atterbury deserves to be particularly mentioned as a model of correct and beautiful style, besides having the merit of a warmer and more eloquent strain of writing in some of his sermons, than is commonly met with. If Buller had given us more sermons in the strain of those upon self-deceit and the character of Balasam, in the room of abstrac philosophical essays, he might have been distinguished for that species of critical sermons above recommended.

The parts of a sermon, discourse, or regular formed oration, are the following fix; viz.: the exordium or introduction, the state and division of the subject, narration, and explication, reasoning, or arguments, the pathetic part, and the conclusion. (See each under its proper head.) The introduction of an English sermon is too often stiff and formal, whereas those of the French preachers are very splendid and lively. Common-place topics should be avoided; variety should be studied; and in some cases the discourse may commence without an introduction. Explanatory introductions from the context are not uncommon, they are appropriate and instructive; but they should not be too long. An historical introduction has, generally, a happy effect in cauing attention. To the proposition or enunciation of the subject generally succeeds the division; but it has been questioned, whether this method of laying down heads, as it is called, be the best method of preaching. Archbishop Cambray declares strongly against it; alleging, that it is a modern invention, that it was never practised by the fathers of the church, and that it took its rise from the schoolmen. But we are of opinion, with Dr. Blair, that it serves useful purposes, and ought not to be laid aside. (See the preceding part of this article.) But in any discourse or sermon, there are certain rules which should be observed, e.g. the several parts into which the subject is divided should be really distinct from one another: the order of nature should be followed, beginning with the simplest points, or those that are most eagerly apprehended and needful to be first diffus’d, and then proceeding to those which are built upon the former, and which suppose them to be known:—the several members of a division ought to exhaust the subject:—the terms in which the partitions are expressed should be as concise as possible:—and the number of heads should not be needfully multiplied. Another part of a discourse or sermon is narration. This part must be concise, clear, and distinct, and in a style correct and elegant, rather than highly adorned. The argumentative part is succeeded by the pathetic, in which, if any where, eloquence reigns, and exerts its power. (See Pathetic.) In sermons, inferences from what has been said make a common conclusion. With regard to these care should be taken, not only that they rise naturally, but that they should so much agree with the strain of sentiment throughout the discourse, as not to break the unity of the sermon. The precille time of concluding a discourse is an object of importance. It should be so adjutted that our discourse is brought to a point; neither ending abruptly and unexpectedly; nor disappointing the expectation of the hearers, when they look for the close; and continuing to hover round and round the conclusion, till they become heartily tired of us. We should endeavour to go off with a good grace; not to end with a languishing and drawing sentence; but to rise with dignity and spirit, that we may leave the minds of the hearers warm; and dismfs them with a favourable impression of the subject, and of the speaker. Blair’s Lectures, vol. ii. See Elocution of the Pulpit, and Preaching. SERMON, Funeral. See Funeral. SERMONES, the title which Horace gives his Satires. See SATIRE.

Critics are divided about the reason of the name; the opinion of father Bofti seems belted ground. A mere obscurance of feet and measure, such as we find in Terence, Plautus, and in Horace’s Satires, he thinks is not sufficient to constitute verse, to determine the work to be poetical, or to distinguish it from profe; unless it have some farther air, or character of poetry; somewhat of the fable or the sublime. Hence he judges it is, that Horace calls his Satires profi, or sermons: his Odes have quite another air, and are therefore called poems, carmina. SERMONETTA, in Geography, a town of Italy, in the Campania, situated on a mountain difficult of access. Some say that it occupies the feite of the ancient Sura; but others say that it occupies the spot on which Sulmo flood; 13 miles S. of Veletri. SERMONIUM, in Old Records, a kind of interlude or historical play, which the inferior orders of clergy, afflicted by boys, &c. used at times to act in the body of the church, suitable to the solemnity of some festal or high precession day.

This is supposed to have been the origin of the modern drama. SERMONTON, in Botany, a species of the lactor-wort in the Linnean syllym, and, according to others, of the fefeli, or wild spigiel, which grows wild in some of the southern parts of Europe, is raiied with us in gardens, and flowers in June.

The seeds of this plant are the part directed for use in our pharmacopoeias, and the roots appear to be useful aromatics, though not regarded in practice; of an agreeable smell, and a warm glowing sweetish taste; the roots have the greatest warmth and pungency; the seeds the greatest sweetness, and the molt pleafant flavour. A spiritual extract
trait of the seeds is a very elegant aromatic sweet. Lewis 53.
See 

SERMUR, in Gravina, a town of France, in the department of the Cevennes; 6 miles S.W. of Auzances.

SERNA, L., a town of Spain, in the province of Leon; 54 miles N. of Palencia.

SERNADELLE, a town of Portugal, in the province of Beira; 10 miles S.E. of Lamego.

SERNETTY, a town of Burgos; 31 miles E.S.E. of Coimbra.

SERNINICUM, in Ancient Geography, a town of Italy, on the route from Milan to Colombe, in passing through Piacenza, according to the Itinerary of Antoninus, where it was marked by the Achadum Certa, and Piacenum Certa.

SERNON, in Geography, a town of France, in the department of the Var; 7 miles N.W. of Grasse.

SERSANT, a town of Switzerland, in the canton of Glarins, near a river of the same name; 3 miles S. of Glarins. The river runs into the Svandach at this place.

SEROGLAZOWSKAIA, a fortress of Russia, in the government of Coacac, on the Volga; 24 miles N.W. of Astrachan.

SEROLZECK, a town of the duchy of Warsaw, at the union of the rivers Nabwe and Bug; 20 miles N. of Warsaw.

SEON, a town of Spain, in the province of Graeneda; 7 miles W. of Puebres.

SERONIUM, in Ancient Geography, the quantity of two hundred weight; of watered, it is from three to four hundred; of Calillic top, from two hundred and a half to three hundred and three quarters.

SEONGE, in Geography, a town of Hindostan, in the Malwa country, celebrated for its manufacture of printed cottons and chintzes; 13 miles N.E. of Ougrin. N. lat. 24° 50′; E. long. 78° 40′.

SEOROS, a town of Hindostan, in Dowlatabad; 24 miles S.S.W. of Amednagar.

SEROS, Los, a town of the island of Cuba; 38 miles N. of Trinidad.

SEROSITY, the watery part of the blood, or serum.

See Blood.

SEROTA, in Ancient Geography, a town of Pannonia, between Lentuli and Marconnae.

SEROUZE, in Geography, a town of Aesian Turkei, in the province of Diarbeik; 80 miles S.W. of Diarbeik.

SEROWRA, a town of Hindostan, in Oude; 4 miles N. of Lucknow.

SERPA, a town on the E. coast of the island of Corfu; 8 miles N. of Corfu.—Allo, a town of Portugal, in Atenjo, containing two churches, and about 4,000 inhabitants; 12 miles S.W. of Moura.

SERPA, in Ancient Geography, a town of Hispania, in Bertica, on the left of the river Ana, and nearly E. of Pax-Julia.

SERPEGER, in the Manager, was used to denote the riding a horse in the serpentine way, or in a trench with waved turnings like the pottle of a serpent's body; but is now become obsolete.

SERPENTARA, in Geography, a small island near the E. coast of Sardinia. N. lat. 35° 18′ E. long. 10° 21′.

SERPENTARIA, in Botany, a name applied by the older botanists and medical writers, to various plants, either on account of the serpent-like form of their roots, as in Polygonum Bifera, their spotted stems, as in Arum Dracunculus, or some other fanciful resemblance. The name has likewise been given to plants supposed to cure the bites of serpents, as Arum Serpentaria or Varia Serpentaria.

For a treatment of certain species of Plants, no seeds have been discovered of Serpentaria.

SERPENTARIA, in Botany, a name applied to the eastern half of Cape, called also Ophiocodon, and lately Alcyonaria.

The slugs in the constellation Serpentarii, in Poeten's catalogue, are 29; in Tycho's, 15; in Hevelius's, 43, in the Britannica catalogue, they are 74. See Conservation.

SERPENTES, Serpents, in Zoology, the last order in the Linnæan class Amphibia, which are thus generally characterized: they are toothless; their eyes are covered in a chain; the penultimate is double, and very small.

These animals are sufficiently distinguished from reptiles by their total want of feet, moving by the aid of their tails, and their general powers of contortion. The distinction of species in this numerous tribe is, according to Dr. Shaw, frequently very difficult. It was thought that an invariable criterion might be found in the number of plates on the abdomen, and beneath the tail; but, accordingly, attempted, in the Systema Naturae, to discriminate the species by this mark alone. This is now found to be, by much, too uncertain and variable for a specific test. The colour is indeed frequently variable, but the patters, or general distribution of markings in each species, appears to be more constant; the relative size of the head, the length of the body and tail, the size, smoothness, or roughness of the scales, as well as their shape in different parts of the animal, often afford tolerably certain specific marks.

The distinction of serpents into poisons and innocuous, can only be known by an accurate examination of their teeth; the fangs, or poison-teeth, being always of a tubular structure, and calculated for the conveyance or injection of the poisonous fluid from a peculiar reservoir, communicating with the fang on each side of the head: the fangs are always situated in the anterior and exterior part of the upper jaw, and are generally, but not always, of much larger size than the other teeth; they are also frequently accompanied by some smaller or subsidiary fangs, apparently divided to supply the principal ones, when lost either by age or accident. The fangs are situated in a peculiar bone, so articulated with the rest of the jaw, as to elevate or depress them at the pleasure of the animal. In a quiescent state, they are recumbent, with their points directed onwards or backwards; but when the animal is inclined to use them as weapons of offence, their position is altered by the peculiar mechanism of the above-mentioned bone, in which they are rooted, and they become almost perpendicular.

A general rule for the determination of the existence or non-existence of these organs, in any species of serpent, was proposed by Dr. Gray, in the Transactions of the Royal Society for the year 1788. According to this author, the fangs may be distinguished with great ease by the following simple method. When it is discovered that there is something like teeth in the anterior and exterior part of the upper jaw, which situation he considers as the only one in which venomous fangs are ever found, let a pin, or other hard body, be drawn from that part of the jaw to the angle of the mouth. If no more teeth be felt in that line, it may be fairly concluded that those first discovered are fangs, and that the tooth consequently is venomous; if, on the contrary, the teeth first discovered be observed not to stand alone, but to be only part of a complete row, it may as certainly be concluded that the serpent is not venomous. This rule, however, like most other general rules, may have its exceptions; and perhaps the most legitimate test of real
fangs in a serpents is their tubular structure, which may always be readily detected by the assistance of a proper magnifier. It is to be observed, that all serpents, whether poisonous or not, have, besides the teeth, whether fangs or simple teeth, in the sides of the upper jaw, two additional or interior rows, which are generally much smaller than the rest, and frequently scarcely visible. The general rule, therefore, is, that all venomous serpents have only two rows of true or proper teeth in the upper jaw, and that all others have four.

A head entirely covered with small scales is, in some degree, a character, but by no means an universal one, of poisonous serpents; as are also carinated scales on the head and body, or, such as are furnished with a prominent middle line. All serpents call their skins at certain periods: in the temperate regions, annually; in the warmer climates, perhaps more frequently. The serpents of the temperate and cold climate also conceal themselves, during winter, in cavities beneath the surface of the ground, or in some other convenient places of retreat, and pass the winter in a flate more or less approaching, in the different species, to complete torpidity. Some serpents are vipers, as the rattle-serpents, the vipers, and many other of the poisonous kind; while the common snake, and probably the greater part of the innoxious serpents, are oviparous, depofiting, as we have already observed, their eggs, in a kind of cavity or shell, in any warm and close situation, where they are afterwards hatched.

The broad divided laminae, or scaly plates, on the bellies of serpents, are termed scuta; and the smaller or divided plates, beneath the tail, are called subcaudal scales; and from these different kinds of laminae, the Linncean genera of serpents are chiefly instituted. In the edition of the Sytema Naturae by Gmelin, seven genera are enumerated and described, vis:

Acrochordus, Cecilia,
Amphisbaena, Coluber,
Anguis, Crotalus.
Boa.

Having, in our alphabetical arrangement, omitted a description of some of the above genera, and referred to the species of others which have not yet been given, we shall take the opportunity which the order itself gives us, of making up for the defects that have escaped our notice, beginning with

Acrochordus, of which the generic character is, that it has tubercles covering the whole body. Gmelin gives but a single species, vis. the javanicus; but Dr. Shaw has described three

Species.

Javanicus; or Warted Snake. Brown, beneath paler; the sides obscurely variegated with whitish.

This, as its specific name denotes, inhabits Java, chiefly among the pepper plantations; it grows sometimes to the length of seven or eight feet. The warts or prominences appear, by a magnifying glass, to be cowse carinate scales, and the smaller ones are furnished with two smaller prominences, one on each side the larger. The head is somewhat flattened, hardly wider than the neck; the body is gradually thicker toward the middle, and suddenly contracting near the tail, which is short and slightly acuminate.

This remarkable snake, which gave rise to the intitution of the genus, was first described by Mr. Hornsted, in the Swedish Transactions for the year 1787. It was found in a large pepper-ground near Sangafan, in the year 1784, and measured eight feet in length. Its neck was six inches thick, that of the largest part of the body ten inches, and that of the tail an inch and a half; the colour of the upper part of the animal was blackish, and of the under part whitish; the sides are marked with dusky spots; the head is truncated, depressed, and scaly; the jaws equal, the superior being emarginated beneath, the inferior curved; the eyes lateral, on the fore part of the head, the irides livid; the nostrils circular, small, approximated, and situated above the tip of the front; the body was entirely covered, as well as the tail, with rough tri-carinated warts; the vent is small, the body very suddenly tapering towards the tail. This animal was secured by a Chinefe, by means of a split bamboo passed over its neck, and thus carried to Batavia, where, on being skinned and opened, exclusive of a quantity of undigested fruit, were found completely formed five young, measuring nine inches each; the fhef of the animal was eaten by the Chinefe, who affirmed that it was excellent food, and the skin being preferred in spirits, was brought over to Europe by Mr. Hornsted, and deposited in the museum of the king of Sweden.

Dubius, or Brown Acrochordus, has a carinated abdomen, and its sides are spotted with black. In its general appearance and proportion, this very nearly resembles the javanicus just described; but the head of the dubius is covered with very minute rough or warted scales, differing in size alone from those on other parts of the animal. It is not more than about three feet in length; its colour is of an obscure brown, with some ill-defined clouds and patches of a darker colour, difperfed along the sides and abdomen. The specimen from which this description is taken, is in the British Museum; but its native place is not ascertained.

Fasciatus, or Fuliginous Acrochordus, called also the Hydrus granulatus, has a carinated abdomen, with whitish lateral bands. This is so much allied to the dubius, that it may be doubted whether it really differs in any other respect than age, age, and in the cast of colours, measuring about eighteen inches in length, and being of a dusky brown colour, with several paler fatches, which take their rise from the abdomen, and ascend on the sides; the abdomen is carinated as in the former. "This," says Dr. Shaw, "is certainly the Hydrus granulatus of Mr. Schneider, who, in his work on the Amphibia, describes it as a water-snake, though, seemingly, without any other foundation than its having a carinated abdomen; its other characters by no means agreeing with those of the genuine Hydry." Its native place is not known. A specimen is preferred in the British Museum.

Anguis, or Snake. This genus of serpents was noticed in its place, and the names of the species enumerated, with the intention of describing each species in the alphabetical order; after this time the plan of the work was somewhat altered, and the species will now be given with their appropriate description. The generic character is, scales on the belly and scales under the tail.

Species.

Striatus. The scales of the belly are 179 in number; those of the tail seven; the body is surmounted with transverse lines.

Melapogis. The scales on the belly of this are 165; those of the tail 32. It inhabits South America and some parts of India. It resembles the Lacerta ibipes (see Lizard); it is glaucous, with numerous longitudinal rows of black dots. There are two varieties, one dotted with brown, and one characterized by its long tail.

Colubrinus. Scales of the belly 180; of the tail 18. It inhabits Egypt; is varied with brown and pale ochre.

Miliaris. Scales of the belly 170; of the tail 52.

Found
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Found near the Cape in Nov : it is 14 inches long, and about 2 1/2 inches in width; black, with numerous pale scales on the back, and dark ones on the sides; the head is green, sprinkled with black; the tail is 2 inches long, much thinner than the body, cylindrical, obtuse, variegated with brown, and covered in front with large scales, as in all other venemous serpents; the eyes are very small, the tail very thin, and the whole animal, and the young serpent, very small and slender, like other serpents. It lives in the interior of the country at different periods, and the young are commonly in deeper shade than the parents; it is, generally speaking, a timid animal rather than a very active one, and will stretch its body as far as it can, and the young are very likely to be seen as they are full of worms, but, on the contrary, aconsiderable degree of serenity, and is easily caught on the leaf, in order to cover itself from the sun, by stretching its body, and then emerging from its concealment on the approach of winter, and lying in a state of torpidity, and again emerging from their concealment on the approach of spring, when they call their skin and recover their former liveliness. It has been observed by some naturalists, that if the individuals of this species, and of some others likewise, be stuck with any degree of violence, the body will stretch abruptly on the spring part, and can frequently at different parts; the fles is remarkably strong and the animal, when handled or irritated, has a mode of inflating itself by stretching to its utmost length, in which state, if any part of the skin be injured, the separation soon takes place in consequence of this rigidity. The fragments will live a long time after their separation.

Venteral. Abdominal scales 127: subcaudal 22. This is an inhabitant of South Carolina. The body is of an ash-green, iridescent; lateral band black; belly short, and appearing as if appended by a hollow fixture; the tail is verticillate, three times as long as the body. A small blow will cause the animal to break into several pieces, the muscles being articulated quite through the vertebrae.

Platery. Tail compressed, obtuse. It is a native of the shores of Pine island, in the Pacific ocean. The body is a foot and a half long; above it is black, and beneath it is white; the scales are minute, sub-iridescent, not imbricate; head oblong; it is toothless, smooth; the back is subcarinate; the tail is variegated with black and white.

Lineatus. Blackish, but on the upper part it is white: a curved line runs down the whole body.

Cicluus. Greenish-brown; the plate of the front is larger and heart-shaped. It is found in some parts of Germany.

Annelatus. White, with straight brown bands meeting beneath, tail tapering, beneath with a double row of imbricate scales.

Cuculites. This is a very slender species; waved with white and black bands; plates of the head broad; tail sharpish. It is found at Surinam. The belly and tail beneath with transverse broad scales, like the boa. Cinelith thinks it does not belong to this species.

Corallinus. This is named by Shaw the pale-red flow-sworm, with blood-red variegations, and by Sclat called the red Brazilian serpent, so named probably from its colour, it being red with paler bands; the scales are tipped with black. This is a very elegant species; it is about a foot and a half long, the thickness of it is very considerable; the ground-colour is of a pale red, with very broad, alternating lines, and variegations of a deep coral red; the scales are moderately large, and of a rounded form, and the head and tail are remarkably obtuse. This highly beautiful animal is a native of the warmer parts of South America, where it is said to be found in woods, and to derive its colour from the

larger
larger insects, as escolopendras, &c.; in colour it sometimes varies, a mixture of black in different proportions being blended with the red on the sides, and the bands are also more numerous in some specimens than in others.

Atek. This, as its name denotes, is black with white bands; scales tinct with black. This is nearly allied in general appearance to the corallinus, but differing in colour; being white with black bands; the abdominal scales are dilated according to Seba’s figure, on the authority of which, a beautiful engraving of it is given by Shaw. It is a native of South America.

Rufus. Tawny, with transverse but interrupted white lines; beneath it is variegated. This is found at Surinam.

Hepaticus. Line on the top of the back, and a waved line on each side, of liver-colour, the spaces between paler, with roundish whitish spots. It inhabits Surinam.

Testellatus. This species is of a fawnish colour, with numerous bands, and three stripes: the head is white, and spotted with brown. It inhabits Paraguay.

Albus. The individuals of this species are entirely white; tapering towards each end.

Boa, another genus of the serpent race, has been generally described in the alphabetical arrangement, with references to the species, which having been neglected in their places, must be noticed now. (See Boa.) The genus, according to Gmelin, includes ten species, but Shaw mentions others; we shall first mention those given by Gmelin.

Species.

Contortrix; Hog-nosed Boa. The plates of the belly are 150 in number, and those on the tail 40. It inhabits Carolina; it is broad, and its back is convex; it is cincereous, with lateral round spots; it has a poisonous bag, but no fangs; the tail is about half the length of the body.

Canina. This species has 203 plates on the belly, and 77 on the tail. It inhabits America. By Shaw it is named the Green Boa, with transverse, undulated, white doral bands. It is a highly beautiful snake, measuring, when full-grown, about four feet in length, and of a proportionable thickness; the head is large, and shaped like that of a dog; the colour of the whole animal on the upper parts is a most beautiful Saxon green, with several short, undulating, transverse white bars down the back, the edges of which are of a deeper or stronger green than the ground-colour of the body; the under or abdominal part is white. There is a specimen of this species in the British Museum.

A variety of this species is described by Seba; the ground-colour is of a bright orange, the doral bands are of a pale yellow, edged with red, and the abdomen is of a pale yellow. It is a native of the East Indies, differing merely in colour from the former.

Hipsale. The plates on the belly are 179; those on the tail 120. It is found at Siam, and is of a yellowish colour, with white ocular spots on the back.

Constrictor. This, by some naturalists, is denominated the yellowish-grey boa, with a large chesnut-coloured chain-like pattern down the back, and subtrigonal spots on the sides. Dr. Shaw gives the generic character thus: leuta, or undivided plates, both on the abdomen and beneath the tail. But by Gmelin it is characterized simply by the 240 plates on the belly, and 60 on the tail.

Of all the boas, the most conspicuous is the B. constrictor, which is at once pre-eminent, from superiority of size, and beauty of colours; in this respect it appears to be subject to considerable variation from age, sex, and climate, but may be distinguished in every flake from the rest of its tribe by the peculiar pattern or disposition of its variegations. The ground-colour of the whole animal in the younger specimens is a yellowish-grey, and sometimes even a bright yellow; on which is diffused along the whole length of the back, a series of large, chain-like, reddish-brown, and sometimes perfectly red variegations, leaving large, open, oval spaces of the ground-colour, at regular intervals; the largest or principal marks composing the chain-like pattern above-mentioned are of a squaflriform, accompanied on their exterior sides by large triangular spots, with points directed downwards; between these larger marks are diffused many smaller ones of uncertain forms, and more or less numerous in different parts; the ground-colour itself is also scattered over by a great many small speckles of the same colour with the variegations; the exterior edges of all the larger spots and markings are commonly blackish, or of a much deeper cast than the middle part, and the ground-colour immediately accompanying the outward edges of the spots is, on the contrary, lighter than on other parts, or even whitish, thus constituting a general refinement of pattern, of which nothing but an actual view of a highly-coloured specimen of the animal itself can convey a complete idea.

In the larger specimens, the yellow tinge is often lost in an uniform grey cast, and the red tinge of the variegations sinks into a deep chesnut; and in some the general regularity of the pattern before described is disturbed by a kind of confluent appearance: the head is always marked above by a large longitudinal dark band, and by a narrower lateral band passing across the eye towards the neck.

The boa constrictor is a native of Africa, India, the larger Indian islands, and South America, where it chiefly reposes in the most retired situations in woody and marshy regions.

It was, in all probability, an enormous specimen of this very serpent that once diffused fear among the most valiant of mankind, and threw a whole Roman army into dismay. Histories relate this surprising event in terms of considerable luxuriance. Valerius Maximus mentions it from Livy, in one of the lost books of whole history. It was related more at length, and the learned Fenienhemus, in his Supplementa Liviana, has attempted a more ample and circumstantial narrative of the same event, of which the following is a quotation:

“In the mean time Regulus, where every victorious, led his army into a region watered by the river Bagrades, near which an unexpected misfortune awaited them, and at once affected the Roman camp with considerable loss, and with apprehensions still more terrible; for a serpent of prodigious size attacked the soldiers who were sent for water, and while they were overwhelmed with terror, and unequal to the conflict, engulphed several of them in its enormous mouth, and killed others by writhing round them with its fangs, and bruising them with the strokes of its tail; and some were even destroyed by the pellential effusion proceeding from its breath: it caused so much trouble to Regulus, that he found it necessary to contest the possession of the river with it, by employing the whole force of his army; during which a considerable number of soldiers were lost, while the serpent could neither be vanquished nor wounded; the strong arm of its fangs easily repelling the force of all the weapons that were directed against it; upon which recounture was had to battering engines, with which the animal was attacked in the manner of a fortified tower, and was thus at length overpowered. Several discharges were made against it without success, till its back being broken by an immense flone, the formidable monster began to lose its powers, and was yet with difficulty destroyed; after having diffused such a horror
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hercules among the army, that they confessed they would rather attack Carthage itself than such another monster: nor could the camp continue long in the same situation, but was obliged to fly: the water and the whole adjacent region being tainted with the pestilential effluvia. A sort of invertebrate is humiliating to human pride! Here at last was an instance of a whole Roman army, under the command of Regulus, and universally victory as both by sea and land, opposed by a high lake, which confounded it when living, and even when dead obliged it to depart. The proconculum therefore, thought it a diminution to his dignity to spew the fumes of such an enemy to Rome, and to conceal at once the terrors of his victory and his terror, by this public memorial: for he caused the skin of the snake to be taken off and sent to the city; which is said to have measured 120 feet; it was fulfilled in a temple, and remained till the time of the Numantian war.

Certhini, the Rufescens Boa, with large dusky dorsal rings, and blackish kidney-shaped lateral spots with white centres; it has 265 plates on the belly, and 57 on the tail. It inhabits Surinam; it is greenish, with white ocellate spots; the irides are grey.

Ophiophagus, or Brown Boa, has on its belly 281 plates, on the tail 84; the body is brown, and in appearance it resembles the B. constrictor.

Enhydris; or Water Boa. This species is variegated with different shades of grey; the teeth in the lower jaw are longer than usual in this genus; the number of abdominal scales is 270, and of those on the tail 105. It is very like the hortulana, hereafter to be described.

Murnia; Grey Boa. This species has 254 plates on the belly, and about 65 on the tail. It inhabits America. It is glaucous, with round black spots.

Sevatale; Spotted Boa. Cinereous, with large orbicular black dorsal spots, and annulated lateral ones, with white centres; it has 250 plates on the belly, and 70 on the tail.

This is scarcely inferior in size to the B. constrictor, and is of similar manners, destroying, like that animal, goats, sheep, deer, &c.; it is generally of a grey or glaucous colour, marked with large orbicular black spots on the back, and with smaller ones of a similar form, but with centres; on the sides; while on the abdomen are scattered several oblong spots, and marks intermixed with smaller specks and variegations. It is a native of several parts of South America, and like other large snakes is occasionally eaten by the Indians.

Hortulana; Garden Boa. This is of a yellowish-grey, with brown variegations, those on the head resembling lace; the body sub-comprielled, and the sides marked by wedge-shaped spots; it has 290 plates of the belly, of the tail 128.

This very elegant serpent, which is of a moderate size, measuring only a few feet in length, and being of a slender form, has obtained its specific name from the singular variegations on the head, which represent the form of a parterre in an old-fashioned garden; the variegations on the body are, like those on the head, of a blackish-brown, on a pale ferruginous or yellowish ground; they are disposed into large circular, and sometimes angular patches on the sides, the centres of some being open, and of others marked by an oblong spot; besides these there are others intermixed of smaller size and of different forms; the abdomen is commonly yellowish, with dusky specks and patches; the ground-colour of the whole snake is sometimes of a pale violet, and the variegations of a dark purplish-brown; but in all its varieties this species may be easily distinguished by the rich, rounded appearance of the pattern, and some particular mark in the spot on the head; the body is also banded, with the neck more regular in proportion than in most of the other boa, the body evenly scaled, and the tail slender. It is a native of both America.

Such are the larger boas given by Gmelin, the following are alluded to, described by Dr. Shaw in his General Zoology.

Regia; Royal Boa. With a broad-edged neck, and body variegated either with brown and grey, or grey and black. This species is described by Seba, as, in its general shape, not at all to resemble the ophisaurus. It varies very much with respect to colour, the ground-work being white, but the variegations sometimes dusky or chestnut, and in several of an elegant variegated, accompanied by a tinge of blood. The head on the lighter parts of the pattern: the top of the head is filled by a large patch, from which run two large parallel stripes to a considerable distance on each side of the neck, leaving a wider stripe of the ground-colour along the upper part, and which afterwards ceasing, forms a part of the general variegation, which consists of a large chain-like dorsal band running down on each side, at moderately distant intervals, into oblong protuberances, some of which are bordered by the white ground-colour, the intervening lateral spaces being much lighter, and each is marked by a dusky patch on the upper part; the under parts of the body and tail are white, the head is covered in front with large scales, the tail is extremely short, and tapers rather suddenly.

Phrygia; Embroidered Boa. White, with a greyish call on the back; the body is most elegantly marked with black lace-like variegations. This is unquestionably one of the most elegant species of the whole serpent tribe; its variegations are so conducted, as to bear a striking resemblance to an embroidery in needlework. It is a native of the East Indies, where divine worship is paid to it.

Fasciata; Fasculated Boa. With subtriangular body annulated with blue; is a native of India, and most generally found in the country of Bengal. It is of a yellow colour, marked with numerous dusky-blue transverse bands, continued at equal distances throughout the whole length of the animal, each band completely covering the body; the body is of a trisonal form, the sides swelling very considerably; along the ridge of the back runs a continued series of hexagonal scales. This snake is among the number of poisonous species, and its bite is considered by the Indians as fatal. A specimen was brought to Dr. Raffles in the month of November 1788, in an apparently very weak and languid state. Being kept at liberty, it shewed no disposition to bite; it suffered a chicken to get on its back, without noticing it; but the thigh of the bird being put within its jaws, it shewed immediate symptoms of having been poisoned, and it expired in the course of half an hour. This was the only experiment which was made, the snake dying the next day; but from the languid state in which it appeared, and the effect of its bite on the chicken, it may be concluded that, when in full vigour, it must be an animal of a highly dangerous nature.

Viperina; Viperae Boa. Grey, with a black, undulating, dorsal band, edged with white; and the sides spotted with black. It is about a foot and a half in length, and of a moderately brown colour. It is said to produce by its bite a flow of walking of the fingers and toes, similar to what happens in some leprous cases. A living specimen, however, was obtained in 1778, and though in good health, yet its bite was not followed by any deleterious effects.

Lineata; Lineated Boa, called also Grédi Paragooedoo, 13 q

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is of a slender form, with the general appearance of a coluber rather than a boa. It is of an extremely dark blue color, so as to appear almost black in certain lights, and is marked throughout the whole length of the upper part by several transverse curved and dotted white lines at unequal distances, and varying in number in different individuals, from about 40 to 50: they are so disposed as to almost represent so many large spotted circles. Dr. Shaw has given an account of some experiments on this animal, to whose work we refer our readers. See General Zoology, vol. iii. part ii.

Horatta. This is of a dark brown, with a waving yellow band on each side, and a row of dorsal spots. This is one of the smaller species, measuring only about fifteen inches in length. The fangs, or poisoning organs of this snake, shew that it is noxious, but in what degree has never been ascertained; it is, however, said to be one of the most fatal.

Palpebrosa. Whitish, obscurely faciated with grey; with prominent eyelids; this has 112 abdominal scuta, and 51 on the tail.

Annulata. Subferruginous, with black, orbicular, dorsal spots included in rings; reniform, ocellated, lateral spots, and abdomen undulated with dusky variegations. This is about two feet long, and in its general appearance it is allied to the B. hortularia and endriss. It is a native of South America.

Serpents, in Afromony, a constellation in the northern hemisphere, called more particularly Serpens Ophiuchi. The stars in the constellation Serpens, in Ptolemy's catalogue, are 18; in Tycho's, 13; in Hevelius's, 22; and in the Britannic catalogue, 64. See Constellation.

Serpent Cucumber, in Botany. See Trichosanthes.

Serpens Hypnoticus, See Hypnoticus.

Serpens Marinus, See Sea Snake.

Serpens Rubescens, the red serpent-jelly, in Ichthyology, the name of a fish, properly of the tetra kind. It resembles the common snake in figure, and is of a fine strong red in colour, and marked with oblique lines all down the sides, and long ones from the gills to the tail, one on each side; its mouth is but small, and its teeth sharp and serrated; and it has all over its back a number of fine capillaments, set at distances from one another, even to the tail, and the same on the belly; its tail ends in a fang or fin.

Serpens Terrens, the earth-serpent, a name given by some of the chemical writers to nitre. It was originally given to the nitre of the ancients, a fact very different from that which we call nitre, but it has since been applied also to that salt.

Serpent-Stones. See Snake-Stones.

Serpent's-Tongue, in Botany, a genus of the cryptogamia family; comprehending five species. See Adder's-tongue.

Serpents' Tongues. The island of Malta abounds with glossopetrae, or the petrified teeth of snakes, which, from their resemblance to a tongue, are by the vulgar supposed to be the tongues of serpents turned into stone by some miracle of St. Paul, when he was there. This island abounds not only with these, but with bufonites, and vulture teeth of other remains of sea productions.

Augustino Scilla, who has written at large on the fossils of this island, gives a very rational account of their being the real remains of animals, which, according to his fyltem, it is no way wonderful to find there.

In regard to the island of Malta, which so abounds with them at this time, he supposes that long since the time of the creation, and even without the assistance of the general deluge, it may have been formed out of the sea, and that it appears plainly to have been at first no other than a mass of soil, mud, with an immense number of sea-shells, teeth of fishes, and other remains of sea-animals mingled among it; and that this fusing as low as they could among that thickening matter, have made the island what we now find it, that is, a heap of earth with these things in vast quantities buried in it, and at different depths. Philos. Trans. No. 219, p. 182.

And though there are found among these teeth, &c. in the island of Malta, great quantities of shells, of such species as are not natives of those seas, this is no objection to the opinion; since it is well known, that the winds, when violent, as they probably were about the time of the formation of that island, will bring such light bodies as shells a vast way in water.

The mountains of Sicily afford some few glossopetrae, or snakes' tongues, but they are few in number, and worse prepared than those of the island of Malta; which is obviously to the high ground of those mountains being left to receive the refuse of the sea, and its foil, which is sandy, being less fitted to preserve them where there than the marble, of which the island of Malta consists.

The echini marini, or sea-eggs, and their species, which are very frequent among the serpent's tongues of Malta, all lie upon the surface of the ground, or near it; whereas the glossopetra is deeper, though at no great depth. This is a plain effect of all these things having been really animal bodies, and having floated in the mud, of which that island was formed; for in this it could not be otherwise, but that the glossopetra, or serpent's tongues, being heavy, would subside in the water, while the light shells of these other animals would float on or near the surface.

Whenever the glossopetra are taken carefully up out of the earth in Malta, the marble or earth, which served for their bed, is found to contain all their minutest traces and lineaments, like wax from a seal. This is a proof that the marble was as soft as melted wax when they were put into it, and that they were of the full size and growth when placed there, not having grown, or had any increase in that place.

The apophyses, or processes in the glossopetra, are also a strong proof of their being no other than real sharks' teeth, since they exactly answer to those in the teeth of recent sharks, by which every tooth is received or inserted into its neighbour in the jaw. Nay, whereas sharks' teeth are mortised into one another in such a manner, that a man may easily tell which belongs to each side, which lie near the throat, and which near the front of the mouth; and whereas, in a shark's mouth, the teeth on the left side will not fit on the right, nor those above serve below, but that on seeing a recent tooth, a peron of judgment will be able to say what part of the mouth it belonged to; so in the fossil sharks' teeth, or glossopetra, there is not any one which may not be referred to the particular part of the mouth of the living animal, and could have belonged to no other. Augustino Scilla, de Petrarca. See Glossopetra.

Serpent, in Music, a wind instrument of the brasson kind, blown by a mouth-piece. It has its name from its serpentine figure; and is composed of two pieces of walnut-tree-wood, and covered with thin leather or shagreen.

This instrument has fix holes, which give it a compass of twenty-seven notes. The mouth-piece is fixed in a socket of copper or silver. Its neck is curved, and its mouth-piece is of wood or ivory.

It is held in such a manner, that the fore-finger, the middle-finger, and the ring-finger of the left hand, can stop the
The Serpent, in Myth, was a very common symbol of the fun, and he is represented biting his tail, and with his body formed into a circle, in order to indicate the ordinary course of the luminary; and under this form it was an emblem of time and eternity.

The serpent was also the symbol of medicine, and of the gods which presided over it, as of Apollo and Asclepius: this animal was the object of very ancient and general worship, under various appellations and characters. In most of the ancient rites we find some allusion to the serpent, under the several titles of Ob, Ops, Python, &c.

The idolatry is alluded to by Mofes, Lev. xx. 27. The woman of Endor, who had a familiar spirit, is called Ob, or Ob, and it is interpreted Pythomilla: the place where the refided, says the learned Mr. Bryant, seems to have been named from the worship then instituted; for Endor is compounded of En-aror; and signifies fons pithonis, the fountain of light, the vespers of the god A dor; which oracle was probably founded by the Canaanites, and had never been totally suppressed. His pillar was also called Adabir, or Abadir, compounded of ab and adir, and meaning the serpent deity Adibir, the same as Adoros.

In the orgies of Bacchus, the persons who partook of the ceremony, used to carry serpents in their hands, and with horrid screams call upon Eva! Eva!

Eva being, according to the writer just mentioned, the name as opha, or opha, which the Greeks rendered ephes, and by it denoted a serpent.

These ceremonies, and this symbolic worship, began among the Magi, who were the sons of Chus; and by them they were propagated in various parts. Wherever the Ammonians founded any places of worship, and introduced their rites, there was generally some allusion to a serpent. There was a legend about a serpent at Cofelas, at Thebes, and at Delphi; and likewise in other places. The Greeks called Apollo himself Python, which is the same as Opis, Opis, or Oub.

In Egypt there was a serpent named Thermuthis, which was looked upon as very sacred; and the priests were said to have made use of it as a royal type, with which they adorned the statues of the gods. The kings of Egypt were phratries, terminating in a round, and adorned with folds of drapery; and the priests likewise had the representations of serpents upon their headdresses.

Ab, or , a monster, mentioned in the Revelation, was called by Mr. Bryant, to have been the same as . Ophite, with whose worship the world had been connected. This worship began among the people of thebes, who built the city of Opas upon the Three, and were greatly addicted to divination, and to the worship of the serpent. Thos. Chaldeus the worship passed into Egypt, where the Serpent was a deity called Conophis, and Osiris, and had the name of Ob or Oub, and was the same as the Ophite, or royal Serpent, the name of Thermuthis, and made use of by way of ornament to the statues of the gods. The chief of the Egyptians was to have been Vulcan, who was styled Ophus; he was the same as Osiris, the Sun, and hence was often called Ob-Phib, or Python felis; and there were pillars sacred to him, with curious hieroglyphical inscriptions, bearing the same name, whence the Egyptians, every thing gradually tapering to a point was styled or Ophites.

As the worship of the serpent began among the sons of Chus, Mr. Bryant conjectures, that from hence they were denominated Ethiopians and Athispians, from Athe-fes, or Ath-spes, the god whom they worshipped, and not from their complexion: the Ethiopians brought these rites into Greece, and called the island where they first established them, Ethipia, Solis Serpentis infusa, the name with Euboa, or Oucka, i.e. the Serpent-Island.

The fame learned writer discovers traces of the serpent worship among the Hyperboreans, at Rhodes, named Ophitua, in Pyrga, and upon the Hellepolis, in the island Cyprus, in Crete, among the Athenians, in the name of Crocyp, among the natives of Thebes in Bostra, among the Laconians, in Italy, in Syria, &c. and in the names of many places, as well as the people where the Ophites settled. One of the most early heresies introduced into the Christian church was that of the Ophies. Bryant's Analysis of Ancient Myth. Vol. i. p. 47, &c. p. 475, &c.

Serpent Islands, in Geography, small islands near the N. coast of lake Huron, N. Lat. 46° 2'. W. long. 82° 747'.

Serpents, Island of. See Zalge.

Serpentina, in Botany. See Serpentina.

Serpentines, in Chemistry, a worm, or pipe of copper or pewter, twilled into a spiral, and ascending from the bottom of the alembic to the capital, and serving in the distillation of rectified spirit of wine.

Serpentines, in Mineralogy, a stone, which derives its name from the variety of its colours, supposed to resemble those of the serpent. The ancient called this stone ophibs, from the Greek , serpent, as being speckled like a serpent's skin. The most prevailing colour is green of different shades, spotted with red, or with dark green, and also clouded and variegated. Some serpentines are red, varying from a peach-bloom to a blood-red or scarlet. In rich variety of colours, this stone far exceeds any other of the great rock-formations. It will receive a high polish, and is easily indelible by fire or acids, and is therefore eminently fitted for ornamental sculpture or architecture. The hard-ends of serpentines are variable: some kinds scarcely yield to the knife, others are easily worked. It is insubstantial by the blowpipe; the fracture is pimptery, passing into small con-}

Q q 2 chordal;
SERPENTINE.

choidal; the fragments are translucent at the edges; the lattic is somewhat wilful, and when powdered, it has an unctuous foamy feel. The specific gravity varies from about 2.0 to 2.7. Serpentine seems nearly allied to the mineral called hornblende, from which it differs in its constituent parts by containing more magnesia and fels iron. Chrome has been found in some serpentines. The analysis of different serpentines shows a considerable variation in the proportion of their constituent parts, from 45 to 29 Silex, 18 23 Alumine, 23 34 Magnesia, 3 4 Iron, 11 10 Water and lods.

Some serpentines contain 6 per cent. of lime.

The disciples of Werner divide serpentines into two species, the one called the noble serpentine, the other the common serpentine; the former they consider as older, and having a different geological position to the common serpentine; but for this distinction there does not appear sufficient reason, as the same beds will furnish specimens of both kinds. The noble serpentine has the richest variety of colours and the greatest degree of translucency. Serpentine, though not very rare in many alpine districts, is by no means so common as granite, flate, and limewhite. Serpentine occurs in beds of gneiss and primary limewhite, and in mica-late; it also covers many rocks in amorphous masses, and may be observed graduating into chlorite or talc-late. Serpentine has been remarked to exist generally at a low level in alpine districts; but there are some remarkable exceptions to this, particularly in the fumits which surround the central parts of mount Rofa, in Switzerland. These fumits have an elevation of more than 1700 fathoms, formed of beds of serpentine lying in a position generally horizontal.

Serpentine is more abundant in Europe, than any other part of the globe that has been yet explored. The whole front of the Alps facing Italy contains serpentine almost in every part, although there is very little in the side towards Switzerland. It extends through Italy, where it is called gabbio. One of the finest varieties is at the hills of Imperocetta, near Florence; it contains much of that green, fernisanprentand, and fatty substance, which Saunfile calls smaragdite, on account of its fine emerald-green colour. France has some mountains of serpentine, especially in Limoufain.

The finest serpentines of Spain are from Sierra Nevada; two leagues from Grenada, they have a green base filled with glintening plates of a yellow colour. Superb columns have been made of it, which decorate the churches and palaces of Madrid. According to Patrin, serpentine is almost entirely wanting in northern Asia, with the exception of the eastern part of the Ural mountains, which separate Europe from Asia. There are some hills of serpentine, which at great intervals accompany their base, following their direction from north to south; there are also some detached branches which appear near Tobolitk, which is not far from these mountains. But from hence to the river Amur, a space of about three thousand miles, scarcely any vestiges are found either in the great chains of Altai, Sayennes, or the mountains of Damria. The serpentines most known in Europe are those of Saldberg in Sweden, and Zeolitz in Saxony, from which vases of every kind are turned and exported to distant countries. The serpentine of Bayreuth is filled with garnets of the faxe of a pea, dispersed equally through the mass. When the fone is polished, they present a pleasing mixture of fine red spots in a green base. Trinkets and other ornaments are made of it.

The mountain called Roth Horn, or Red Horn, which faces mount Rofa towards Italy, is elevated 1526 fathoms; it is composed of immense masses of serpentine of an irregular shape. The surface of this serpentine becomes a mass by the action of the atmosphere, which oxygenates the iron it contains. It is this colour, and the elongated form, that have occasioned the mountain to be called Red Horn.

The serpentine of this mountain is covered by a flestite of a sea-green colour, mixed with carbonate of lime and grains of felspar. On this serpentine are laid beds of micaceous felschite, intermixed with limethone, composed of more than one half of mica. These are again covered by serpentine; all the beds are nearly horizontal, rising a little towards mount Rofa.

Mount Crevin, another mountain near mount Rofa, is an inaccessible obelisk of a triangular form, which is elevated 2309 fathoms above the sea. It is composed of three distinct masses; the uppermost, which forms the summit, is of a yellow fialbella colour. It is composed of serpentine mixed with micaceous felschite, containing limethone and quartz. The middle is of gneiss and micaceous felschite, and the lower one of base of the pyramid is serpentine; but the most remarkable hill of serpentine is in the chain of mountains that separates the margin of Bayreuth from the Upper Palatinate. Its elevation above the plain is about 300 feet; it extends in a direction from east to west. The rocks which crown the summit are of very pure serpentine, divided into beds, and repoling on gneiss and hornblende. M. Humboldt having brought his compass near these rocks of serpentine, four with ferschite, that the north pole of the peculiar fith to the south. He further observed, that the rocks on the northern and southern declivities have opposite poles. The eastern and western extremities of the hill do not exert any action on the magnetic needle, though the appearance of the fone is the same as on the north and south declivities. In the magnetic parts of the hill certain rocks are also observed, which are not magnetic in junction with similar rocks, that exert a strong action on the needle, some of them at the distance of 22 feet. The mountain not only exerts its action on the needle in its whole mass, like some other hills, it is manifest even in small fragments.

Humboldt observed, that minute fragments are briskly moved on presenting them to the point of a weak magnet; but they have not the least attraction for iron not magnetized. Humboldt convinced himself that this serpentine does not contain an atom of magnetic iron, all which it contains is in the state of oxity. Its specific gravity is much less than that of other serpentines, scarcely reaching to 2.70, that of common serpentine being upwards of 2.70. This mountain of serpentine, taken in the aggregate, may be regarded as one large natural magnet, having two poles, the part equidistant from each displaying no signs of magnetic power, as is the case with small natural and artificial magnets. Like them too, if a fragment be broken from the mass, each small piece has its north and south pole, and a central part, which is not magnetic. That particular kind of fleschite, which is capable of being turned into vials that reflect the action of the fire, is called pot-ffone, and has been already described. See Por-

Steatite and amianthus, a fibrous asbestos, are almost always associated with serpentine. (See Asbestos and Steatite.) The finest amianthus occurs in Corfinia form-
ing beautiful white silky threads of two or more feet in length, and is so abundant, that Dumas made use of it instead of flax to pack his minerals when he died.

Serpentine exists in various parts of Scotland and the Hebrides; it is found both pure and intermixed with calcareous and limestone.

No well-characterized rocks of serpentine are known in South Britain, except in Cornwall and the Isle of Anglesea. The serpentine of Cornwall is not particularly distinguished for the beauty of its colours. Rocks of this mineral extend to the Lizard Point.

The most beautiful variety of serpentine in Great Britain, or perhaps in Europe, is that on the western side of Anglesea. It occurs at a low elevation associated with rocks of tufaceous slate. The beds are of considerable size, and divided by veins of albitus. Some of the serpentine is intermixed with white crystalline limestone, like the verde antique from Italy; but the parties of white are generally smaller. Veins of quartz and hematite, with brilliant tufts of schiller spar, also occur in some of the beds. This is sufficiently hard to resist the point of a copper tool, and takes a high polish. The colours are various shades of light and dark green and red, varying from a pale-bloom to a blood-red sheen. The colours are intermixed and distributed in an infinite variety of spots and clouds, the effects of which are heightened by polishing.

Mells, Bullock, and Co. on Oxford-street, have established a manufacture of chimney-pieces, columns, and other ornamental articles of this stone, which has the advantage, being raised in vast blocks, 25 feet in height in one piece, from 12 to 20 feet in length, and of proportionate diameter and breadth. A column of 12 feet in one shaft, composed of red serpentine, which we measured at Mells. Bullock's manufactory, weighed two tons, and had no perceptible flaw or blemish in the whole piece. This is the most durable as well as the richest of British stones applied to ornamental sculpture, and is not exceeded in the variety or freshness of its colours by any of the costly marbles of Italy.

The Mona marble, as this serpentine is called by the proprietors, is not liable to have its colours injured by common fire, which is the case with many marbles, when made into chimney-pieces; neither are the colours affected by acids, air, or moisture.

With such a valuable material for ornamental sculpture in our own island, it is greatly to be regretted, that such large sums should be annually paid to foreign nations in the purchase of stone for similar purposes, which is less durable and less beautiful. It would surely be more patriotic to encourage the proper application of the mineral treasures of our own country.

The stone called verde antique is a mixture of green serpentine with white granitic limestone. See Verde Antique.

Serpentine, in the Muses. A horse is said to have a serpentine tongue, if it is always tripping and moving, and sometimes palling over the bit, instead of keeping in the void space, called the liberty of the tongue.

The Romans, in breaking and dressling their horses, used to work them in moving or serpentine lines, as the practice is, or ought to be, at present. The French call this riding a horse en serpentant. The Greeks and Romans know it by the term of riding in Meander, in allusion to the windings and doublings of the celebrated river which bore that name.

Serpentine Varia. See Varia.
half, long, resembling thole of *Veronica agrostis*. *Flowers* monoeocious, four-cleft, reddish, very minute.

4. *S. occidentalis*. American Serpulica. Pursh n. 1. (Elo-des camadensis; Michaux Boreal-Amer. v. i. 20.)—"*Flowers* united. Stigmata ligulate, cloven, reflexed. Leaves ternate, linear, acute."—Frequent in fragrant waters, from Canada to Virginia, flowering in July. Perennial. *Flowers* white, very small and delicate. Leaves when magnified very finely ferrulated. In the early part of the season they are, as Michaux describes, oblong and obtuse, but at the flowering time long, linear, and acute. *Pursh.*

SERPIGO. in *Medicinae, from serpere, to creep*, is nearly synonymous with *herpes*, and signifies, in the language of the older writers, any spreading tetter, or excoration of the skin. When the tetter is itationary, according to Forestius, it is called *impetigo*; but when it spreadeth and creeps from one place to another, it is called *serpigo*. (See *Forest. Obs. Chirurg. lib. ii. obf. 11.*). It is the property, however, of many eruptive diseasess to spread in this manner, though very different in their nature from each other; whence in the more accurate nomenclature of the present day, the term *serpigo* is not used. It would be applicable, in fact, to diseasess of every class, putrid, fealy, poplar, and vesicular; to the diseasess called *impetigo*, lepra, *Yolaris*, *lichen*, *herpes*, *eczema*, &c. It is, therefore, judiciously exploded.

SERPUCOV, in *Conchology*, a genus of the order Te-taceae, of which the generic character is, animal a terebell; shell univalve, tubular, and generally adhering to other sub-fissures; often separated internally by divisions at uncertain distances. There are about fifty species included in this genus, of which several are found in our own country.

Species.

NAUTIOIDES. Shell flattened, minute, confluent, verrucose, spiral, with very thin familiar internal divisions. It is found in the seas about Norway, adhering to the Madrepora *prolifera*, is very minute, brownish, or white; of an uncertain figure, sometimes rather oblong, sometimes more orbicular; the divisions are parallel, the aperture very narrow.

SEMILUNUM. The shell of this is regular, loofe, glabrous. It is found in the Adriatic and Red seas, and sometimes it is obtained off the coast of India. The shell is scarcely larger than a grain of sand, white and yellowish; the whorls are prossed close together; the aperture is narrow, and compressed.

PLANORBS. In this species the shell is orbicular, regular, flat, equal. It is found adhering to shells. The shell resembles a round scale, and when broken horizontally it exhibits the appearance of a spire in minute concentric circles.

SPHIRRUM. Shell regular, spiral, orbicular, pellucid, with round gradually decreasing whorls. It inhabits the ocean, on zoophytes, fumulative, and other marine sub-fissures; it resembles the next, which is a native of this country, but is much less in it.

*SPIRRORBS.* Shell regular, spiral, orbicular, the whorls slightly canaliculate above and inwardly, and growing gradually less towards the centre. It inhabits moist seas, adhering to flint and zoophytes. There is a variety; the shell is white, without polish, not complicated, but diffiged finely on the sub-fissure to which it is attached; the aperture is circular.

*TRIQUETRA.* The shell of this is creeping, flexuous, triangular. It inhabits the ocean, adhering to marine sub-fissures, itones, and the bottoms of ships; is from half an inch to an inch long. The shell is white, pellucid, irregularly twisted, carinate on the back, sometimes dentiliculate, with a narrow circular aperture.

*INTRICATA.* Shell filiform, rough, round, intricately twisted. It inhabits the European and Indian seas, and often on our own coasts, upon shells. The shell is of a greenish-white, a little rugged and coarse.

*FLEGORDIA.* Shell capillary, faciculate, in branched complications, and cancellate. It inhabits the Mediterranean; is four inches long, and forms a beautiful kind of network.

GRANULATA. The shell of this is round, spiral, glomerate, with elevated ribs on the upper side. It inhabits the North seas, in large masses, adhering to itones, shells, &c. The shell is white, and the size of a corridor fun.

*CONTORTIPICATA.* The shell is angular, rugged, and irregularly entwined. It is found in the European and American seas, and on our own coasts; is from three to four inches long; and sometimes it is as large as a goose-quill; the shell is white, cinereous, or yellowish-brown; within it is smooth, transversely striate.

GLOMERATA. The shell of this species is round, glomerate, with decussate wrinkles. It inhabits the European and Atlantic seas, in large masses. The shell is white, grey, or brownish; within it is smooth.

LUMBRICALIS. The shell of this is round, flexuous, with a spiral acute tip. There are three varieties of this species, which are found in the Atlantic and Indian seas, in large masses. The shell is from three to five inches long, transversely ribbed and longitudinally wrinkled.

POLYTHALAMIA. The shell of this is likewise round, diaphanous, smooth, straight-lined, with numerous internal divisions. It inhabits the Mediterranean and Indian seas, under the sand. The shell is outwardly white, transversely wrinkled, and annulate; the inside is separated by imperforated convex and concave divions, making it appear as if it consisted of numerous united tubes.

ARENARIA. Shell jointed, entire, different, flatish, beneath. It is found in India, and divers parts of the coast of Africa. It is probably a teredo, hereafter to be described. The shell is white, with pale brown undulate rays, or whitth; the outside cancellate, within it is smooth; spiralith twisted: there are about a hundred funs, which are sometimes nodulous.

ANGUINA. Shell roundish, sub-spiral, with a longitudi-dinal jointed cleft. It inhabits the Indian ocean; varies much in figure, being sometimes round and sometimes angular; it is more or less flexuous, glabrous or rough, with the joints of the cleft often obsolete. There is a variety of this species.

*VERMICULARIS.* Shell round, tapering, curved, wrinkled. It inhabits the European seas, and is from two to three inches long. The shell is whitish, ending in an obtuse point; the inhabitant is of a bright scarlet, with elegantly feathered tentacula, from the middle of which arises a trumpet-shaped tube, and a thicker fimple one.

PENSIS. The shell of this is round, straight, taper, with a dilated radius larger extremity; the disk is covered with cylindrical pores. This is denominated the *watering-pot*. It is found chiefly in the Indian ocean. The shell is white or cinereous, with a faint flade of red; smoothish, tapering, and open at the small end; the dilated margin at the larger end
end terminating in numerous small tubes; the disk is convex, and covered with round perforations, with a longitudinal canal in the middle.

**Laminae.** Shell round, 6 to 7 mm. in diameter, with numerous rows of prickles, clustering at the end. It is the size of a small quill, the form is sub-oval.

**Ostra.** The shell of this is smooth, irrate, brown. It resembles the Indian Gems, closely allied to Corbula.

**Protena.** Shell polished, unarmed, with decussate costa, light, with thin, white and green. The shell is round, with angle point, with white line, and the size of a quill. It is about the 12th size, the form is perfectly regular.

**Dilectata.** Shell round, with decussate line, finely wrinkled, flexible, red, with thin, white and white.

**Pepussiana.** The shell is smooth and white; the broader part is irrate, and transversely plated. The shell is from two to three inches long, white, or of a dusky brown.

**Akra.** Shell sub-irrate, yellowish-brown, round, twisted to three whorls, with a central tip. It is found about the coast of the island of Greece.

**Cerithia.** Shell round, smooth, yellowish, many times twisted. It inhabits America. The shell is long and narrow.

**Corne australis.** Shell conic, spirally twisted, yellowish, with brown bands; the middle is round and twisted; the aperture is obtusely orbicular. The shell, as to its form, is obtuse at the tip.

**Cerithia.** The shell is round, cancellate, yellow, with brown, hazy. It is found at Garee, fixed to telluric substances and wood; it is from eight to nine inches long, with elevated ribs; the longitudinal ones are crowded.

**Intestina.** Shell triangular, twisted, fragile, tuberculate, with hollow dots. This is found on the African coast. The shell is white, finely twirled, sub-umbilicate, within glabrous.

**Inundulosa.** The shell is round, white, transversely irrate, and three-twilled; the first bend appearing as it composed of five lines placed on each other.

**Pyramidalis.** Shell cuneus, above convex, beneath flat, pyramidal, hence its specific name, and it is many times twirled, the base decreasing inwardly. It is found in the Indian sea, adhering to telluric substances about as high long, open at the narrower end; sometimes it is straightish, or a little bent.

**Dentecta.** The shell of this is white, round, tuberculate, straight, toothed at the sides, with a longitudinal glabrous rib in the middle; the tip is little curved, and glabrous. It is found adhering to the Lepas, certain abalun. and is about three-quarters of an inch long.

**Melitensis.** Shell round, twisted, umbilicate, with decussate lines, and longitudinal recurved ribs within, smooth, with numerous divices. It is found off Sicily. The two first bends are placed on each other.

**Norwegica.** The shell of this is round, obtusely curved, with a nearly oblique oval base; the mouth is obliquely truncate. It is found, as its specific name denotes, in Norway.

**Porrecta.** Shell round, smooth, polished, ascending in a flexuous manner from the spiral base. It inhabits the North seas. The shell resembles the S. pyrum, but is white, pellucid, and not rugose; the inhabitant is short, with a red back and pueride sides.

**Viterba.** The shell is round, regular, spiral, orbicular, pellucid, shining, wrinkled, with a thickened aperture. This species is found in the Greenland seas, on terrae firma, transactions, and divers marine substances. It resembles the S. pyrum, but is white, pellucid, and not rugose; the inhabitant is short, with a red back and pueride sides.

**Serrula.** Shell round, spiral, orbicular, pellucid, shining, wrinkled, with a thickened aperture. This species is found in the Greenland seas, on terrae firma, transactions, and divers marine substances. It resembles the S. pyrum, but is white, pellucid, and not rugose; the inhabitant is short, with a red back and pueride sides.

**Syracusa.** Shell spiral, orbicular, with three spines, the branches are interrupted by transverse lines. It inhabits the Greenland seas, and resembles the S. pyrum. It is white, pellucid, with a thickened aperture. The species in two subspecies.

**Sylabiae.** Shell tuberculate, umbilicate, convex, radiate with wrinkles. This also inhabits the Greenland seas, on terrae firma, transactions. The shell is larger than a needle, violet, white, brown, or yellow, twisted with white; beneath it is flat, with a single wheel or bead; the aperture is very minute.

**Gigantea.** The shell of this is somewhat triangular, with a little bend, gradually tapering, violet, with smooth, pale yellow, the aperture is white, with undulate, and armed with a conical tooth. It inhabits Africa and America, attached to rocks and corals. The shell is small, thick, and with a little finger. It inhabited in white.

**Cineria.** The shell is flat, orbicular, conical, twisted, with a smooth, greyish-white, and flexuous.

**Sulcata.** Shell with two whorls, deeply and spirally grooved. It inhabits the coasts of Pembrokeshire, on the roots of the Fucus digitatus. It is a minute shell, of a greyish colour.

**Ovalis.** Shell sub-oval, imperforated. It is found at Terby. The shell has two bends, which form an oval; it is never perforated, and is minute.

**Replea.** The shell is regular, rounded, with a reflected margin at the aperture. This is found on the Pembrokeshire sands. It is minute; shell glossy, white, perforated; the aperture is above the plane of the lip. It inhabits Africa and America, attached to rocks and corals. The shell is regular, rounded, and pellucid with three whorls. This is often an inhabitant on the Pembrokeshire coast. It is brown above, and yellowish-white below.

**Bidorla.** Shell tuberculate, ventricose, white, opaque, glossy. It is found at Sandwich and Reculver, and is minute.

**Perforata.** Shell full, orbicular, perforated, white, opaque, glossy. It inhabits Sandwich, and do all those that will be hereafter described. This is, however, as well as the next, very rare and minute.

**Lacia.** The shell is ovate, thin, smooth, pellucid, with milky veins.

**Lagana.** Shell rounded, flat, grooved, with a narrow neck. This is described, as are all those which are found in this country, in Adams's work on the Microscope. The shell of this is exactly shaped like an oak-leaf, and is whitish.

**Kerura.** Shell rounded, margined, with a slender curved neck. The shell is white, opaque, shaped something like the retort used by chemists.

**Incurvata.** The shell is straight, with three close whorls at the smaller end. The shell is white and transparent, and resembles, in some respects, the Nautilus femur.

**Serpulina, in Botany, sometimes written Serpulum, derived from its humble creeping mode of growth. See Plumula.**

**Serqueux, in Geography, a town of France, in the department of the Upper Marne; 5 miles N. of Bourronne.**
SERRA, PAOLO, in Biography, author of an elaborate treatise on harmonization, published at Rome in 1768, small folio, entitled "Introduzione Armonica Sopra la nuova fere de Sion modulati oggidi, e modo di rettamente, e più facilmente intuonarla: or, "Harmonical Introduzione to a new series of modulated sounds, and a method for accurately, and with greater facility, learning to name and produce them with the voice."

The author begins, cap. 1, with the origin of music, its utility, and the different modes of naming the notes in fingering. After endeavouring to rob Guido of the invention of the hexachords and harmonization, and condemning his use, he proposes a new method of naming the notes in learning to finger; assigning a specific name to every found in the scale ending with the vowels A, E, I; as $ce$ for a flat note, $ce$ for a natural note, and $ci$ for a sharp note; beginning each found with the letters now in use in the Septenary, by which means the student is disembranched from all mutations, and every found in the scale has a specific and invariable name appropriated to it.

This method had the approbation of several of the best masters in Rome, who have signed a certificate of its effect upon the studies of a young finger of the name of Benedetti, who was rendered capable by it, in less than a year, of fingering at night any vocal music that was put before him, even without accompaniment. Benedetti has since fung the first man's part in the operas of several of the principal cities of Italy; and, perhaps, his genius may be such, as would have enabled him to have done the fame by any other method, with equal study and practice. Instrumental performers, at present, are not plagued with the ancient names of the notes and mutations, but learn them by the simple letters of the alphabet; and yet we have never heard of one that has been able to play at sight in a year's time.

Upon the whole, the alphabetic names of the notes seem the most simple and useful for every purpose but that of exercising the voice, which is best done by the vowels; and it may be said, that to syllabize in quick passages is little more than to speak; but to vocalize is to fing. However, we were told by a scholar of the famous Durante, that while he was in the conservatorio of St. Onofrio, at Naples, when the boys used to be tormenting themselves about the mutations, and the names of notes in transposed keys, with double flats and sharps, Durante cried out, "Quefle note intonatele, chiamatele poi anche diavole fe volete, ma intonate." Meaning, that if they did but hit the intervals right, and in tune, he did not care what they were called. And, perhaps, what Pope says of different forms of government, may be more justly applied to these several methods of fingering.

"What'er is best administer'd is best."

As, in the use of any of them, whoever has the best matter, and secounds his instructions with the greatest degree of intelligence and industry, will be the most likely to succeed. And when we recollect the great abilities and enchanting powers of many fingers of past times, who have been obliged to articulate every note of their *solfeggio* in the most rapid movements, we may apply to the new syllables what M. Rouleau said with respect to his own: "That the public has done very wisely to reject them, and to fend their authors to the land of vain speculations." For innovators will always find, that a bad method, already known, will be preferred to a good method that is to learn.

SERRA, in Botany, a genus of plants, so called in the *Flora Peruviana*, after a Spanish botanist of the fame name, who has studied the plants of Minorca. De'Their.

SERRA, in Geography, a town of France, in the department of the Jemappe, and chief place of a canton, in the district of Corté. The canton contains 2171 inhabitants.

SERRA, a town of Corfica; 11 miles S.S.W. of Cerione.

SERRA de Azenhao, mountains of Portugal, in Alentejo; 4 miles N. of Monfort.

SERRA d'Alcoa, mountains of Portugal, in the province of Beira, between Vifeu and Bragança Nova.

SERRA de Bouzno, mountains of Portugal, in Alentejo; 4 miles S. of Portalegre.

SERRA de Cudirivao, mountains of Portugal, between Algarva and Alentejo.

SERRA da Ebrica, mountains of Portugal, in the province of Entre Duro e Minho; 8 miles N. of Braganza.

SERRA Falperra, a town of Portugal, in Tras los Montes; 15 miles W. of Mirandela.

SERRA de Maram, a mountain of Portugal, in the province of Tras los Montes; 10 miles S. of Chaves.

SERRA de Monchique, mountains of Portugal, between Alentejo and Algarva.

SERRA de Monill, mountains of Portugal, between Mirandela and Torre de Moncorvo.

SERRA de Querra, a town of Africa, in Lower Guinea, on the river Camarones.

SERRA de Rebordannas, mountains of Portugal, south of Braganza, in Tras los Montes.

SERRA de St. Miguel, mountains of Portugal, in Alentejo, on the south side of the Tagus; 15 miles N.N.W. of Caffello de Vide.

SERRA de Salvador, mountains of Portugal, in Alentejo; 8 miles E. of Arronches.

SERRA Pisit, in Ichthyology, a name given by many authors to the *prifis*, or *faw-fish*.

SERRA is also a name given by Pliny to a species of the fishes, called by the generality of writers *scelopas*. It is distinguished by Artedi by the name of the balites, with two spines in the place of the belly-fins, and one behind the anus. See TRUMPET-fishes.

SERRAE, in Geography, a town of European Turkey, in Macedonia, the fee of a Greek archbishop; 36 miles E.N.E. of Saloniki.

SERRAIN, a town of Arabia, in the province of Hedsja; 40 miles S.W. of Mecca. N. lat. 21° 5'.

SERRANA, or PEARL ISLAND, a small island in the Caribbean sea, so called from Serrana, the commander of a Spanish vesel in the time of Charles V., who was shipwrecked on the coast. N. lat. 14° 5'; W. long. 78° 50'.

SERRANILLA ISLANDS, a cluster of small islands in the bay of Honduras. N. lat. 16° 10'; W. long. 80° 10'.

SERRAPETRON, a town of Italy; 7 miles S.W. of Ancona.
SERRATA, a name given by some of the Roman authors to the plant which the Gauls, according to Pliny, had named betelum, and which the Greeks called eumonimmon and praxeres. This was evidently the same plant with our serrata, or saw-wort; but besides this there was another plant called by the same, and which, according to Pliny, was the common firmer of the Greeks. Does it say nothing of the chamaedrys, but that its leaves were small? And it is much more probable, that the world should take the idea of a saw from the leaves of the serrata than from those of this plant, they being much more delicately than thou. So that those who have been influenced by Pliny, to suppose the germen and serrata of the ancient to be the same plant, are, in the wrong, though they have the countenance of this in generally reputed authentic author for it.

SERRATE FLEAS. In Natural History, a name given by authors to certain flies, distinguished from all the other kinds by their having a weapon resembling a double knife, placed at the hinder part of the body; this serves several species of them to make holes in the branches of trees, in which they deposit their eggs; but there are some of them which do not seem to make any use of this curious instrument, though they have it. See Rose-fly.

The fly of this kind that lays its eggs on the gooseberry-bush, deposits them only on the surface of the middle rib of the leaf, and the other-fly, which is one of this genus, produced from a hawfashion caterpillar of the other, lays its eggs on the intermediate surface of the leaves between the ribs.

There appears to be no use made of this curious instrument in the depositing of these eggs, since they are only laid in rows upon the leaves, and fixed to them by means of a viscous fluid which covers them. It is a very remarkable property in the eggs of this genus of flies, that they grow much larger after they are laid. This is observable in the eggs of the common rose-fly, which are at first buried in the wood, and by their growth force out the surface into tumours of an oval figure; but in those of the other-fly it is much more quickly, and the whole growth of the fetus in them is clearly seen, on examining them at different times of their growth, which may be easily done without disturbing them, as they lie naked on the surface of the leaf.

There seems a plain proof that the egg receives some sort of benefit, and that a very essential one to its preservation, from the juices of the plant on which it is deposited, since, if those leaves be pulled off from the plant, and left to dry, the eggs always dry up with them, and perish; whereas, if the ends of these leaves be put into water, and the leaf be by that means preferred fresh and juicy, the creature hatches from it as well as if it was left upon the tree. Recamier's Hist. Inf. vol. vi. p. 164.

SERRATED LEAF, in Botany. See LEAF.

SERRATITI, in the History of Coinage, a name anciently given to some Roman coins, and few eome other coins, which were ornamented by cutting out regular notches on the edges. Tacitus says, that the Germans preferred these to other Roman coins. But the old faggors made this kind of impression, which was intended to prevent forgery, by shewing the inside of the metal.


2. S. coronata. Siberian Saw-wort. Linn. Sp. Pl. 1144. Ait. n. 2. (Sp. prostrata centauroides montana italica; Bocce Muf. 45. t. 37; Card. n. 41; Gen. Sib. v. 2. 160. t. 23.)—Leaves sharply serrated, somewhat ciliated, more or less pinnatifid. Corolla level-topped. Florets of the circumference female, longer than the red.—Native of most parts of Siberia, flowering in the end of June. If Boccione's synonym be right, the plant grows also on mountains in Italy.
SERRATULA.

Italy. Gmelin says it is used in the former country for dying yellow, birch-leaves being superadded. This species is thrice as large as the *tintoria*; the leaves always deeply pinnatifid; the flowers much larger, furnished with radiating marginal florets, which, though dititute of stamina, produce seed.

3. *S. quinquifolia.* Five-leaved Saw-wort. Wildl. n. 3. Ait. n. 5.—Leaves ferrated, deeply pinnatifid, five or seven lobed. Flowers simply corymbose. Inner scales of the calyx elongated and coloured. Native of the north of Persia. Introduced into the gardens of England by Mr. Both, in 1843. A hardy perennial, flowering in July and August. Very like the last, but the leaves have only two or three pair of lobes; the calyx is rather smaller, and not downy, its long coloured inner scales resembling a radiant *corolla*. *Flowers* uniform. *Wildman*. The specific name is exceptional, for, by this author's own account, the leaves are only pinnatifid.

4. *S. humilis.* Humble Saw-wort. Desfont. Atlant. v. 24, t. 1720. Wildl. n. 4. (Jacea supina, carline capitato aculeata, tota inana; Bocc. Muf. 146.) J. inana chamaeleon's capitulum; ibid. t. 103.)—Leaves pinnatifid, with oblong entire segments; downy beneath. Flower solitary. Calyx hoary, with spreading-pointed scales. Native of Sicily and Barbary, flowering in summer. An elegant little perennial plant, with several spreading radical leaves, either simply or interrupted, but always very deeply, pinnatifid; smooth above. *Flower* rose-coloured. Its field appears to vary in length, being sometimes nearly wanting.

5. *S. mollis.* Soft-leaved Saw-wort. Cavan. f. v. 1. 62, t. 90. f. 1. Wildl. n. 5.—Leaves pinnatifid, with oblong, obtuse, entire segments; downy beneath. Flower solitary. Calyx downy, with erect scales. Native of hills in Spain, flowering in June. Cavanilles says the root is annual, but Wildmanow thought it seemed perennial. The latter, who had seen dried specimens of this and the last, was perplexed of their being distinct, and, besides the characters given above, he remarks that the seed-down of the present species is mossy feathery.

6. *S. pygmaea.* Dwarf Linear Saw-wort. Jacq. Auffr. v. 5. 20. t. 440. Wildl. n. 6. (Cnicus pygmaeus; Linn. Sp. Pl. 1156.)—Leaves nearly linear, revolute, loosely hairy. Stem leafy, hairy, single-flowered. Calyx-scales ovato-lanceolate, erect.—Found by Jacquin on the celebrated Auffrian mountain called *Schneberg* in 1761. Chlubn appears to have gathered the fame in Hungary, and Scopoli in Carniola. The perennial root, furnished with long black fibres, is crowned with a tuft of numerous spreading leaves, each two or three inches long, not half an inch wide, green on both sides, though clothed with loose feathered white hairs; their margin either entire, or dittantly toothed. Similar, though rather shorter, leaves clothe the simple stem, which is from two to five inches high, hollow, hairy, bearing one upright purplish flower, with prominent violet anthers. The scales of the calyx are broad, flat, purplish and downy. This is one of the rarest alpine plants, nearly related to the following, but certainly distinct.


8. *S. diffusa.* Wildl. n. 8. (Cirrim. n. 179; Hall. Hift. v. 1. t. 77. f. 6. C. n. 52; Gmel. Sib. v. 2. 67. t. 26. Herb. Linn. from the author. Carduus mollis, folidi lapathis; Ger. Em. 1184.)

Leaves cottony and white beneath, toothed, pointed, ovato-lanceolate, undivided; the radical ones somewhat ovate or heart-shaped. Flowers corymbose. Calyx clothed with soft hairs.—Native of the highest mountains of Europe, particularly Siberia, Wales, Scotland, and Switzerland, flowering in July and August. There can be no doubt that all the synonyms here cited belong to one species, nor is it easy to mark the limits of even its varieties. The *root* is perennial, tough, and woody. Stem from three to twelve inches, or more, in height, simple, leafy, *flattened, cottony, crowned with a level-topped tuft of elegant flowers*, on stalks of various lengths. *Calyces* of many soft, brown, hairy scales. *Florets* pink, with blue or violet anthers. The leaves are excessively variable in shape, from lanceolate to broadly heart-shaped; their margin toothed, sometimes wavy; their *footstalks* long and slender, short and thick, or altogether wanting. The upper surface of each leaf is green, smooth, and nearly or quite naked; the under covered with dense, white, cottony down. The narrow-leaved specimens grow in rich ground, amongst other plants.

8. *S. angustifolia.* Narrow-leaved Saw-wort. Wildl. n. 9. (S. alpina, angustifolia; Linn. Sp. Pl. 1145. Cirrum. n. 59; Gmel. Sib. v. 2. 78. t. 33. Herb. Linn. from the author.)—Leaves linear, revolute, entire; rather hairy beneath. Flowers somewhat racemose. Bracteas awl-shaped.—Gathered by Steller, on the banks of rivers in the eastern part of Siberia. A much more slender plant than any variety of the preceding. The *flower* is eighteen to twenty-four inches high, erect, slender, hollow, *flattened, purplish, nearly smooth*. *Leaves* cottony, hardly a line broad, quite entire, paler, and a little hairy, but not cottony, beneath. *Florets* few, on long, simple, dilatant, rather racemose than corymbose, *stalks*. Scales of the *calyx*; ovate, pointed, purplish or brown, hairy within.

9. *S. falicifolia.* Willow-leaved Saw-wort. Linn. Sp. Pl. 1145. Wildl. n. 10. Ait. n. 5. (Cirrum. n. 53; Gmel. Sib. v. 2. 69. t. 27.)—Leaves linear-lanceolate, entire; white and cottony beneath. Corymb compound, leafy. Scales of the calyx elliptical, ribbed, downy.—Native of Siberia, in dry open rocky places, where it flowers towards the end of July. Mr. Joseph Buhl is said to have brought this species into the English gardens in 1796. It is an elegant hardy perennial, distinguished by the snow-white whiteness of the backs of its leaves, whose edges are scarcely, if at all, revolute; their base tapering down into a bordered *footstalk*. The *flowers* rather more refulgent those of *S. tinctoria* than of *alpina*, but the *calyx* is slightly cottony.


11. *S. multiflora.* Many-flowered Saw-wort. Linn. Sp. Pl. 1145. Wildl. n. 12. (Cirrum. n. 54; Gmel. Sib. v. 2. 71. t. 28.)—Leaves lanceolate, rough, somewhat dentate, nearly entire; woolly beneath. Stem repeatedly corymbose, much *flowered. Scales* of the calyx lanceolate, keeled.—Gathered by Gmelin in mountaneous parts of Siberia. Dr. Forcher has sent us a less luxuriant specimen from Mount Caucatus. The *flowers* are said to be decumbent. The leaves vary in breadth, and are sometimes revolute; the radical ones coarsely toothed. Their green upper surface is rough like a file;
...the under clad with lâl white cottony wool. 

A. The leaves are oblanceolate, and have a dark, slender, purplish, finely downy, glaucous, Gmelin. I find fully that they differ in their plate to two large; yet Linnæus on this account doubts the certainty of its synonymy, for which there can be no reason.


Willd. n. 15. (Carduim n. 55; Gmel. Sib v. 2. 72. t. 29.) — Leaves lanceolate, rough-edged, naked, somewhat decurrent. Flowers corymbosum. Scales of the calyx dilated and rounded at the extremity. — Native of dry open fields in Siberia, on a faine foil, abundantly. Gmelin. Root as thick as the little finger, perennial, bitter, with a faintly flavour. Stem from a tap-root to one or two cubits high, simple or branched, leafy, angular, and furrowed. Leaves four or five inches long, and one broad, conic-shaped, tapering at each end, naked or nearly smooth on both sides, except the edges and middle; the lower ones stalked, toothed; the upper generally decurrent, and entire. Flowers several, purple, the size of Centaurea nigra or Jacea, but in the aspect and hue of their calyx most resembling the latter, except that the round apex of each scale, though jagged, is not fringed.

15. S. centroaoides. Centaury-like Seward-wort. Linn. Sp. P1. 1148. Willd. n. 16. Ait. n. 6. (Carduim n. 38; Gmel. Sib v. 2. 44. t. 17.) — Leaves deeply pinnatifid, acute, smooth, unarmed. Stem branched. Flowers solitary. Scales of the calyx partly point'd; the inner ones dilated and membranous. — Native of Siberia. Sent by Sir Joseph Banks to Kew, in 1804. A hardy perennial, flowering in July and August. This has the habit of several Centaurea, but wants the smaller marginal flares. The stem is foot to more in height, alternately branched, leafy, angular, smooth. Leaves rigid or coriaceous, with deep, entire, decurrent segments. Flowers solitary at the top of each branch, large, purple. Calyx ovate, of many ovate acute scales, several of the middle-mould of which bear a short spine, while the inner ones are much elongated into a linear, membranous-tipped appendage. The genus of this plant cannot but be considered as very doubtful, nor can we refer it without scruple to Strepatus, or Centaurea; perhaps we should, like Gmelin, remove it to Carduim or Cnicus, the calyx answering very nearly to that of the former.


...Serratula, in Garden, contains plants of the tall, hardy, herbaceous, perennial kind, of which the species cultivated are: the long-leaved faw-wort (S. noveboracensis); the tall faw-wort (S. praealta); the glaucous-leaved faw-wort (S. glauca); the rough-headed faw-wort (S. squarrosa); the ragged-cupped faw-wort (S. quadriata); and the spiky faw-wort (S. fucata).

Method of Culture. — These plants may all be increased by parting the roots, and planting them out in the autumn, when the stems decay, or in the spring; but the former is the better season. They may be planted in the middle or the back parts.

Serratula, in Anatomy, a name given to different muscles attached to the ribs, and arising by several distinct portions, so as to have a serrated edge. In French they are called dentelé.

Serratula Anticua, the name under which Albinus describes the pectoralis minor. It is also called ferratus minor anthicus.

Serratula Magnus, ferratus major anticus; le grand dentelé; scapula colton, a large muscle of the shoulder, broad and flat, lying between the scapula and the chest, and extending...
extending from the nine upper ribs to the bases of the scapula. It is irregularly four-sided, broader below and in front than above and behind. It arises from the eight or nine upper ribs by as many distinct pointed portions, which are first tendinous, then fibrous. The first, which is broad, very thick, short, and distinct from the rest, arises from the outer edge of the first rib, towards its back part, from the second, and from an intermediate aponeurosis. The second, third, and fourth, broad and thin, arise from the external surfaces of the second, third, and fourth ribs, in oblique lines directed from above and behind, downwards and forwards. The four or five left, narrower and increasing in length downwards, arise from the upper edge and external surface of the corresponding ribs, and are placed between the digitations of the oblique externus abdominis. From the origins just enumerated, the fibres of the muscle proceed, divided, particularly below, into fasciculi corresponding to each digitation, separated by cellular lines, and soon forming three distinct portions. The superior division is thick, narrow, and short, extends from the two first ribs to the superior angle of the scapula, ascends a little, and covering the upper edge of the second portion, to which it is united. The middle division, broad and thin, goes from the second, third, and fourth ribs to the upper three-fourths of the bases of the scapula; its fibres proceed horizontally from before backwards, except the inferior ones, which descend a little. The inferior portion of the muscle passes from the fifth, sixth, seventh, and eighth ribs to the inferior fourth of the bases of the scapula, and the inferior angle of the bone. This part is thick, radiated, broad in front, and narrow behind. The superior fibres of this portion go nearly horizontally from before backwards; the inferior ones are directed at the same time from below upwards, and are more oblique in proportion as they are lower: they are united towards the inferior angle of the bone.

The external surface of the serratus is covered, towards its lower and anterior part, by the skin, at the lower and posterior part by the latissimus dorsi. Above and towards the front it is covered by the pectoral muscles, by the axillary vessels, and the brachial plexus. In the rest of its extent it is in contact with the sub-scapularis. The external surface covers the seven or eight superior ribs, the external intercostal muscles, and behind a portion of the serratus superior politicus. The upper edge of the muscle is the shortest, extending from the margin of the first rib to the superior angle of the scapula: the inferior, much longer, reaches from the eighth or ninth rib, or about two inches from its cartilage, obliquely to the inferior angle of the scapula. The anterior edge is the longest, and fixed to the external surface of the eight or nine first ribs, by the distinct pointed fasciculi or digitated portions, from which the name of the muscle has been derived: the posterior is fixed to the front edge of the bases of the scapula, and of the superior and inferior angles of the bone.

The action of the serratus anticus produces two different effects, according as the scapula or the ribs are the fixed point. In the first case, the scapula being fixed by the trapezius, rhomboid and levator muscles, it draws the ribs outwards, elevating those to which it is fixed by its lower digitations: in this respect it is a powerful agent of inspiration, concurring with the pectoral muscles. In the second case, it carries the scapula forwards, antagonizing the rhomboid, trapezius, &c. But it moreover draws the inferior angle forwards, and consequently moves the upper and anterior angle of the bone, forming the shoulder, upwards. Thus the serratus anticus is an important muscle in supporting burdens carried on the shoulders. In this case the diaphragm and abdominal muscles are put in action to draw down the ribs, fix them, and prevent them from yielding to the efforts of the serratus.

**Serratus Major Anticus.** See **Serratus Anticus.**

**Serratus Politicus Inferior.** (denté polité antérieur; lombocostien,) is a broad, thin, and flat muscle, flattened at the lower part of the back, and extending from the spinous processes of the vertebrae to the ribs. It arises from the spinous processes of the two last dorsal vertebrae, of the three first lumbar, and the intervening intercostal ligaments, by a broad aponeurosis, completing one-half of the muscle, common to it and the latissimus dorsi, composed of parallel fibres, directed obliquely upwards and outwards. This aponeurosis is connected in front to that of the transversus abdominis, and by its lower edge to the obliquus internus. The muscular fibres, passing with the same obliquity as those of the aponeurosis, form four fasciculi or pointed ferrated portions, of which the first and breadth is fixed to the lower edge, and near the angle of the second false rib; and the three others, which are successively smaller, are also attached, by aponeurotic fibres, to the lower edge of the three succeeding ribs, farther from the angle. The posterior surface of this muscle is covered by the latissimus dorsi. The anterior surface covers the three last false ribs, the external intercostal muscles, the longissimus dorsi and facrolumbas, and the transversus abdominis. The upper edge is continuous with the thin aponeurosis, which immediately covers the longissimus dorsi and facrolumbas.

By drawing downwards the lower ribs, this muscle assists in expiration. It cannot produce any effect on the spine: it will confine the muscles lying at the side of the spine, and thus has the same effect as the serratus politicus superior and the fascia extended between them.

**Serratus Politicus Superior,** (denté polité antérieur; dorco-fasciel,) is a very small and thin muscle, flat and four-sided, placed at the upper part of the back. It arises from the ligamentum nuchae, the last cervical spinous processes, and the two or three upper dorsal ones, by a thin aponeurosis, composed of parallel fibres, directed obliquely downwards and outwards. The fibrous fibres follow the same direction, forming a thin fascia, which terminates in four small fasciculi or ferrated portions, ending in aponeurotic fibres, which are inserted in the upper edges of the forehead, third, fourth, and fifth ribs, near their angles. It is covered externally by the rhomboïdes: and it covers the splenius, transversarii coli, the vertebral muscles, the ribs, and the corresponding intercostal muscles.

It will have the effect of elevating the ribs, and thereby of enlarging the chest, or afflicting in inspiration.

**Serravalle,** in Geography, a town of France, in the department of Marne, on the Scina; 12 miles S. of Tontona.—Alfo, a town of France, in the department of the Seine; 18 miles N. of Versailles.—Alfo, a town of Italy, in the duchy of Mantua; 24 miles S.E. of Mantua.—Alfo, a town of Italy, in the Trevifan, 2 1/2 miles in circumference, partly on a plain between two mountains, and partly on the mountains near the river Mafehio, which runs through the middle of the town, and has its source in a small lake in the higher part of the town. At the extremity of the market-place is the public palace, and at the lower end the cathedral church, containing some good paintings. The town and its suburbs comprehend two parishes, and 30 churches, that of St. Augustla attracting notice by its noble architecture, and its long noble facrinas. Here are also two monasteries, and two nunneries. The inhabitants are industrious, and trade particularly
particularly in cloth, woollen and silk manufactures, and carried on a vast commerce in wool, hemp, and flax, in the adjacent provinces and with Germany: 2

SERRE, a L. in Barab, a maritime port of Geneva, which had been fortified and defended well by the Genoese, who had made it a centre of the Genoese colonies. He had defended the "Gros Armes," or Great Wall, the "Ballarat," or Ballarat, and the Towns of Tannaz, with his army of the "Terre Soudaine." The celebrated works of M. Serres were examined in two vues in says, both in 1599 and 1602, in which there are like many parts of the art disputable, in the practice and practice of artillery, which will both amuse and instruct musical minds.

Serres, or, chief intervals in music, such as the cardinal quarter in time of the ancient Greek music; and in the French, short and quick. See Serres.

Serres, L. in Gargny, a river which runs into the Oise, near La Fere, in the department of the Aisne.

Serris, a town of France, in the department of the Seine; 12 miles N. of Romani.

SERRIS, John, in Serpis, a Protestant minister, was born in the town of France, and studied at Lausanne. We find him in 1572, serving a country church in the neighbourhood of Geneva. Having made himself known by various works, he became rector of the college of Nimes, and a minister of that city, and was employed on several important occasions by Henry IV.; that prince having asked Serres if it were possible for a person to be favored in the communion of the church of Rome, he answered in the affirmative, with the confidence of promoting Henry's charge of religion. Notwithstanding this decision, he was a warm antagonist against the Catholics, and made a very severe attack upon the Jesuits, entitled "Tractatio Jezuista quaerenda est." As a learned author, he is chiefly known by an edition of Plato in three volumes folio, printed by Henry Stephens in 1578, with notes and a new Latin version, which is however not remarkable for correctness; and the style of these parts which Serres compos'd is very unequal to the majesty of the original. He was author of a number of works in history, and had the title of Historiographer of France; but his competences are laid by the Catholics to be partial and full of misrepresentations. The principal of them are as follow: "Commentarium de Ruth Religionis et Republicae in Regio Franciae," compiling the events from 1557 to 1576; "Memorie de la Fratricieu Guerre civile sous Charles IX."; "Recueil des Chose memorable avencees en France sous Henri II., Francois II., Charles IX., et Henri III."

SERRIS, and "histoire de l'Histoire de France." Serres, towards the end of his life, engaged in the hope of designing of uniting the Catholic and reformed churches, which brought upon him the contempt of one party and the enmity of the other. He died in 1578.

Serris, Olivier de, an eminent agriculturist, was born in 1539, at Villevieuve de Berg, in the Vivarais. During the civil tumults of his time, his property was plundered, and his house destroyed, and after it had been rebuilt, it was again destroyed by fire. He is said to have born these misfortunes with great equanimity, and to have forgotten them by engaging his mind in bodily and rural occupations. By his talents he became so advantageously known to Henry IV., that he sent for him to Paris, and employed himself in several improvements about his domains. Serres wrote works which rendered him the oracle of the cultivators in that age, and many of his ideas have been cons-

 practiced by later writers without and whole extent. The use of this, as he collected the medicinal plants, entitled "Tractatus de Plantis," in 1575, and has been translated in England. It has been translated by Hulst in 1620, and in 1650, in order that the name of this herb could be distinguished in the publication of the 17th, and the century of the 17th century. Dom Thibault died in 1619, at the age of 91, after having lived the natural fruit without the happy effects of the improve-

ment being performed by him.

Serris, in Geography, a town of France, in the department of the Hervar, and 10 miles of a canton, in the district of Gap; 24 miles W. N. W. of Gap. The place contains 319, and the area is 412.1 square miles, or a territory of 1755 square miles, in 10 communes. N. lat. 44° 26'. E. long. 5° 30'.

SERRIS, a town of Asia Minor, in Neapel; 30 miles S. of Catanzaro.

SERRISERES, a town of France, in the department of the Ardeche, and chief place of a canton, in the district of Tournon-sur-Rhône; 15 miles N. of Tournon. The place contains 1923, and the canton 9415 inhabitants, on a territory of 115 square miles, in 15 communes.

SERRIS, a town of Hindustan, in Bahar; 15 miles S. of Fatehpur Sikri. N. lat. 24° 51'. E. long. 84° 27'.

SERRO, a small island belonging to the cluster of Papuan isles. See Papa.

SERROPALPUS, in Entomology, a genus of insects, of the order Coleoptera, whose generic character is 28-12: antennae fematus; four unequal feakers; the anterior ones are the longer, and deeply serrated, composed of four joints, the last very large, truncate, compressed, parcelliform; the posterior ones are subelliptical, thorn-margined, concealing the head, with a prominent angle on each side; the head is reflected; and the feet formed for digging. There are two species.

SPIRATUS. The body of this insect is brown; the shells frattate. It inhabits the island Rumfale, and is described in the Stockholm Transactions for the year 1786; where it is said to be found chiefly on old wooden buildings, in the evening in autumn, and is about the size of the Euter aternum.

LAVIGATUS. This species is characterized by a black body, and smooth shells. It inhabits different parts of Europe, and is likewise described in the volume of the Stockholm Transactions already referred to.

SERRURIA, in Botany, a name rightly altered by Mr. Salibury and Mr. Brown, from the Serruria of prof. Dr. J.J. Barnard, who, in his Phaen. Africae, 266, establishes the latter appellation, in honour of Dr. Joseph Serrurier, Professor of Botany at Utrecht; but it is not easy to discover the above author's meaning in this perverting the word; or Serrurier is a name which, and has no reference to a law, or law. - Brown, Tr. of Linn. Soc. v. 1011. 112. Ait. Hort. Kew. v. 1. 168 - Class and order, Tamarindinae. Nat. Ord. Agugrate, Linn. Provence, Jull. Brown.

Eff. Ch. Cerollin in four deep segments. Stamens in the concave tups of the segments. Nectary four scales beneath the

A genus of rigid Cape shrubs, of which Mr. Brown describes thirty-nine species, eight of which find a place in the Hortus Kewensis. The leaves are thread-shaped, pinnatifid or three-leaf, rarely undivided. Heads of flowers either terminal, or, from the bases of the uppermost leaves, either simple and solitary, or composed of several fleshy partial heads, or corymbose. Bracteas imbricated, membranous, mostly commonly shorter than the flowers, in a few instances longer, in some wanting. Flowers always fertile. Petals purple. Phylica from the length of the corolla, with a club-shaped, rarely cylindrical, stigma. Nut ovate, finely downy, sometimes bearded, sometimes nearly smooth. We select the following examples, among which are included all the species known in the gardens of England.

Sec. 1. Heads simple; the flower-flakes undivided or wanting.

S. pinata. Wing-leaved Serruria. Brown n. 8. Ait. n. 1. (Protea pinata; Andr. Repof. t. 512.)—Heads stalked, somewhat aggregate. Bracteas lanceolate, villous, nearly as long as the flowers. Corolla bearded. Leaves pinnatifid or three-cleft, longer than the heads. Stem pro- cumbent, hairy.—Gathered by Mr. Niven, on dry hills at the Cape of Good Hope, particularly in ascending Paarlberg. It flowered in Mr. Hibbert's garden, in the summer of 1837. In a natural state the stem is said to be perfectly prostrate, dividing from the base into branches about a foot long, round, downy, leafy. Leaves above an inch long, turned upwards, confiding of three or five awl-shaped segments. Heads of flowers red, about as big as a walnut, either solitary and terminal, or partly axillary; the young buds enveloped in the white silky hairs, which clothe the tips of the corolla externally.

S. cyanoides. Trifid-leaved Serruria. Brown n. 12. Ait. n. 2. (Protea cyanoides; Linn. Mant. 188. Willd. Sp. Pl. v. 1. 507.)—Cyanus ethiopicus, rigidus capillaceus tenuifilis folis trifidis; Pluk. Mant. 61. Phyt. t. 345. f. 6.)—Heads terminal, longer than their stalks. Bracteas roundish, pointed, villous. One segment of the corolla nearly smooth. Leaves spreading; the lower ones three- cleft; upper subddivided. Stem nearly upright. —Native of hills about the Cape. Mr. Brown gathered it on the sides of mountains, near Simon's bay. A shrub of humble growth, flowering with us in June or July. The branches are scarcely pubescent. Leaves not an inch long, rather hairy while young. Flower-flakes solitary, downy, generally but half the length of the heads of flowers, which are the size of a large cherry, rising above the upper leaves, and accompanied by membranous silky bracteas.

S. pedunculata. Woolly-headed Serruria. Brown n. 13. Ait. n. 3. (Protea glomerata; Andr. Repof. t. 264.)—Heads terminal, stalked. Bracteas ovate, downy. Corolla curved, feathery; its inner segment silky. Leaves twice or thrice pinnatifid, hairy, as well as the upright stem. Found in various billy situations at the Cape of Good Hope, where the soil is rather fertile. Moffrs. Lee and Kennedy are recorded as having first raised this species, in 1789, from seeds obtained from Vienna. It flowers in summer, and makes a handsome appearance, with its copious many-cleft leaves, and large heads of light reddish-brown flowers, clothed with fine white plumy down. The anthers are yellow. Stigma blackish.

S. hirsuta. Hairy Serruria. Brown n. 15. (Protea phyllocloides; Thumb. Diff. n. 9. Prodr. 25. Willd. Sp. Pl. v. 1. 510, excluding the reference to Bergius.)—Heads terminal, longer than their stalks. Bracteas linear-lanceolate, hairy. Corolla feathery. Leaves doubly pinnate, about as long as the heads. Branches hairy. Stem crect.—Native of Rocky hills at the Cape. Mr. Brown observed it near Simon's bay. It seems unknown in our gardens. This flower is twice the feet high, with straight unbranched branches, rough with spreading permanent hairs. Leaves copious, moderately spreading, an inch, or sometimes an inch and a half, long, hairy when young only; their segments very sharp-pointed. Flower-flakes often more than one at the top of each branch, half the length of the heads, with lanceolate-awl-shaped, spreading bracteas. Heads as big as a walnut, rising above the upper leaves. Corolla slightly curved; the hairs on its inner segment shorter than those of the other three. Stigma cylindrical, somewhat club-shaped.

S. nervis. Niven's Serruria. Brown n. 17. Ait. n. 4. (Protea decumbens; Andr. Repof. t. 349.)—Heads terminal, feefile. Bracteas lanceolate, the inner ones silky. Corolla bearded. Leaves doubly pinnatifid; the uppermost longer than the head, and smooth like the branches. Stem decumbent.—Discovered by Mr. James Niven, on Swartberg, a rocky mountain at the Cape of Good Hope, and sent by him to Mr. G. Hibbert in 1800. It blooms in the summer, and is of a small stature, and decumbent habit. The flowers are of a dull red, clothed externally with white silky hairs; and each solitary head, smaller than a hazel-nut, is enwrapped with numerous, crowded, radiating leaves. Each leaf of the general foliage is about an inch long. Stigma hardly thicker than the hyve. Mr. Andrews's plate represents the branches as somewhat downy.

S. phyllocloides Physica-flowered Serruria. Brown n. 24. Ait. n. 5. (Leucadendron phyllocloides; Berg. Cap. 29. Protea phorophorica; Linn. Mant. 188. P. abortanofilia; Andr. Repof. t. 507.)—Heads terminal or axillary, on fealy flarks. Bracteas half as long again as the head, lanceolate, smooth; the outer ones narrower. Tips of the corolla bearded. Leaves twice compound, longer than the flower-flakes.—Native of the Cape, from whence it was sent to Kew, by Mr. Maflon, in 1788; flowering there in July and August. This is a smooth upright shrub, with reddish leafy branches. Leaves generally bipinnatifid, an inch or two long, moderately spreading. The flower-flakes, clothed with several lanceolate scales, and either solitary, or aggregated in a corymbose manner, are longer than the heads, but usually shorter than the foliage. Heads above half an inch in diameter, subtended by many longish, deflexed, green, red-pointed bracteas. Corolla whitish and smooth, except the ends of the segments, which are red, and densely bearded. Stigma red, cylindrical.

S. florida. Large-flowered Serruria. Brown n. 26. (Protea florids; Thumb. Diff. n. 2. t. 1. Prodr. 25. Willd. Sp. Pl. v. 1. 506.)—Bracteas longer than the flaked heads; the outer ones elliptic-oblong, pointed, smooth; inner concealed, linear-lanceolate, fringed. Leaves once or twice pinnatifid.—Thunberg and Maflon gathered this species on the mountains of Fransch Hock at the Cape. It has not as yet found its way into our green-houses, which is much to be regretted, no other Serruria being comparable to it in beauty. The leaves are three or four inches long, smooth, as well as the branches, which are of a purple hue. Flowers many together, on corymbose fealy flarks at the ends of the branches, large, remarkable for their beautiful red external bracteas, which are each an inch or inch and half long, attended by smaller ones, of the same kind, scattered down the stalk, while the innermost bracteas, coming into view by the spreading of the former, are linear, fringed with
with yellow hairs. This is a very rare plant, even in dried
collections.

Seft. 2. Heuxi. — Partially divided.

S. argentea. Training Serruria. Brown. n 27. (Protea
dormant, smooth, as well as the three leaflets, whose
segments are undivided. Each pachial head of about
four flowers. — Native of the thorny hills of mountains,
at the Cape of Good Hope; not as yet known as a garden
plant. It is smooth, dividing from the root into several
prostrate, leathery, wavy branches. Leaves ascending,
about two inches long, in two or three simple, thickish,
linear segments. Flowers flat, axillary and terminal, slender,
flaky, each bearing a small roundish head, enveloped in
ovate, pointed, richly flaky bracts, and composed of from four to six
smaller heads. Corolla flaky, very finely cut. Mr.
Brown remarks that the tips of the heads are, apparently
from iteration or abortion, simple.

Pl. v. 1. 592. Leucadendron glomeratum; Linn. Sp.
Pl. v. 17. 157.) — Serruria folis tenuisflimdivis, capitibus tenuioribus;
Burm. Afr. 264. t. 99. f. 2.) — Stem erect, smooth,
like the doubly pinnatid leaves. Parallel heads of many
flowers. Inner bracts somewhat flaky. Common
flowers flaky. Stigma club-shaped — Found in thorny hill
places at the Cape. Mr. Moffin is said to have first
seen it about the year 1789, to Kew, where it flowers in July
and August. A rather humble flower, with reddish branches.
Leaves from one to two inches long, slender, quite smooth.
Flowers flaky; the common ones often aggregate and
raceemose, clothed with broad, smooth, softly imbricated,
flaky bracts; partial ones shorter than their respective
heads. Corolla externally flaky.

Seft. 3. Flower-flaks divided. Heads simple, corysthbo
or raceemose.

Ait. n. 7. (Protea Serraria; Linn. Mant. 188. Wildl. Sp.
137. Serraria folis tenuisflimdivis, floribus rubris spalatais;
Burm. Afr. 264. t. 99. f. 1.) — Abrotanoides arboresum;
O; Pluck. Mant. 1. Phyt t. 329. f. 1.) — Heads corysthbo,
each of about ten flowers. Corollas level-topped,
more or less flaky, shorter than the partial flaks.
Leaves doubly pinnatifid, bristle-shaped, longer than the flower-
flaks. — Native of low barren flats, about the fides of falls
at the Cape, very frequent. Mr. Mctton at it in 1760
to Kew garden, where it blooms from May to July.
A humble corystthbo flower, with very slender acute leaves,
which are slightly hairy. The heads are small, reddish,
crowned with the long prominent styles. Mr. Burmann
mentions a variety, or possibly distinct species, whose leaves are
rather flaky, heads more obtuse at their base, and bracts
as well as flowers, altogether flaky.

Ait. n. 8. (Protea triernata; Thumb. Diff. n. 1. 1. Prodr.
Kepo. t. 447.) — Corysthbus compound. Heads globose,
many-flowered. Bracts and partial flower-flaks flaky.
Leaves thrice ternate, smooth as well as the stem.
— Gathered by Mr. Niven, near the river at Rooke Zant, Cape
of Good Hope. Moffins. Lee and Kennedy are said to
have first raised this elegant species, about the year 1802.
It blooms from June to August. The leaves are four or five
inches long, and as thick as a crown's quill, being larger,
well as more compound, than in most other species. Heads
of flowers of a silver white, flaky, numerous, each
rather above half as much diameter. Stem suberect, yellow.

SERALISIA, to named after a Near East
plant, much admired by James Garden, to which
what part of his writings we are not informed, is a species
separated by Mr. Brown, in his Prod. Nov. Hall. v. 1. 593.
from the Latin Siderum, as the character does not
seem to have any ea. One of this new genera in
ed. 2. v. 2. 133; another is called by Mr. Brown
Sideralagonabata. Both are native of the tropical parts of New
Holland. See Sideralina and Sideralions.

SERLY, in Geography, a town of Honduras, in
Oude; 25 miles E. of trinacht.

SERTA, GARLANDS, among the Ancients. See Gar-
lons.

SERTAM, in Geography, a town of Portugal, on the
river Peri, at Estremadura; 24 miles N.E. of Thomar.

SERTINO, a river of Sicily, which runs into the sea,
on the null sail.

SERTORIUS, Quintus, in Biography, a distinguished
Roman commander, was a native of Norba, in the Picentine
regions of Italy. His father died when he was a boy,
but by the care of his brother he received a most excellent
education; and even in his youth he gained a considerable
reputation as a pleader at Rome. He had, however,
a decided turn for the duties and glory attached to a military
life, and made his first campaign under Servilius Capito,
against the Cimbrians and Teutones in Gaul. In an early
campaign he was severely wounded, and would have lost
his life, if he had not possessed sufficient vigour to swim
across the Tiber, when encumbered with his armour.
He next served under Marius, and exhibited proofs of valour
and talents, which much gratified him with that general.
Spain was the next great theatre of his exertions,
where he served under Dibus, and acquired much reputation in
the campaign. On his return to Rome, he was made quellor
in Cilician Gaul; and when the civil war broke out, he
brought a well-timed reinforcement to the Roman army.
In a battle that ensued, he lost an eye, a mark of bravery
in which he always gloriéd, and which pointed him out to
the plaudits of the people, whenever he appeared in the
theatre, and other public places. He was candidate for
the tribuneship, but was disappointed in his hopes by the
overbearing interest of Sertorius; he accordingly joined
the cause of Marius in the ensuing civil war. He com-
manded one of the three armies which invaded Rome, and
honourably distinguished himself by abstaining from all
those acts of cruelty which disfigured the arms of Cinna
and Marius. When Sylla gained the ascendancy in Italy,
Sertorius withdrew to Spain, of which country he had
been appointed proetor. Here he hoped to be able to revive
his caue, and with this view he detached a body of troops
to seize the path of the Pyrenees; but the murder of their
commander induced them to abandon their post, and conse-
quentially laid Spain open to Sylla's officers. After some
various adventures, chiefly of the cutaneous kind, Sertorius
went into Africa, and assisted the Mauritanians to throw
off the yoke of a tyrannical king; defeating one of Sylla's
generals, by whom he was supported. His reputation now
courted him to be invited to Lepontia; and failing thereto
with a small body of Romans and Africans, he obtained
such an ascendency over the natives, that he soon had the
command of the whole Lepontian nation. He exercised
them in the arts of warfare, and introduced a rigid discipline
among them; but Roman taets being unsuitable to them,
he adopted a service better suited to the nature and circum-
crances
Aances of the country. He defeated, with his new-trained armies, several Roman generals, who were sent against him, and instituted a senate in competition with that of Rome, and imitated all the forms of the republic. He foiled the attempts of that eminent commander, Metellus, to reduce him; continually harrying his troops by sudden attacks and skirmishes, and intercepting his convoys. He adopted the liberal policy of civilizing the Latinians and neighbouring Spaniards, and familiarizing them with Roman letters and customs. For this purpose he established a great school in the city of Oca, at which the sons of men of distinction were gratuitously educated, and at the same time kept as hostages for the fidelity of their parents. Feeling that his power was not sufficiently firm, without the aid of superstition, which ever captivates the ignorant and uncivilized, he trained a white fawn, that had been presented to him, to such a degree of tameness, that it followed him whererever he went, and was his constant companion; and he encouraged the belief that the animal was the gift of Diana, and intended by that goddes to convey information of the deigis of his enemies. At length the famous Pompey was nominated to the command against him; and when he arrived, he found that all the Roman troops, which, after the death of Lepidus, had been carried to Spain by Per- fenna, with the design of setting up there for himself, had joined Sertorius, who was now at the head of a considerable army. Pompey proceeded against him with a superior force; but Sertorius took a town in his presence, and afterwards defeated him at the battle of Suero. He gave him a second defeat; but Metellus routed a separate division, and Sertorius was glad to take to the mountains. He then offered to lay down his arms, provided the proscription against him might be taken off, and he were permitted to return to Rome. Soon after he received an embassy from Mithridates, the formidable foe of the Romans, offering him an advantageous alliance, provided he were suffered to repossess the provinces from which he had been expelled by Sylla. But Sertorius would not agree to more than his recovery of Bithynia and Cappadocia, without touching upon the Roman province of Asia; and upon these terms the treaty was concluded. A conspiracy was formed against Sertorius by the Roman patriots in his army, and they succeded in exciting a revolt in several Lusitanian towns. Incensed at this defection, he caufed several of the children, whom he kept as hostages at Oca, to be flain, and others to be sold as slaves. This is said to have been the only act of cruelty by which his memory is tarnished. In revenge for the loss of their sons, the conspirators formed a plot against the life of Sertorius; in conference of which he was barely assassinated, when he was at a festival. This event took place in the year 73 B.C. “The great qualities and military talents of this eminent person would undoubtedly have raised him to the first rank among the chiefs of his country, had he not been a leader of a party, instead of a commander for the state. With nothing to support him but the resources of his own mind, he created a powerful kingdom among strangers, and defended it a long time against the arms of Rome, although wielded by the ablest generals of his time; and he displayed public and private virtues, which would have rendered a people happy under his rule at a leas turbulent period.” Univer. Hill.

SERTULA CAMPANA, in Botany, a name given by some authors to mellilot.

SERTULARIA, in Natural History, a genus of the clas Vermes, and order Zoophytes. The generic character is this: the animal grows in the form of a plant; the stem is branched, producing polypous from cup-shaped den-
ARGENTEA. Denticles nearly opposite, pointed; vehicles oval; branches alternate, pinnate. This is an inhabitant of the European and American seas; very much resembles the last, but the branches are thinner and looser, and the pinnate is more obtuse.

* Rhodospira. Denticles nearly opposite, obsolete; vehicles much wrinkled, and three toothed; the branches are flattened. This species inhabits the European seas, and is found growing on the Flustra foliacea, and other Sertulariae.

* Haliclona. Denticles alternate, tubular, and two-jointed; the vehicles oval, each united along the side to a small tubular stalk; the stem is alternately branched and pinnate. This is found in the European and Mediterranean seas. It is horn color, and of a yellowish-grey; the denticles are nearly obsolete.

* Tilia. The denticles in this species are arranged in two rows, closely adhesion to the stem; the vehicles oblong, margined; stem waved and thick, with a tuft of dichotomous branches near the tip. It is found on the northern coasts of England, and in the Mediterranean, and is about half a foot long.

* Myriophyllum. The denticles are truncate, all leaning one way on the stem; the stem itself is gibbous on the side opposite the branches; the branches lean one way. This is found in most European seas, and in the Mediterranean; it is about three inches long, pale and horn color; the stem is rather angular, with arching protuberances opposite the branches; the denticles are arranged in a sloop furnished with a short spine on the lower part.

HYPOSIDAE. Denticles pointing one way, campanulate, toothed, and beaked; vehicles with pinnate branches, and very crowded subdivisions. It inhabits the Indian ocean, is fixed inches high; in color it is brown, with yellowish imbricate radicles.

*Spectabilis. Denticles campanulate, effuse, toothed, and fleshy; the stem is pinnate, rigid, with incurved branches, mostly pointing one way. It is found in the Indian ocean, adhering to the tubular radicles of gorgonize; it is brown, horn color, and from three to four inches long.

* Falcata. The denticles of this species point all one way; they are imbricate and truncate; the vehicles are ovate; the branches are pinnate and alternate. There is a variety of this species described by Ellis, in his work on Corallines. It inhabits the European and Indian seas, and is from three to six inches long; the stem is a little flexuous; the denticles in a single row.

* Plumula. In this the denticles point one way, they are imbricate and campanulate; the vehicles are gibbous and crested; the branches are pinnate, alternate, and lanceolate. It is found on most European coasts, climbing up face; the branches are jointed; the denticles are ferrate at the margin, and supported in front by a small hollow spine; the vehicles have a denticulate margin, and generally live oblique crested ribs.

ECHINATA. Denticles opposite, pointing one way, campanulate; the vehicles are crested; the branches pinnate, alternate, and lanceolate. It inhabits chiefly the shores of Sweden, on fuel.

* Antennina. The denticles are verticillate, in fours, falcate; vehicles obliquely truncate, verticillate; the stems are generally simple. There is a variety which is branched. They are both found on the British coasts, often nearly a foot high; it is yellow, with very fine capillary yellowish radicles; the stem is surrounded with small incurved falcate branches, on the upper sides of which are rows of small cup-shaped denticles; the vehicles are placed on pedicles obliquely open towards the stem, and placed round it at the insertion of the branches.

* Verticillata. The denticles in this are obsolete; the vehicles campanulate, toothed round the rim, on long, twisted pedicles, and placed in rows near the stem; the branches are alternate. It is found on the British rocks; stem ribbed, very lofty branched; the denticles are not visible; the vehicles are nearly erect, and glabrous; the ovaries are oval, ending as a tubular mouth.

GELATINOSA. Vehicles campanulate; stem with numerous decotomous spreading branches. It is found on the coasts of the Netherlands; is half a foot long, and of a grey-brown color.

* Volubilis. The denticles in this are obsolete; the vehicles are alternate, campanulate, toothed round the rim, on long, twisted pedicles; the branches are alternate. It inhabits European seas, climbing up of a verticillata; it is whitish and minute; the stem is broadly branched; the ovaries are egg-shaped and smooth, or transversely wrinkled.

* Synhia. Denticles obsolete; vehicles cylindrical, mostly alternate, and placed on short twisted pedicles.

* Cuscata. Denticles obsolete; vehicles ovate, axillary; branches opposite and simple. It is found in the European seas, adhering to fuel.

* Pustulosa. Stem with alternate dichotomous branches, obliquely denticulate on the upper part. It inhabits the shores of the Isle of Wight, and is four inches long. The stem is long arising into alternate dichotomous joints, with small denticles, having a circular rim, with a point in the middle of each towards the upper part of each joint.

* Frutescens. Denticles cylindrical, campanulate, placed in a single row on the side of the branches; the branches are alternate, and pinnate. This is chiefly found on the British shores; rather hard, blackish with brown branches; the stem is composed of small united tubes.

PINASTER. In this species the denticles are opposite, effuse, with an incurved tubular tip; the vehicles are large, ovate, quadrangular; the angles terminating in a spine, and furnished with a tubular mouth in the centre, placed in a row along the branches; the branches are alternate.

* Pennatula. The denticles in this are in a single row, crenate on the rim, and supported by a slender, truncate, incurved horn; the branches are opposite. It is found in the Indian ocean; is five or six inches long; yellowish-brown; the denticles have two opposite spines on the rim.

* Filicula. Denticles opposite, ovate, with a single crest on the summit of the branches; vehicles obovate, with a tubular mouth in the centre; the stem is zizag-zizag, with alternate branches. It inhabits the British shores, is very tender, and the stem is much branched.

QUADRIDENTATA. Denticles in fours, opposite, at the joints of the stem; the stem is simple, with the joints tapering and twisted towards the base. It inhabits the African shores on the Fucus lenticigerus.

* Spicata. Denticles in three, cylindrical, terminal, and nearly closed at the mouth; vehicles ovate, axillary; stem tubular, pinnate, annulate, with trachydonous branches dished in whorls round the rings.

* Evansii. The denticles are short and opposite; the vehicles are lobed, arising from the branches which are opposite. It inhabits the British coasts, and is found on fuel; it is two inches high, very slender, and yellow, with fulvous vehicles.

* Muricata. The denticles of this species are pedicled, proceeding alternately from the joints of the branches; vehicles ovate, spiny; the stem is jointed. It is found on the shores of Scotland; the vehicles are nearly globular, S placed...
placed on pedicles, and full of pointed spines from crinkled ribs.

Secundaria. Denticles in a single row, campanulate; the vessels are axillary; the stem is minute, white, and incurved. This species is found in the Mediterranean; it is scarcely three lines high, and not thicker than a fine bristle.

Misenensis. The denticles are alternate, very thin, spreading; the vessels are oval, peduncles axillary; item much branched, dichotomous. It inhabits the Mediterranean, is very fleshy, pollicul towards the tip, and sometimes covered with the Cancer linearis.

Racemosa. Denticles scattered, pollicul; vessels clustered; item flat, round, opaque, horny, with slightly curved branches. It inhabits the Mediterranean.

Uva. Denticles obsolete; vessels ovate, clustered; item flat, branched, with alternate subdivisions. It inhabits the shores of this country and Holland, adhering to other zoophytes; vessels transparent, with a white nucleus.

* Lendigera. Denticles obsolete; vessels cylindrical, arranged in a single row along the branches, and growing gradually less towards the top; the item and branches are jointed. This is found on the European coasts, on other zoophytes. The branches are subdivided and irregularly interwoven; the vessels are placed in parallel ranks along the infide of the branches, and growing gradually shorter towards the top of the joints.

* Geniculata. Denticles alternate, twisted; vessels obovate, with a tubular mouth in the centre; the item is branched, jointed, flexuous. It inhabits the European coasts, adhering to felci.

* Dichotoma. Denticles obsolete; vessels obovate and axillary, on twisted pedicles; the item is dichotomous, with twisted joints. It inhabits the British and Dutch coasts, and is nearly a foot long; it is white, but becomes tawny with age.

* Spinosa. Denticles obsolete; vessels ovate, fusiform; the branches are dichotomous and spinous. It is found on most European coasts, as well as on those of this country, and is about eight inches long. The item is composed of interwoven tubular fibres; the branches are flexuous, loofe, forked, with pointed tips.

* Pinax. The denticles of this species are obsolete; the vessels are oblong, and surrounded with a corona of tubercles at the rim; item simple, pinnate, and lanceolate. It is found in Europe and in India, and is about three inches high. The item is simple, with alternate subdivisions; the vessels are placed in clusters round the item.

* Setacea. Denticles obsolete, remote, placed in a row on the upper side of the branches; vessels oblong, axillary; the item is simple, with alternate bent divisions. It inhabits the European coasts, and is about an inch and half high.

* Polyzona. Denticles alternate, slightly toothed; vessels obovate, transversely wrinkled; the item is loose, branched. It inhabits moist seas, adhering to marine substances.

* Pennaria. The denticles are placed in a row on one side the branches; the vessels are oval; the item is twisted, and doubly pinnate. It inhabits the Mediterranean sea, growing in tufts on rocks; the item is straight, ascending, flexible, horny, brown, with whitish branches.

* Lichenastrum. Denticles alternate, obtuse, in two imbricate rows along the item; the vessels are oval, in two parallel rows along the branches; the item is simple, alternately pinnate. It is found in the Irrib, Indian, Asiatic, and Armenian seas. The item is erect, jointed, compressed, and denticulate; the branches are alternate, denticulate, and straight.

Cedrina. Denticles subcylindrical, tubular, in four imbricate rows; the branches are irregular, quadrangular, and thicker upwards. Inhabits the seas of Kamchatka; the branches are dichotomous, obtuse, with four rows of vessels.

* Simbricata. The vessels of this species are subcylindrical, irregularly imbricate upwards; the item is slightly branched. This species is described and figured in the 5th vol. of the Linnaean Transactions. It inhabits the western coast of Britain, on the Fucus nodulosus; it very much resembles the last, but the vessels are not placed in any regular series; it is about three inches high; the smaller branches have the vessels placed bifurcately, but towards the tip they become imbricate.

Purneae. Denticles subovate, tubular, in four imbricate rows; the vessels are erect and campanulate; the branches are dichotomous and square. It inhabits the sea round Kamchatka, and is of a blackish-purple.

Articulata. Denticles pressed together; the vessels are ovate, rather large, covered with a bud, and placed in a single row; the item is jointed and pinnate. It is found in the Atlantic ocean, creeping on shells, and is about two inches long; pale yellow.

Ficilina. Denticles imbricate, placed on one side only; vessels jointed, item granulate, branched and pinnate; the subdivisions alternate. It inhabits the Indian ocean, is pale, and about three inches long.

Fruticans. The denticles of this species are in a single row on one side; semi-campanulate; the item is granulate, woody, with alternate tetradont subdivisions. It inhabits the American seas in tufts, on shells; it is fix inches long, and of a yellowish-grey.

B. The species of this division have a crustaceous item, inclining to flims, and composed of rows of cells; they have no vessels, but in the place of these there are small globules.

* Bursaria. Denticles opposite, compressed and truncate; the item is branched, and dichotomous. It is found on the British coasts, adhering to felci; it is minute, flexile, lyaline; the denticles are carinate, with a small clavate tube at the top.

* Lorictmata. Denticles opposite, obliquely truncate, and nearly obsolete; the branches are erect and dichotomous. It inhabits the British coasts, on old felteraria.

* Fastigiata. Denticles alternate, pointed; branches dichotomous, erect. This is found in the British seas; the denticles are marked with a black spot in the middle.

* Arctiliana. The denticles all point one way, nearly opposite, and furnished with two mucronate appendages; the globules appendaged; the item is branched and dichotomous. It is found in the European seas; is from one to two inches long; in colour it is of a dirty grey. It is very brittle.

* Neritina. The denticles are alternate, acute, and pointing one way; the branches are dichotomous, unequal, and straight. It is found in the European and American seas. It is soft; the globules have an opening surrounded by a dark-coloured margin.

* Scruposa. Denticles alternate, angular, spinous; the branches are dichotomous and creeping. It inhabits moist flats; is very brittle, linear, and pale, with a double row of cells.

Pilosia. The denticles are alternate, oblique, with a long mouth; the branches are dichotomous, fastigate, and strong.
Denticles.

E. The species is very much branched, dichotomous, erect, and with deformed ovate joints, armed with cells on one side. It inhabits the Rill, is large, flexible, and of a pale-grey colour.

FUCOSA. This is very much branched, dichotomous, erect, with wedge-shaped joints, having cells on one side. This is found only in the Indian ocean; is large, whith, and with greyish flexile joints.

* REPTANS. Denticles alternate, two-toothed; the branches are dichotomous and creeping. This found in the European seas, adhering to the Limita fusacea; it is not an inch long; white or pale-grey.

PARASITICA. The denticles of this species are verticillate, turbinate, elliptate, and parasitical. It is found in the Mediterranean and North seas, adhering to other fucitarias and corallines; in colour it is dull red, with terminal denticles.

* CILIATA. Denticles alternate, ciliate, funnel-form; branches dichotomous and erect. It inhabits the European seas, on marine tubulifera; not half an inch high; it is whitish; the cells have wide mouths.

* ERUSA. The denticles are alternate, truncate, a little prominent; the cells are gibbous, with a tubular beak on one side; the branches spreading. This inhabits the European and Mediterranean seas, and is found growing upon other fucitarias and fucus; is about an inch high, and white.

* CONSULTA. The denticles are alternate and truncate, with a single hair on the top of each; the cells are gibbous, with a tubular beak; the branches are alternate. This inhabits, like the last and following, the European and Mediterranean seas, on rock; it is fuscous, clear white, and not half an inch long. The denticles are curved, tapering towards the base, and placed on each other.

LORICATA. Denticles in a concatenate row, pointing one way, with a margined mouth, horned beneath; the branches are alternate. It is found on fucus. The denticles are like inverted horns placed on each other, with a short hair on the top.

* ANGENS. The item is very simple, without denticles, but bevel with very simple, obtuse, clavate arms, each with a lateral opening. This is found climbing on marine frustules; it is white, soft, flexible, varying in form, and appears to connect the fucitaria and hydras; the arms are tellacous.

CEREBORIDES. Denticles imbricate, with somewhat prominent mouths; the item is branched, jointed, and cylindrical. It inhabits the coast of Africa; is three inches high; whitish, fuscous, aggregated, with short joints.

TULIPHEM. Cells in threes on the upper part of the joints, and united together; item branched, with clavate joints. It inhabits the Well Indies, adhering to rock, about half an inch high, and clear white; the item is thin and subfuscous; the cells are terminal.

FELLELUM. This species is fuscous, branched, jointed, dichotomous; the joints are somewhat wedge-shaped, and have cells on one side. It inhabits the Bahama islands; is about two inches high, white, growing in tufts; the joints are convex and fuscous on one side; the others are flat, with a triple row of cells.

TENNATA. Branched, dichotomous, jointed, creeping; the joints are angular at their sides, with three cells in the front of each. It inhabits the thores of Scotland; it is fuscous, semitransparent.

CIRCADIA. Stony, jointed, flat, dichotomous, incurved, the joints are subfuscous, ovate, truncate, flat, and bearing cells on one side. It inhabits the lady, is about 1.2 inches high, and white, the thores are angular, and fructivate on one surface; the other is flattened, with a row of cells.

ORIENTALIS. Branches in threes, with sigmoid joints, covered with oblong prismatic cells. It inhabits the Euthen sea; is about half an inch high, erect, very much branched, white, fuscous, with the spores driped in a quincunx form.

SERVA, in Geography, a town of Perhia, in Sicyonia, 182 miles S.S.W. of Corinth.

SEVAGE. See Service.

SERVAIN, in Geography, a town of France, in the department of the L'Isle d'Avel, and chief place of a canton, in the district of St. Mabo. The place consists of 436, and the canton 10,617 inhabitants, in 4 communes.

SERVANDONI, John, in History, an eminent architect, was born at Brescia in 1607. He was employed by several of the sovereigns in Europe on occasions of magnificent public spectacles, in which he displayed a very fertile invention, with noble ideas, and a correct taste. At Paris he had the direction of the theatre during 18 years, and was architect, painter, and decorator to the king; and was admitted member of the several academies of arts. He gave a number of designs for the theatres of Dresden and London, and was sent by the latter capital on the rejoïgns for peace in 1749. He preceeded at the grand festivals exhibited at the court of Vienna, on the marriage of the archduke Joseph and the princes of Parma. The king of Portugal frequently employed him, and honoured him with the order of Car. He died at Paris in 1766, having acquired the reputation of being the first artist of the period in which he flourished. As an architect he has left a fine specimen of his taste in the portico and front of the church of St. Sulpius.

SERVANT, servus, a term of relation, signifying a person who owes and pays a limited obedience for a certain term to another, in quality of master; in contradistinction to one, over whose whole life and fortune the master claims an absolute and unlimited power. See Slave.

The first sort of servants, acknowledged by the laws of England, comprehends "menial servants; so called from being inters menos, or domestics. The contract between them and their masters arises upon the hiring: if the hiring be general, without any particular time limited, the law construes it to be hiring for a year (Co. Litt. 42. F. N. B. 168.); but the contract may be made for any larger or smaller term. All single men between twelve years of age and sixty, and married ones under thirty years of age, and all single women between twelve and forty, not having any visible livelihood, are compellable by two justices to go out to service in husbandry, or certain specific trades, for the promotion of honest industry; and no master can put away his servant, or servant leave his master after being so retained, either before or at the end of his term, without a quarter's warning, unless upon reasonable cause, to be allowed by a justice of the peace (ibid. 5 Eliz. c. 41.); but they may part by consent, or make a special bargain.

Another species of servants includes those called appren- tices (which see): a third sort belongs to that class denominated labourers. See Labour and Labouers.

And there is a fourth species, if they may be called servants, being rather in a superior capacity of service, such as factoris, factors, and bailiffs, whom, however, the law considers
A servant may maintain, i.e. abet or assist his servant in any action at law against a stranger; he may also bring an action against any man for beating or maiming his servant, assigning his damages by the loss of his services, and proving the loss upon the trial; he may likewise justify an assault in defence of his servant, and a servant in defence of his master (2 Roll. Abr. 546); and if any person hire or retain my servant, being in my service, I may have an action for damages against both the new master and the servant, or either of them; but if the master did not know that he is my servant, no action lies, unless he afterwards refuse to restore him upon information and demand. F. N. B. 167, 168.

As for those things which a servant may do in behalf of his master, they seem to be grounded on this principle, that the master is answerable for the act of his servant, if done by his command, either expressly given or implied; therefore, if the servant commit a trespass by the command or encouragement of his master, the master shall be guilty of it: if any inn-keeper’s servants rob his guests, the master is bound to restitution (Noy’s Max. c. 43); and if the drawer at a tavern sells a man bad wine, by which his health is injured, he may bring an action against the master. (1 Roll. Abr. 95.) In the same manner, whatever a servant is permitted to do in the usual course of his business, is equivalent to a general command; if I pay money to a banker’s servant, the banker is answerable for it; if a steward lets leaf of a farm without the owner’s knowledge, the owner must stand to the bargain: a wife, friend, or relation, that used to transport buffer for a man, are bound for his servants, and the principal must answer for their conduct.

Further, if a servant, by his negligence, does any damage to a stranger, the matter shall answer for his neglect: if a smith’s servant lames a horse while he is shoewing him, an action lies against the master and not against the servant. A master is chargeable if any of his family layeth or carrieth any thing out of his house into the street, or commonly

high way, to the damage of an individual, or the common nuisance of his majesty’s liege people. In case of fire the servant is accountable. Blackit. Comm. book i. See LARCENY.

Much depends upon the sobriety, integrity, and diligence of servants; and the case with which they obtain characters, or procure employment with such characters, real or fictitious, as they gain, is very injurious both to their employers and to themselves. Characters are given with so little reserve and veracity, “that I should as soon depend,” says the author of the Rambler, “upon an acquittal at the Old Bailey, by way of recommendation of a servant’s honesty, as upon one of these characters.” At the same time another extreme should be avoided, which is that of obstructing the advancement of a faithful and serving servant, either from remittance, caprice, or self-interest. In order to form good servants, attention should be paid to their domestic conduct, and that kind of discipline should be exercised at home which may contribute to prevent their corruption and misery.

What the Christian seriptures have delivered concerning the relation and reciprocal duties of masters and servants, breathes a spirit of liberalty, very little known in ages when servitude was slavery; and which flowed from a habit of contemplating mankind under the common relation in which they stand to their Creator, and with respect to their interest in another existence. (Ephef. vi. 5—9.) “Servants be obedient to them that are your masters, according to the flesh, with fear and trembling; in singlenefs of your heart, as unto Chrift; not with eye-service, as men-pleasers, but as the servants of Chrift, doing the will of God from the heart; with good will, doing service as to the Lord, and not to men: knowing that whatsoever good thing any man doth, the same shall he receive of the Lord, whether he be bond or free. And ye masters do the same thing unto them, bearing threatening; knowing that your master also is in heaven; neither is there respect of persons with him.” The idea of referring their service to God, of considering him as having appointed them their task, that they were doing his will, and were to look to him for their reward, was new; and affords a greater security to the master than any inferior principle, because it tends to produce a steady and cordial obedience in the place of that constrained service, which can never be trusted out of sight, and which is justly enough called eye-service. The exhortation to masters, to keep in view their own subjection and accountablenes, was no less reasonable.

The Romans, besides their slaves, whom they also called servii, had another kind of servants, whom they called nevi and addici, who were such as being in debt, were delivered up to their creditors by the praetor, to work out the debt, after which they were again at liberty.

The pope, out of his wonderful humility, calls himself in his bulls, the servant of the servants of God, servorum Dom. The first who used the appellation, as Dianconius tells, were pope Damasus, and Gregory the Great, which last is said to have used it to check, by his modesty, the arrogance of John, patriarch of Constantinople, who took the title of acumenical. Du-Cange adds, that the title servant has been assumed by some bishops, by some kings, and some monks.

SERVANT, in Agriculture, a person employed in the performing of some part of the busines of a farm, of whatever kind it may be. On this subject, the following judicious hints have been thrown out by the author of the “Landed Property of England,” for the direction of those servants who have the conducting of the management of farming
farming businesses. Nothing, he contends, contributes more to facility and satisfaction in this sort of businesses, than a forecast toward works to be done. A miscarriage is ever to be dreaded as a mischief; and when it is brought on by a want of forethought, it brings with it a degree of discredit, and a train of unpleasant reflections, which hour every enjoyment. This kind of servant should, he thinks, have a forecast towards crops for two or four years; toward team labour for as many months; and should look forward with a view to hard labour for some weeks, according to the season of the year. And bringing it to a deeper of certainty, it is necessary to produce a bill of the fields, or parcels of land, of which the farm consists; with the crops which each has horse for some years back; together with the manurings which they have severally received, in order that the future treatment of each may be decided upon with sufficient accuracy. And to prepare every autumn, by the assistance of such little, an arrangement of the crops that are intended for the ensuing year; classing the fields, or pieces, according to the purpses for which they shall be intended: thus ascertaining the quantity of each crop, whether arable or grass, as well as the quantity of ground intended for pasture; in order that the quantity of team-labour may be distinctly foreseen,—the required strength be estimated from time to time,—and the several crops be in due season; and in order that the flock of the ensuing summer may, in due time, be properly apportioned to the intended quantity of pasture ground; as well as that the works of summer and harvest may be constantly before the eye; and proper hand be engaged, in time, to perform them in season, and with the necessary dispatch and certainty. And he further advises a sort of memorandum list to be kept of businesses to be done,—immediately,—or in immediate succession; whether it relate to crops or to any other concerns of the farm; that nothing may escape the memory; and that the mode requisite may be brought forward hour; or another which is more suitable to the state of the weather, or other circumstances. In this, as well as other businesses, the great object to be aimed at is that of ensuring successes; which is not only profitable to an employer, but satisfactory to the person employed. Whereas a miscarriage injures at once the property of the one, and the character, as well as peace of mind, of the other. Hence a farm manager ought to engage in a work, whether of improvement or ordinary practice, with caution; and to proceed in it with attention and firmness. A standing rule, respecting this main object of management, is not to attempt too much, and never to begin a work without a moral certainty of being able to finish it in due season. Further; but besides the common work of a farm, as the culture and harveiting of crops, the rearing and fattening of live-stock, and the businesse of markets; there are various other objects of attention which ought to be constantly kept in the mind, or in the mind's way, of a manager; as on them the difference between good and bad, between correct and flaviouy management, very much depends; such as keeping the homelake in repair, and free from impediments; attending to private roads and driftways; keeping up fences, every where, in thorough repair; attending particularly to young hedges, and to the rearing of hedge-row timber; the seeding that gates lie clear, and catch with certainty; equally to preserve them from injury, and to prevent the flock from going astray; the attending to drains and water-courses; to see that superfluous waters have free passages to their proper outlets, and be readily discharged. And it is advised, that in summer strict attention be paid to drinking-pools and other watering places of stock, as well as to the state of pasturing, and the shifting of pasturing flock. Likewise to weeds, as well in grass grounds as in arable lands, to see that not a thistle blows, nor any other weed marries its bed, either in the areas, or on the borders of fields; as great injury is done by their shedding their seeds. Also in winter, much care is necessary to the cattle flock, not only to see that they are regularly supplied with proper fodder, but that sufficient shelter and comfortable rooms are assigned them, so that they may be kept in a proper thriving state. At this season also the watering of grass lands should be attended to as much as the nature of the situation will admit. And to the accumulation of manure an unremitting care should be bestowed the year round, as upon it much depends. And on the whole, to perform these and other objects with propriety, repeated examinations of every part and particular under his care; and committing to his memory whatever requires his more immediate attention; so that whether he is on the spot, or arranging his plan of operation, in the hour of leisure, it may be present to his mind, and take its proper course in the routine of work which is to be carried forward.

It may be noticed, that in the time of work the businesses of a managing servant lies in the field, in executing the plans he has formed, in passing from one set of workpeople to another: not more to see that the different operations are rightly executed, with proper dispatch, than to order any required assistance, (to the teams most especially,) in order that every part of the machine may be kept in profitable motion. And that in the ordinary operations of husbandry, and on common occasions, a steady even pace be recommended; equally for the good of working animals, and the work which they are performing. Nevertheless, there are times when quick dispatch is necessary; and then it is his duty to encourage good speed; by his example, and by promises of reward, if the occasion require it. That at all times, and on every occasion, idleness is a crime which ought not to be suffered to pass with impunity. It is a direct fraud; and a manager should guard against its harm the care and affluency as against pilfering. A day labourer who idles away an hour, robs his employer of an hour's wages; and thereby injures him as much as if he were to steal a farthing of equal value. This truth requires to be deeply imprinted on the minds of labourers. He has known the impression to have a good effect. But he properly remarks, that the right ordering of servants and workpeople is a difficult branch of moral duty; and forms an important part of that of the managing servant. They require to be treated according to their respective merits; encouraging bad ones by extra wages, or other rewards. Some men are worth double the wages of others, as day labourers. Yet custom makes no distinction between these in this respect! Hence the propriety of engaging the best workmen the country affords; and retaining them, by civil treatment, and suitable encouragement. The managing servant should keep his workpeople at a proper distance, without destroying that free communication of opinion respecting the work in hand, which, on ordinary occasions, every intelligent workman should be allowed. And a standing rule of conduct, in the ordering of workmen, is never to find fault without chiding with nor to commend, without reproof. Good fellows will not brook the former, nor will bad ones be mended by the latter. But it is right to habituate workmen in general to be told of their faults; first, in the mildest terms the occasion will admit of; referring the warmth of temper for extraordinary occasions.
occasions; and it is prudent to fit them with keen, rather than to load them with heavy, words: to endeavour to fit up their pride, rather than their malice or refinement. And much of the smoothness and uniform success of business depends on the manner of communicating orders to workmen. If orders are inaccurately or loosely given, it is unreasonable to expect that the execution of them should be faultless. It is difficult to explain business in words with sufficient accuracy to rustic workmen; and if a third person is suffered to intervene, errors are inevitable. The servant who has the management ought therefore to make a point of giving orders, in person, and if possible on the spot, to the men whom he means shall execute them. There he can explain himself to them intelligibly and fully; or affix them in marking out their work. There is always danger in merely verbal orders; and, in a message, certain mischief. It should be an invariable rule for him to let his men to a fresh work, in person; and if it is out of the common way of husbandry, to stay by them, or direct them with his own hands; and return to them, again and again, until he finds them completely in their work. In this view, this sort of servant, as well as for various other reasons, ought to be master of every implement, tool, and operation belonging to his profession; and if he find himself deficient in any particular, he should practice it day by day, until he make it familiar to him; or how is he to correct a bad workman; or to know when to be satisfied with a good one; who, knowing when he is right, will not bear the reproaches of ignorance? He has no other way of securing the clemency and attachment of good workmen, and of winning in a workman-like manner every thing he undertakes, than by making himself master of his business; without which little satisfaction will arise from it to himself, or profit to his employer. And in the general principles of conduct, in his dealings and intercourse with other men, punctuality is one of the most essential. Method is the best affluence of punctuality; and clear accounts are one of the best results of method. These should always be kept with exactness, and be sent, when required, to the proprietor, in weekly, monthly, and annual periods, so as to shew the daily rate of the work; the monthly rate of receipts and payments; and, lastly, the whole rate of accounts and balances.

Besides, it is extremely necessary for the farmer to be careful in providing his servants, not only to see that they are proper for the work, but that there be not more than are necessary for executing it, as the expense of them is now become extremely great. It has long since been recorded by the above writer, in his “Minutes of Agriculture,” that on the matured calculation he found the yearly expense of a man servant in the house to be 37l., and that of a boy 23l., supposing the man’s yearly wages to be 12l. and the boy’s 7l. Now the expense of a day-labouring man for a whole year (if he works every day) is but 27l. 10s., which is 7l. 10s. difference against keeping a man in the house by the year, and hiring one by the day. But that of a boy is still more in proportion, viz. the expense of a day-labouring boy for a whole year, if he works every day, is but 13l., which makes a difference of 12l., or more than three-fourths of a boy’s day-wages. In the above account, no deduction in the daily pay is made for rainy days. The impropriety, therefore, of keeping plough-boys in the house is very visible: and though it may be convenient to have the carters about the house, the convenience is not worth 7l. 10s. a-year. He therefore recommends putting a woman into a cottage, within about two hundred acres of the farm-yard, to take in lodgers; and to keep in the house no more farming servants than a butcher and a yardman. Indeed he says it is absolutely necessary to have somebody about a farm-yard in cases of emergency; but the above two are sufficient, as the carters in the adjoining cottage will be nearly as handy as if they were in the house. This measure, it is observed, like many others, is merely local, but the hint is universal.

But perhaps the farmer, who keeps no accounts, imagines he saves money by boarding his servants in the house; however, if he keeps them in the luxurious manner which farming-servants in general expect to be kept, he will be mistaken. A farmer, indeed, who sits at the head of his kitchen-table, may no doubt feed his men considerably cheaper, than a person who eats in a separate apartment. It is a jufit observation, that one fed by his master costs the community as much as two who provide for themselves; for discharge a grumbler, one who pretends to be dissatisfied, though in fact only satiated, and he will return to his bread and cheese with perhaps equal health and equal happiness. He sits down to his master’s table with a resolution to eat voraciously of the beef, to do himself justice; but at his own table eats sparingly of the meanest, to save his money. His motive in both cafes is the same; self-interest. The plan here inculcated is at this time still more necessary than it was at a former period.

And it is added, that in some counties, particularly in Surrey, it is an established custom for every man, in harvest, to work by the acre, or by the month, not by the day. If a labourer be constantly employed through the year, he expects during harvest to be constantly employed in mowing, reaping, &c. by the acre, or to have his harvest-month; that is, to have an advance of wages certain, wet or dry, during one month; which month commences when it belt suits his employer. This is very convenient; they are always at command in cases of emergency; and nothing but a continuance of rains while the barns are empty can make them burdensome. He strenuously recommends the employing of active young men; for one invalid or sluggish fellow will spoil the whole set; and this holds generally. Mix two or three old women, or two or three boys, with a company of men, and the effect will be very soon visible; for the men will soon conform to the ways of either the old women, or the playfellows of the boys. It is not prudent to employ many women with the men; and nothing but necessity can excuse it. Two women after the first or second day, will do as much work as half a dozen, alone. If it be necessary or convenient to employ a number of both men and women, it is but common good management to keep them separate; with this exception, which may be laid down as a maxim, viz. one man among women, and one woman among men. A cleanly conceited old fellow will check the goffipping of the women, and it has been remarked that raking after a young wench has animated more than a gallon of ale. Two are dangerous; they breed contention, and rather retard than accelerate. The most valuable servant in harvest is a good carter. It is necessary to common management that he should be able, willing, and careful. Every pitch of hay and corn, generally speaking, palates twice through his hands; he loads and unloads, which are the two most laborious tasks of harvest; he drives the team backwards and forwards; if he loiters by the way, the field-men or slack-men must stand idle; if he spill or overturn his load, or if he break his waggon, or set his horses, the arrangement of the day is broken; and, perhaps, the damage done by the loss of time rendered irreparable by the next day’s rain. A good carter will not suffer
fuffer his waggons to be overloaded. The field-men, too, that is, the pitchter and all-hands leader, should be young and active, and well matched with the carters.

But since the above was written, the prices of servants have considerably increased in every district of the kingdom, and the expenses of keeping them have been greatly augmented. This has led to fewer being kept, and especially in the house. It is said, that in Hertfordshire the annual wages of a carter or ploughman was formerly from six to nine guineas; boys from two to four guineas; and maidservants about five guineas; but they have since risen to nearly double these sums. And formerly in Norfolk farm-work was particularly distinguished by the cheapness as well as expedition with which it was performed; which, it is said, arose not merely from the cheapness of labour, but the greater exertions of servants and labourers than in most other districts; but this is considerably diminished at present. In some parts of that district the custom of allowing board-wage to farm-servants, instead of the old plan of feeding them in the house, is coming into use; and 8s. a-week are given. This is a bad, immoral regulation, which should be discontinued. In Yorkshire the wages of servants have also been greatly increased. In the West Riding the wages of a house servant (of which kind most of the ploughmen are) may be estimated from 25s. to 30s. yearly, including maintenance. There is a practice which prevails over a considerable part of this district, of giving them drink both forenoon and afternoon, to be the work it will; which is a ridiculous custom, and ought to be abolished without loss of time. What can be more absurd than to see a ploughman floating his horses half an hour, in a cold winter day, to drink ale? But the practice is so deep rooted, that it will not be easily removed without a compensation. It is suggested that the proper remedy is to let the value of the ale be paid to the servant in money, which probably would be as much for his interest, and certainly more advantageous to the farmer. In those places where long yokes are taken, say seven or eight hours, it may be necessary to feed both men and horses on the ground; but this practice cannot be recommended unless in urgent cases, it being very injurious to their health. In the belt regulated agricultural counties, five hours labour in the morning and four hours in the afternoon, when the feallon allows, and five hours, or four hours and a half, in short days, is considered to be as much as horses are capable of sustaining, and yokes of this duration require to refreshment on the ground. And it is added, that the hours of labour for men are generally in summer from six to fix, with the usual time for rest and refreshment, which gives between nine and ten hours labour each day, and in winter from light to dark. Much of the farm-labour, such as ditching, hedging, threshing, &c. is done by the piece, but the prices vary greatly in different places. And it may be added that when the farmer is a proper judge of his men's abilities, piece-work is not only most to his advantage, but the only way by which an active diligent servant can be properly rewarded for his labour.

In Berkshire, and many other counties, great care is taken to keep no more servants in the house, by the farmers, than are just sufficient for performing the ordinary business to be done. The pay of a carter is there from nine to twelve guineas the year; an under carter from four to seven guineas for the same length of time; a shepherd from eight to ten guineas, and the run of a few sheep; a boy from two to three guineas; and a dairy-maid from five to ten guineas, in proportion as she may be qualified.

In the manufacturing districts of Cheshire and Lancashire, the wages of house-farming servants run in this way.

<table>
<thead>
<tr>
<th>Description</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men servants</td>
<td>from 10 to 25</td>
</tr>
<tr>
<td>Women servants</td>
<td>6 to 10</td>
</tr>
<tr>
<td>Girls</td>
<td>5</td>
</tr>
</tbody>
</table>

They have lately been considerably on the increase in both of these districts.

In the county of Essex, and many other districts which are principally agricultural, the work of the farms is in great measure executed by hired daily or weekly labourers, very few yearly servants being kept by the farmers. This is supposed, in many instances, to be not only the cheapest, but the most convenient method of having such sorts of work performed; and the farmers are, at the same time, the most free from trouble in their houses and families. In the very southern agricultural districts of Devonshire and Cornwall, the wages of the farm servants, kept in the house, with washing and lodging, are, in the former, for a carter or head man, ten pounds a year; in the latter, and other parts of its extent, from eight to twelve guineas, with their board, for men, and from three to four pounds, with the same for maid servants during the year. These rates, however, vary a little, according to the qualifications of the servants, and the nature of the situations and farms.

In the county of Herefordshire, where the hours of labour are from light to dark in the winter, and from six in the morning to the same hour in the afternoon, in summer, the following are the average prices of wages now given to servants kept in the house by the farmers:

<table>
<thead>
<tr>
<th>Description</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waggoner,</td>
<td>10 to 12 guineas per annum.</td>
</tr>
<tr>
<td>Bsliff or cattleman,</td>
<td>8 to 10 ditto.</td>
</tr>
<tr>
<td>Dairy-maid,</td>
<td>6 to 7 ditto.</td>
</tr>
<tr>
<td>Under-maid,</td>
<td>2 to 3 ditto.</td>
</tr>
</tbody>
</table>

Likewise in East Lothian, in Scotland, the wages are mostly from ten to fourteen pounds per annum; but instances of servants is but small. The female servants have from four pounds to four pounds ten shillings, or five pounds. And in Clydesdale, the greater part of the agricultural labour is performed by servants hired by the half year, and living in the farm-houses. In many parts of the county the women servants work along with the men, at almost all kinds of out-work. But as more hands than ordinary are needed for cutting down the corn in harvest, and many haddowmen, to secure a fixed number for that purpose, when they can be got, contract with villagers to allow them during the time of reaping. All these labourers have no fixed hours, but continue their labour while light and weather admit, and circumstances require. The poor girls, when light is gone and the men fit down by the fire, refuse their household labours.
The labourers, both men and women, are sometimes hired by the day, particularly in the time of planting, sowing, and hoeing turnips and potatoes, hay-making, and harvest, when a fixed time is not provided. These work only ten hours in the day, beginning at five in the morning and stopping at six at night, and taking an hour to rest at breakfast, and another at dinner. Hired labourers, in winter, take breakfast before they go out in the morning, make a short pause to eat a little at mid-day, and quit when light fails in the evening. The following are the prices of wages.

<table>
<thead>
<tr>
<th>Wages of men servants,</th>
<th>Farmer</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>beds, board, and washing, per ann.</td>
<td>from 13l. to 16l. from 20l. to 25l.</td>
<td>5l. to 7l. or 8l. to 9l. 10s.</td>
</tr>
</tbody>
</table>

But in Perthshire, for a man servant, who is master of all the operations in farming, only receives, in the corn country, between eight and twelve pounds, for twelve months. In the grazing districts, more remote from the seat of manufactures, their wages, and the price of all kinds of labour, are about one-fourth lower. But in many cases the servants are maintained in the farmer's family; but the practice of giving them land and a half galley of meal, together with a house, garden, and a cow's grass, free of rent, and some fuel, is daily becoming more general. Theses workers, who keep any married servants, have them all on this establishment of livery meal. The paid servants live all in their master's family, and are engaged for between three and four pounds, and in some cases five pounds of yearly wages, according to their expertness, and the nature of their work. But common labourers earn between one shilling and one shilling and three-pence a day; and if able-bodied and handy, they demand one shilling and sixpence, without viands. The various denominations of artisans charge according to the nicety of their art. The hours of labour from the field to the autumnal equinox, are from six to eight, allowing an hour for breakfast and another for dinner; and during the other half year, from the dawn of day till the light fails at night, with an allowance of one hour for breakfast. House servants are not so exact with respect to hours; in the long days, they continue to work after the time of night; and in short days they get out of bed before day light, where there is much grain to thrash. But in many of the large farms, threshing machines have been erected; and they are such a great saving, by the abridgment of labour, that more of them are let up every year, in different parts of the county.

And in Argyllshire, within these 30 years, the price of a day's work is somewhat more than doubled. It still varies in different parts of the country, but may be estimated in general at the following rates. A man servant's wages, per annum, with viands, from 6l. to 8l. A maid servant's, from 50s. to 4l. And that since 1795 the wages and the price of labour have been advanced more than one fourth, or from 2s. to 3s. per cent, and are still rising.

Further, in regard to the regulating the rate of wages, it has been figgled in the Agricultural Survey of the West Riding of Yorkshire, that the only mode of making them proportional to the rife or fall on the value of money and provisions, is to pay the labourer in kind, that is, with a certain quantity of corn, as parties shall agree, which incurs him, at all hazards, a comfortable subsistence, and prevents him from a daily or weekly visitation of the markets. When the labourer is paid in money, it exposes the thoughtless and inattentive to many temptations; whereas, when paid in kind, he cannot raise money to gratify the whim of the moment. In those counties where this mode of payment has been long established, we believe the ploughmen and labourers are, the whole, better fed, live more comfortably, and rear healthier children than in those parts where, from being paid in money, the deficiency of the article facilitates the expenditure, and prevents him from laying down a flock of provisions for his support, when laid off work by casualties or diftrefs.

In the part of the kingdom where the writer resides, nearly all farm-servants are paid in this manner. They have a certain quantity of grain, maintenance for a cow summer and winter, a piece of ground for planting potatoes and raising flax, and whatever fuel they require, given gratis. These, with the privilege of keeping a hog and a few hens, enables them to live, and bring up their families in a comfortable manner; and, while their income is considerably less than people of their station in other parts, they are, on the whole, better fed, better drest, and enabled to give a better education to their children. Placed under these circumstances, they are a respectable set of men; and, for frugality, faithfulness, and industry, they will bear a comparison with their brethren in any quarter. The introduction of a similar mode of paying farm-servants from the West Riding, is therefore recommended, which, although it might at first be attended with some difficulties, would contribute to the public good, and to the advantage of the farming patriarchy in many respects. And it is remarked in the Herefordshire Agricultural Survey, that if a certain proportion between the price of labour and the average price of wheat could be fixed by law, so as to render the applications for parochial aid necessary only in cases of very large families, of unusual illness, or fever, saisons, or any other emergency; the measure, it is presumed, will stimulate industry and fertility, would check dishonesty, and endeavor to a numerous class their native soil.

The advance in the rate of farm-servants' wages who live in the houes of the farmers, has, within the last twenty-five years, been probably not less than from a third to a fourth of the whole, according to the nature and situation of the diocese, over the whole country; but how far the agricultural and manufacturing state of the nation may thereby be affected, is difficult to determine. It is a matter of very great consequence to farmers, to have good, tractable, intelligent, able, and honest servants, as no fort of good farm-work, or improvements, can be properly carried on without them.

Servants' Rooms, in Rural Economy, the lodging places for farm-servants, which should always, if possible, be distant from the house upon farms of considerable size. And in cases of very extensive farms, and of course where many servants are required, especially if they be unmarried, proper and convenient accommodations for sleeping, and where they find their own provisions, for preparing and dressing them in, are not only requisite, but highly advantageous, both to the farmer and the men, as living much time, which would otherwise be lost in going to their meals, and keeping them togethe sober, steady, and ready for their different employments. And in this way the servants are much more comfortable, and live considerably cheaper than where it is the custom to go to public houses, or other such places for their meals, which is too much the case in many of the more southern districts of the kingdom, by which their manners often become depraved, and their constitutions enfeebled by the use of spirits, and other intoxicating liquors, which they are almost necessitated to take under
under such circumstances. But these inconveniences are perhaps the most effectually guarded against by such servants being provided for, where it can be done, from the tables of the farmers. But where this last method is followed, the eating rooms should be so situated, that they may be overlooked with facility. Their lodgings too, in all cases, are the most proper and the safest, when made in a building quite detached and distinct from the other houses and offices; as persons of this description are often extremely negligent of their fires, candles, &c., as well as irregular in other parts of their conduct. It has been advised, that whatever situation may be fixed upon for these conveniences, the ground floors should always be of stone or brick, and the upper ones made with plaster, as it is done in some of the midland counties, or brick, which is more easily laid. See Plaster Floors.

Most kinds of farm labour may, however, probably at present be performed more cheaply by other sorts of workmen, than servants provided for in any of these ways.

SERVE, in the Sea Language. To serve a rope, is to lay tpun-yarn, ropeyarn, lenum, a leather, a piece of canvas, or the like upon it, which is rolled fast round about the rope, to keep it from fretting or galling in any place.

SERVERETTE, in Geography, a town of France, in the department of the Lozere; 12 miles N.N.W. of Mende.

SERVETISTS, in Ecclesiastical History, a sect said to be the disciples or followers of Michael Servetus, the ring-leader of the Anti-Trinitarians of these last ages. See his article.

It is impossible (says the translator of Motheim's Eccl. Hist.) to justify the conduct of Calvin in the case of Servetus, whose death will be an indelible reproach upon the character of that great and eminent reformer. The only thing that can be alleged, not to efface, but to dim his crime is, that it was no easy matter for him to divest himself at once of that perfecting spirit, which had been so long nourished or strengthened by the popish religion in which he was educated.

Servetus, in reality, had not any disciples, as being burnt, together with his books, before his dogmas had time to take root. But the name Servetils has been given to some of the modern Anti-Trinitarians, because they follow the footsteps he had marked out.

However, those who were denounced Servetists, or Servetians, by the theological writers of the sixteenth century, not only differed from Servetus in many points of doctrine, but also varied widely from him in his doctrine of the Trinity, which was the peculiar and distinguishing point of his theological system.

Sixtus Senensis calls the Anabaptists Servetists, and seems to use the two terms indifferently. The truth is, in many things, the ancient Anabaptists of Switzerland, &c. coincide in opinion with Servetus.

As the books that he wrote against the Trinity are very rare, his real sentiments are but little known: M. Simon, who had a copy of the first edition, delivers them at large in his critical history.

Though Servetus uses many of the same arguments against the Trinity as therians, yet he professes himself very far from their sentiments. He also opposes the Socinians in some things; and declares his dissent from the opinions of Paulus Samofatenus; though Sandius hastily charges him with having the same sentiments.

In effect, he does not seem to have had any fixed regular


The year following he published his dialogues on the mystery of the Trinity. In the preface to which he adds himself satisfied with it. It was on this account he undertook another on the same subject, of much greater extent, which did not appear till the year 1554, a little before his death, under the title of "Christi

naus Rerumnotur." Those of Geneva, having seized the copies of this edition, had it burnt; nor were there above two or three that escaped; one of which was kept at Basil, where the book was printed, but is now in the college library at Dublin.

It was put to the press secretly in England, but being discovered, the impression was seized and destroyed.

Servetus, according to Motheim's account, conceived that the genuine doctrine of Christ had been entirely lost, even before the council of Nice; and he was moreover of opinion, that it had never been delivered with a sufficient degree of precision in any period of the church. To these extravagant assertions he added another still more so, even that he himself had received a commission from above to reveal anew this divine doctrine, and to explain it to mankind. His notions with respect to the Supreme Being, and a Trinity of persons in the godhead, were very obscure and chimerical, and amounted in general to the following propositions: that the Deity, before the creation of the world, had produced within himself two personal representations or manners of existence, which were to be the medium of intercourse between him and mortals, and by whom, consequent ly, he was to reveal his will, and to display his mercy and beneficence to the children of men: that these two representations were the Word and the Holy Ghost: that the former was united to the man Christ, who was born of the Virgin Mary, by an omnipotent act of the Divine Will; and that, on this account, Christ might be properly called God: that the Holy Spirit directed the course, and animated the whole system of nature, and more especially produced in the minds of men wise counsels, virtuous propensitys, and divine feelings; and, finally, that these two representations were to cease after the destruction of this terrestrial globe, and to be absorbed into the subsistence of the Deity, from whence they had been formed.

Servetus, however, did not always explain his system in the same manner, nor avoid inconsistencies, contradictions, and ambiguities; so that it is extremely difficult to learn his true sentiments. His system of morality agreed in many circumstances with that of the Anabaptists, whom he also imitated in cenuring with the utmost severity the custom of infant-baptism. Eccl. Hist. vol. iv. 1768.

SERVETUS, Michael, in Biography, was born at Villa-

nueva, in Arragon, in 1509. His father was a notary-

public, and he himself was sent to the academy of Toulouf, where he studied the law during the space of three years. About this period his attention was turned to the study of the sacred scriptures, to which he was probably excited by the reformers of that day. He soon discovered many

errors and abuses in the church of Rome, in the tenets of which he had been brought up, and laid then the foundation of his opinions concerning the doctrine of the Trinity. It is known, that at this period, many learned men in Italy and other parts, among whom were some dignitaries of
of the church, condemned in private the reigning superstitions, to which, however, they readily conformed in public. Whether Servetus was instructed by any of these, or whether his own opinions were the result of independent thought, cannot be ascertained: it is certain, that he did not think it prudent to divulge them in France, and therefore retired to Germany, where a much greater liberty of conscience was allowed and afforded, and where several princes secretly favoured the bold attacks on the popedom. He went through Lyons and Geneva to Switzerland, and fixed his residence at Basel in the year 1530. Here he was on a footing of friendly intimacy with Colompanus, with whom he often conversed about various religious topics, but to whose peculiar opinions he would not yield, in the smallest degree, any notions which he had previously adopted. The unbending disposition with regard to matters of small moment, alienated many persons from Servetus who had formed a high opinion of his talents and integrity. While he was at Basel, he put into the hands of a bookseller a manuscript, "De Trinitatis Erroribus," which was printed in the year 1531. Servetus now went to Strasbourg, in which city he became acquainted with two reformers, viz., Capito and Bucer. Here he searched for opportunities to communicate his religious tenets to his new acquaintances, and here he learned that his work had excited a considerable sensation among people of all classes. He was aware that he had, in many respects, treated the subject too imperfectly; and had made use of expressions that were liable to give offence; he accordingly, in the following year, endeavoured to soften the unfavourable impression, and to avert a form that seemed threatening to fall upon him, by publishing a work entitled "Dialogorum de Trinitate Libri duo," in which he explained and defended his opinions. The consequences of this second piece was, that many were exasperated against the author, while a few adopted his doctrines and spread them abroad. Colompanus requested his friend Bucer to inform Luther, that Servetus's book had been published without their knowledge, in order that it might not be supposed they had given any countenance to the propagation of the offensive tenets. And Melanchthon, in speaking at this time of Servetus, says, "He wants neither acuteness nor cunning in disputing, but I cannot allow him energy. He has, moreover, as it appears to me, confused imaginations, neither is he able sufficiently to explain his thoughts with precision. He unquestionably speaks like a madman about justification; about the Trinity, you know that I have been always apprehensive that similar things sooner or later would break out. Good God! what tragedies will this quixotic enthusiasm among forgeries?"

The circumstances of Servetus being low, he engaged for some time with the Frellons, eminent booksellers at Lyons, as corrector of the press. From Lyons he went to Paris, where he studied physic under the celebrated Sylvius, Fermerius, and other professors; and, as we shall have occasion to remark hereafter, he carried into that science the same penetrating spirit and love of improvement which distinguished him in theology. He graduated at Paris, and being invested with this honour, he delivered public lectures in geography and some branches of mathematics, while he followed the profession of a physician. At Paris he quarrelled with the faculty, and wrote an "Apology," which was suppressed by the parliament. After quitting that capital he practised physic at Charleville, near Lyons, whence, at the invitation of the archbishop of Vienna, he removed to that city, and had apartments near the palace. He had, previously to this, viz. in 1542, superintended the printing of a Latin Bible at Lyons, to which he added marginal notes, under the name of Villamont.

During this time, Servetus was in constant correspondence with Calvin, with whom he discussed various points of controversy, and to whom he opened himself freely and without reserve concerning his particular notions, and consulted him respecting his writings. Calvin afterwards made a base use of this confidence, by actually producing his letters and manuscripts as matter of accusation against him on his trial. It must not, however, be concealed, that Calvin does not appear to have encouraged Servetus to this exposition of his sentiments, for he frequently sent him in reply angry and severe letters. In 1553, Servetus published his matured theological system under the title of "Christianismi Restitutio." Conscious of the danger to the author of such a work in a Catholic country he concealed his name, but Calvin took care that the magistrates of Geneva should be informed of it. He was in consequence thrown into prison, and his death would have added an example to the numberless cruelties of Roman Catholic persecutions, had he not made his escape. His effigy and his books were condemned to the flames. Servetus, purposing to go to Naples to practice in his profession, imprudently went through Geneva. Calvin, who was acquainted with the plans of the traveller, and who was on the watch to entrap him, gave information to the magistrates the moment he arrived within the gates of the city. He was accordingly seized, thrown into prison, and a charge of blasphemy and heresy was preferred against him by Calvin's own servant. In order to ensure conviction and condemnation, no less than thirty-eight articles of accusation were brought against him, for which not only his last work, but all his other writings were ransacked. As a proof of the malice and unfairness with which he was treated, it is mentioned that one of the charges was extracted from his preface to an edition of Ptolemy's Geography, published twenty years before, in which he had ascertained that Judea had been falsely extolled for its beauty and fertility, since modern travellers had found it to be sterile and unfruitful. That no doubt might be left whence the prosecution came, one of the main articles against the prisoner was, that in the preface of Mr. Calvin, minister of the word of God in the church of Geneva, he had defamed the doctrine preached in it, uttering all imaginable injurious and blasphemous words against it.

Servetus, in the first examination, repelled with firmness every accusation, though he avowed that he published in Germany his book "De Trinitatis Erroribus" in France his "Restitutio Christianismi," together with Ptolemaeus, and the edition of Pagnini's Bible. At the second examination, he acknowledged, when urged to confess the truth, some of the articles brought against him in regard to his publications, denied others, and hesitated to explain himself more plainly upon others. But when he was again questioned, "why he had slandered Calvin, and lacerated the Christian doctrine?" he protested that Calvin had been the aggressor, and that if he had recriminated it was done in self-defence; which plea was deemed by his judges as an aggravation of his offence.

The magistrates of Geneva were, however, sensible that many eyes were upon them in this extraordinary proceeding, with respect to one who was no subject of their, nor a refident in their city, nor could he be accused of having committed any offence in their territory, and within their jurisdiction. He was, in truth, kidnapped in his palage. Moreover,
Moreover, it could not but appear strange, that men should be associates in perdition, with those very people who would infamously burn them as heretics, should they fall into their hands. They therefore thought it advisable to consult the magistrates of the Protestant cantons of Switzerland, to whom they sent Servetus's book, with Calvin's reply. The Helenist divines, to whom the matter was referred, unanimously declared for his punishment; they said that Servetus's errors ought to be detected, and that great care ought to be taken that the infection spread no further, and that the man ought to be restrained; but they, none of them, made a word respecting capital punishment, nor do they alude to the kind of coercion that should be chosen. Their meaning was, however, readily inferred from their own practice: for the capital punishments of heretics had not been abolished in Switzerland; they had been frequently practised at Zurich against the Baptists.

Servetus was for a time kept ignorant of all the proceedings against him; at length he discovered the intentions of his enemies, and drew up, and casued to be presented, two petitions to his judges; in the first he endeavoured to extenuate himself; in the second he complained that a fair trial had not been allowed him. As he refused to retract his opinions, he was, notwithstanding his pleas, condemned to the flames as an obstinate heretic, which cruel sentence was carried into execution on the 27th of October 1553, when he was in the forty-fourth year of his age. His sufferings were particularly severe, and the fire was so managed, that the unfortunate man lingered in excruciating pain more than two hours.

That this bloody persecution was disapproved by many at the time, is rendered very probable by the apology for the Genevan magistrates, published by Calvin, in which he undertook to prove that it was lawful to punish heretics with death. The mild and otherwise moderate and benevolent Melanchthon functioned the deed by a congratulatory letter addressed to the magistrates of Geneva. The conduct of Calvin in this business, as instigated not only by bigotry, but personal hatred, has impressed an indelible stain on his memory; and the only plausible excuse now offered for it arises from the provocation given by Servetus, "whole excessive arrogance," according to Mosheim, "was accompanied with a malignant and contumacious spirit, and an invincible obstinacy of temper."

The theological sylllem of Servetus is described as singular in the highest degree. The greatest part of it was a necessary consequence of his peculiar notions concerning the universe, the nature of God, and the nature of things, which were equally strange and chimerical. See the article Servetists.

Servetus is numbered among those anatomists who made the nearest approach to the doctrine of the circulation of the blood. The passage cited to this effect is contained in his latest and fatal work, "De Reititutione Christianiim."

It clearly states the circulation of the blood through the lungs. He pursued, in his medical studies, anatomical researches with the greatest ardour.

Servetus was a man of great erudition and unfeigned piety; his mind was floured with a variety of knowledge, and he brooded very high, in the elevation of his contemporaries, for his talents and for his discoveries in the profession of medicine. Whatever might have been his errors as a theologian, it is certain he never preached them to the vulgar, but communicated them freely to Calvin, Cæcolampadius, Capito, Bucerius, and other reformers, with an eagerness to discover truth which has never been surpassed.

The atrocious murder committed on him will not ad-
Personal service is a disgraceful sort of tenure, under which lands were formerly held, and in which the tenant did various sorts of work for the lord, and provided with a variety of different articles. It is a custom which has long been abolished in this part of the kingdom, as being highly injudicious and improper: but which, Mr. Donaldson remarks, is not wholly discarded in Scotland. "In the north of Scotland," says he, "the rents are to a certain extent paid in personal services; the tenants being bound to plow and harrow a certain proportion of the proprietor's farm; to reap, carry home, thresh, dress, and mill a certain quantity of his crop at their own charges; and that they are also bound to pay poultry, eggs, cheese, sheep, swine, fish, linen, yarn, &c." It might, continues he, have been unavoidably necessary, from the want of a circulating medium in the early periods of the history of this country, to oblige the tenants to pay their rents in personal services, and in the various articles of produce which their farms afforded; but it must be considered a singular circumstance in the history of Great Britain, that in the end of the eighteenth century, and at a period when the introduction of improvements in agriculture is the chief topic of conversation, there should exist proprietors, who are so loth to every sentiment regarding what is due to the community of which they are members, to the people whom Providence has placed under their protection, and to the improvement of their native country, as to perfilt in demanding from their tenants a species of rent, which no farmer, who is entitled to the name, would submit to pay, nor any proprietor, who regarded the good of his country, or his own interest, think of requiring. These disgraceful services should of course be done away with in every situation, as being incompatible with all sorts of improvements in husbandry, or the introduction of spirited agriculture into any part.

This sort of service is not only hostile to all kinds of farming improvements, but highly distressing and ruinous to tenants at particular seasons, as during the feed-time, the harvest, and the time of getting in the hay, by being often under the necessity of neglecting their own operations and businesses, in order to perform the various works of their lords, or superiors. The sooner these services are wholly abolished in every part of the kingdom, the better it will be for the interests of agriculture.

**SERVICE, Reel,** is either *urbane* or *rustic,* which two kinds differ, not in the place, but the thing. The first is that due from a building or house, in whatever place situate, whether in city or in country, as keeping a drain, a viata, or the like.

**SERVICES, Rustic,** are those due for grounds, where there is no building; such is the right of passage through ways, &c.

**SERVICE, Mixt,** is that due from the person, by reason of the thing, as an ufruit, &c.

Our ancient law-books tell us of lands held of the king, by the tenant's letting a fart before the king on New Year's Day; others, by furnishing the king with horses, whenever be travelled that way; others, by bringing the king a mels of pottage at his coronation-feast, &c.

There are also *natural services.* For instance, if a man cannot gather the produce of his lands, without passing through his neighbour's grounds, the neighbour is obliged to allow a passage, as a natural service.

**SERVICE, Forensic or Extrinsic, Servitium forensicum, &c.** was a service which did not belong to the chief lord, but to the king.

It was called *forensic* and *extrinsic,* because done *foris,* out of doors; and *extra servitium.* We meet with several grants, in the Monasticon, of all liberties, with the appurtenances, *libus forensi servitio.*

**SERVICE, Intrinseque, Servitium intrinsecum,** that due to the chief lord alone, from his vaillals within his manor.

**SERVICE, Frank, Servitium liberum,** a service done by the feudal tenants, who were called *liberi homines,* and distinct from vaillals, &c. It was likewise by the nature of things, not bound to any base services, as to plow the lord's lands, &c. but only to find a man and horse to attend the lord into the army or court.

**SERVICE, Bajx.** See *VILLENAGE.*

**SERVICE, Bord.** See *BORDAGE.*

**SERVICE, Foreign, Honorary, Knights, Rent.** See the adjectives.

**SERVICE, Heris.** See *HERITAGE.*

**SERVICE, Ovoly of.** See *OVETY.*

**SERVICE, Suit of.** See *SUIT.*

**SERVICE, Choral, in Church History,** denotes that part of religious worship which consists in chanting and singing. The advocates for the high antiquity of singing, as a part of church music, urge the authority of St. Paul in its favour: Ephes. chap. v. ver. 9. and Coloss. chap. iii. ver. 16. On the authority of which passages it is asserted, that songs and hymns were, from the establishment of the church, sung in the assemblies of the faithful; and it appears, from undoubted testimony, that singing, which was practised as a sacred rite among the Egyptians and Hebrews, at a very early period, and which likewise constituted a considerable part of the religious ceremonies of the Greeks and Romans, made a part of the religious worship of Christians, not only before churches were built, and their religion established by law, but from the first profession of Christianity. However, it is not from whence others have dated the introduction of music into the service of the church, is that period, during which Leontius governed the church of Antioch, *i.e.* between the year of Christ 347 and 356. See *APOTHEAN.*

From Antioch the practice soon spread through the other churches of the East; and in a few ages after its first introduction into the divine service, it not only received the sanction of public authority, but those were forbid to join in it who were ignorant of music. A canon to this purpose was made by the council of Laodicea, which was held about the year 372; and Zonaras informs us, that thefe canonical fingers were reckoned a part of the clergy. Singing was introduced into the western churches by St. Ambrose, about the year 374, who was the instigator of the Ambrosian chant, established at Milan about the year 386; and Eufebius (ib. ii. cap. 17.) tells us, that a regular choir, and method of singing the service, were first established, and hymns used in the church at Antioch, during the reign of Constance; and that St. Ambrose, who had long reigned there, had his melodies thence. This was, about two hundred and thirty years afterwards, amended by pope Gregory the Great, who established the Gregorian chant; a plain, unisonous kind of melody, which he thought consistent with the gravity and dignity of the service to which it was to be applied. This prevails in the Roman church even at this day: it is known in Italy by the name of canto fermo: in France, by that of plainchant; and in Germany, and most other countries, by that of the canto Gregorianum. Although no satisfactory account has been given of the specific difference between the Ambrosian and Gregorian chants, yet all writers on this subject agree in saying, that St. Ambrose only used the four authentic modes, and that the four plagals were afterwards added.
added by St. Gregory. Each of these had the same final, or keynote, as its relative authentic; from which there is no other difference than that the melodies in the four authentic, or principal modes, are generally confined within the compass of the eight notes above the keynote, and those in the four plagal, or relative modes, within the compass of the eight notes below the fifth of the key.

Each of the four different methods of singing was taken from the reformed modes of Ptolemy; but Dr. Burrow observes, that it is difficult to discover any connection between them, except in their names; for their number, upon examination, is not the same; those of Ptolemy being seven, the ecclesiastical eight; and, indeed, the Greek names given to the ecclesiastical modes do not agree with those of Ptolemy in the single instance of key, but with those of higher antiquity. From the time of Gregory to that of Guido, there was no other distinction of keys than that of authentic and plagal; nor were any semitones used but those from E to F, B to C, and occasionally A to B.

With respect to the music of the primitive church, it may be observed, that though it consisted in the singing of psalms and hymns, yet it was performed in many different ways; sometimes the psalms were sung by one person alone, whilst the rest attended in silence; sometimes they were sung by the whole assembly; sometimes alternately, the congregation being divided into separate choirs; and sometimes by one person, who repeated the first part of the verse, the rest joining in the close of it.

Of the four different methods of singing now recited, the second and third were properly distinguished by the names of *symphonia* and *antiphony*; and the latter was sometimes called *responsaria*, in which women were allowed to join. St. Ignatius, who, according to Socrates ( hb. vi. cap. 8.), convented with the apostles, is generally supposed to have been the first who suggested to the primitive Christians in the East the method of singing hymns and psalms alternately, or in dialogue; and the custom soon prevailed in every place where Christianity was established; though Theodoret, in his History (hb. ii. c. 24.), tells us, that this manner of singing was first practiced at Antioch. It likewise appears, that almost from the time when music was first introduced into the service of the church, it was of two kinds, and confined in a gentle inflection of the voice, which they termed plain long, and a more elaborate and artificial kind of music, adapted to the hymns and psalmody contained in its ritual; and this distinction has been maintained even to the present day.

Although we find a very early distinction made between the manner of singing the hymns and chanting the psalms, it is, however, the opinion of the learned Martini, that the music of the first five or six ages of the church consisted chiefly in a plain and simple chant of unisons and octaves, of which many fragments are still remaining in the canto fermo of the Romish Missals. For with respect to music in parts, as it does not appear in these early ages, that either the Greeks or Romans were in practice of harmony or counterpoint, which has been generally ascribed to Guido, a monk of Arezzo, in Tuscany, about the year 1029; though others have traced the origin of it to the eighth century, it is in vain to seek it in the church. The choral music, which had its rise in the church of Antioch, and from there spread through Greece, Italy, France, Spain, and Germany, was brought into Britain by the singers who accompanied Audian to the monks, when he came over, in the year 596, charged with a commission to convert the inhabitants of this country to Christianity. Bede tells us, that when Audian and the companions of his mission, had their first audience of King Ethelbert, in the isle of Thanet, they approached him in procession, singing hymns; and that afterwards, when they entered the city of Canterbury, they sung a litany, and at the end of it, Allelujah. But although this was the first time the Anglo-Saxons had heard the Gregorian chant, yet Bede likewisel tells us, that our British ancestors had been instructed in the rites and ceremonies of the Gallican church by St. Germanus, and heard him sing Alleluia many years before the arrival of St. Aulian. In 660, John, precentor of St. Peter's in Rome, was sent over by pope Agatho to instruct the monks of Weremouth in the art of singing; and he was prevailed upon to open schools for teaching music in other places of Northumberland. Benedict Biscop, the precentor of Bede, Adrian the monk, and many others, contributed to disseminate the knowledge of the Roman chant. At length the successors of St. Gregory, and of St. Aulian his missionary, having established a school for ecclesiastical music at Canterbury, the rest of the isle was furnished with matters from that seminary. The choral service was first introduced into the cathedral church of Canterbury, and, till the arrival of Theodore, and his settlement in that see, the practice of it seems to have been confined to the churches of Kent; but after that, it spread over the whole kingdom; and we meet with records of very ample endowments for the support of this part of public worship. This mode of religious worship prevailed in all the European churches till the time of the Reformation: the first deviation from it is that which followed the reform of the church by Luther, who being himself a lover of music, formed a liturgy, which was to be chanted in plain service, contained in a work, entitled, "Psalmodia, lib. c. 38," printed at Norimberg in 1531, and at Wittenberg in 1524. But Calvin, in his establishment of a church at Geneva, reduced the whole of divine service to prayer, preaching, and singing; the latter of which he restrained. He excluded the offices of the antiphon, hymn, and motet, of the Romish service, with that artificial and elaborate music to which they were sung; and adopted only that plain melodic psalmody, which is now in general use among the reformed churches, and in the parochial churches of our own country. For this purpose he made use of Marot's version of the Psalms, and employed a musician to set them to easy tunes only of one part. In 1553, he divided the Psalms into partes or small portions, and appointed them to be sung in churches. Soon after they were bound up with the Geneva catechism, from which time the Catholics, who had been accustomed to sing them, were forbid the use of them, under a severe penalty. Soon after the reformation commenced in England, complaints were made by many of the dignified clergy, and others, of the intricacy and difficulty of the church music of those times: in consequence of which it was once proposed, that organs and curious singing should be removed from our churches.
Latimer, in his diocese of Worcester, went still further, and issued injunctions to the prior and convent of St. Mary, forbidding in their service all manner of singing. In the reign of Edward VI. a commission was granted to eight bishops, eight divines, eight civilians, and eight common lawyers, to compile a body of such ecclesiastical laws as should in future be observed throughout the realm. The result of this compilation was a work, first published by Fox the Martyrologist, in 1571, and afterwards in 1640, under the title of "Reformatio Legum Ecclesiasticarum." Thence thirty-two commissioners, instead of reproducing church music, merely condemned figurative and operatic music, or that kind of singing which abounded with fughes, repulsive passages, and a commixture of various and intricate proportions; which, whether extemporary or written, is by musicians termed defective. However, notwithstanding the objections against choral music, and the practice of some of the reformed churches, the compilers of the English liturgy, in 1548, and the king himself, determined to retain musical service. Accordingly the statutes 2 & 3 Edw. VI. cap. i. though it contains no formal obligation on the clergy, or others, to use or join in either vocal or instrumental music in the common prayer, does clearly recognize the practice of singing; and in less than two years after the compiling of king Edward's liturgy, a formula was composed, which continues, with scarcely any variation, to be the rule for choral service even at this day. The author of this work was John Marbecke, or Marbeke; and it was printed by Richard Grafton, in 1550, under the title of the Book of Common Prayer, noted. Queen Mary laboured to re-establish the Romish choral service; but the accession of Elizabeth was followed by the act of uniformity; in consequence of which, and of the queen's injunctions, the Book of Common Prayer, noted by Marbecke, was considered as the general formula of choral service. In 1566, another musical service, with some additions and improvements, was printed by John Day; and in 1565, another collection of Offices, with musical notes. Many objections were urged by Cartwright, and other Puritans, against the form and manner of cathedral service, to which Hooker replied, in his Ecclesiastical Polity. In 1664, the statutes of Edward VI. and Elizabeth, for uniformity in the common prayer, were repealed; and the directory for public worship, which allows only of the singing of psalms, established. But upon the restoration of Charles II. choral service was again revived, and has since uniformly continued. The Quakers objected to singing as a part of public worship, and accordingly it is never practised in their meetings. To this respectable body we here make an apology for a jeu d'esprit of our learned coadjutor, Dr. B., who compiled part of the article Liturgy, which escaped him, notwithstanding his well-known liberality and candour, and which was undoubtedly unfeasibly introduced, in an account of their public worship. Religious scruples, though in some respects unfounded and unwarrantable, when seriously avowed, are not fit subjects of ridicule. See on this subject Hawkins's Hist. of Music, vol. ii. p. 404. vol. iii. p. 254. vol. iv. p. 58—468, &c. vol. iv. p. 44—347. Burney's Hist. Mus. vol. ii. ch. i. passim.

SERVICES of the Church. (See CATHEDRAL SERVICES.) These have been collected, and splendidly and accurately published in score, by doctors Green, Boyce, and Arnold. These valuable publications appeared in the following order, and are reputable monuments of the abilities of our old masters in the ecclesiastical style of composition, equal, at least, to contemporary productions by the greatest contrapuntists on the continent.

CATHEDRAL MUSIC: being a collection in score of the most valuable and useful compositions for the service by the several English masters of the last 200 years, the whole selected and carefully revised by Dr. William Boyce, organist and composer to the royal chapels, and master of his majesty's band of musicians. Vol. i. 1760.

The second volume was published in 1768, and the third in 1773. These were both dedicated to his majesty.

In 1780, Dr. Samuel Arnold, organist and composer to his majesty's royal chapels, published, in the same splendid manner, a fifth volume, in continuation of this collection of services and full and verse anthems of old masters; and in 1790 a second and third volume, all dedicated to the king.

There is likewise, in the British Museum, Bibl. Harl. 7337, Plut. VI. B. a collection of English church music, in five vols. 4to, all transferred for and dedicated to the right hon. Edward lord Harley, by Dr. Thomas Tudway, musician professor of Cambridge. In these volumes, among some compositions of no great merit, there are many valuable productions by Tye, Tallis, Bird, Morley, Gibbons, Child, Blow, Purcell and Crofts, that have never yet been published.

SERVICE, Cathedral. See CATHEDRAL SERVICES.

SERVICE, Trees, in Botany. A corruption of the Latin SORBUS; see that article, as well as PYRIUS and MESPILUS.

SERVICE, Wild. See CRATAEGUS.

SERVIENTES VIRGATORES. See VIRGATORES.

SERVIERE, in Geography, a town of France, in the department of the Lozere; 15 miles N.W. of Mende.

SERVIERES, a town of France, in the department of the Correze, and chief place of a canton, in the district of Tulle; 13 miles S.E. of Tulle. The place contains 1,115, and the canton 8,567 inhabitants, on a territory of 265,000 square miles, in 10 communes.

SERVILLE, in Hebrew Grammar, the denomination of a class of letters used in contradistinction to radical. The latter constitute roots (which see), and the former constitute derivatives, or branches from these roots, and are employed in all the different flexions. Of all the twenty-two letters of the alphabet, any of which may be radicals, there are properly only eleven letters that can claim this title, because they never can be ferviles. The ferviles are the other eleven letters, by means of which the whole bulk of flexions, derivation, numbers, genders, persons, and tenses, is accomplished. But even these letters are somewhat limited in their servile power. For only two of them, ו and י can be inflected or ingrained between radical letters; the others must be either prefixed or suffixed to the root. The eleven fervice letters are the following: ג ד ד ש ד פ ש פ ד פ ש פ ש פ ד פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ ש פ Sh...

SERVIN, Louis, in Biography, a celebrated lawyer in France, who flourished at the sixteenth and beginning of the seventeenth centuries, was descended of a good family in the Vendomois. He cultivated polite literature with success while he was young, and at an early period became the correspondent of several eminent men of letters in different parts of Europe. In 1580 he was appointed advocate-general to the parliament of Paris, being then, according to Vendome, "a young man of great learning, and much attached to the interests of his majesty Henry III." He distinguished himself in that station by his zealous support of the liberties of the Gallican church, and his opposition to the pretensions of the court of Rome. His printed pleadings were honoured with the censure of the Sorbonne, and with a virulent attack by a Jefuit of Provenç. The title of his work was "Actions notables et Plaidoyers." In
1590 he published a work in favour of Henry IV., who had succeeded to the crown, entitled "Vindiciae temporis Libertatem Ecclesiæ Galliarum, et Defensione Regni Status Gallo-Francorum sub Henrici IV. Rege." In 1598, being joined in a commission for the reformation of the universitiy of Paris, he delivered "a remonstrance" on the subject, which was printed. To him also is attributed a work in favour of the republic of Venice in the affairs of the Interdict. In the reign of Lewis XIII., at a bed of justice held in 1620, he made strong and animadversions in favour of the right of parliament to register royal edicts. On another similar occasion, for the purpose of compelling the registry of some financial edicts, as he was firmly but respectfully making fresh remonstrances to his majesty, he suddenly fell and expired at the king's feet, a memorable death, and such, lays his biographer, as may in a measure entitle him to be enrolled among the martyrs to liberty. The private character of this excellent magistrate was worthy his high public reputation, and few men of his time stood in more general reputation.

SERVING, encircling a rope with line or spun-yarn, &c. to preserve it from the wet getting to it; also to preserve it being chafed. Rigg, Plate 1. fig. 48.

Serving the Rigg. See Mallet.

Serving-Maltii, a cylindrical piece of wood with a handle in the middle. It is used for serving rope, and has a groove along the surface, opposite to the handle, which fits the convexity of the rope to be served. Rigg, Plate 1. fig. 40, a short board with scores in it, is used for laying on small service.

SERVISTAN, in Geography, a town of Persia, in the province of Farahian; 25 miles S.E. of Shiraz.

SERVIT, an order of religious, so denominated from their riving a peculiar attachment to the service of the Virgin.

The order was founded by seven Florentine merchants, who, about the year 1233, began to live in community on mount Senor, two leagues from Florence. In 1239, they received from the bishop the rule of St. Augustine, with a black habit, in lieu of a grey one, which they had worn before. In 1251, Bonifacio Montali, one of the seven, from being simple prior of mount Senor, was named general.

This order was approved of by the council of Lateran, and again by cardinal Raynerius, legate of pope Innocent IV., who put it under the protection of the holy see. The succeeding popes have granted it a great many favours. It is become famous in Italy, by the history of the council of Trent, of F. Paolo, a Venetian, who was a religious Servite. M. Hermant gives this order the name of the Annunziate, doubtless from this mistake, that in some cities of Italy they are called religious of the Annunziate, because in those cities their church is dedicated under that name. F. Archang. Giani derives the name Servites, ferrarit of the holy Virgin, from hence; that when they appeared for the first time in the black habit given them by the bishop, the sucking children, as they lay, cried out, Behold the servants of the Virgin. There are also many of this order.

SERVITIA, Per Ques. See per Ques.

SERVITIUS AEQUITANDUS, a writ judicial that lies for a man disbarred for services to one, when he owes and performs them to another, for the acquittal of such services.

SERVITIUS CONSULTANDUS. See CONSULTUNDIUS.

SERVITOR, in the university of Oxford, a scholar or student, who attends and waits on another for his maintenance there.

Survivors of Bills, denote such servants of the king's of the marshal of the king's household, as were least afraid with bills or writs, to summon men to that court. They are now commonly called rip florin.

SERTUDE, the condition of a servit, or rather slave. Under the declaration of the Roman empire, a new kind of servitude was introduced, different from that of the ancient Romans: it consisted in leaving the lands of subjugated nations to the free owners, upon condition of certain rents, and servile offices, to be paid in acknowledgment. Hence the names of servi confini, september, and adhuc fidelis; some of which were taxable at the reasonable discretion of the lord; others at a certain rate agreed on; and others were incorruptible, who, having no legitimate children, could not make a will to above the value of five-pence, the lord being heir of all the rest; and others were prohibited marrying, or going to live out of the lordship. Most of which services still subsist in one province or other of France; though they are all abolished in England. Such, however, was the original of our tenures, &c. See Slaves.

SERVIUS, MAECEN-HONORATUS, in Biography, a grammarian and critic, who flourished in the reigns of Arcadius and Honorius, is principally known by his Commentaries on Virgil, which, however, are considered rather as a collection of ancient remarks and criticisms on that poet than as made by himself. They contain many valuable notices of the geography and arts of antiquity. The Commentaries of Servius were first printed separately at Venice in 1471, and have frequently been reprinted since. In 1532 they were annexed to Stephanius's Virgil, but they are most correctly given in Burman's edition in 1756. A tract on profody by this author, entitled "Centilometrum," is printed in the collections of the ancient grammarians.

Servius is mentioned with respect and honour by Macrobius, who makes him one of the speakers in his Saturnalia.

Gen. Dog.

SERVIUS, Sulpicius REIS, an eminent Roman jurit and statesman, was descended from the illustrious patrician family of Sulpicius. He was contemporary with Cicero, and born probably about a century before the birth of Christ. He cultivated polite literature from a very early period, especially philosophy and poetry, and wrote some pieces in the latter class, which were marked with the licentiousness of the time. He bore arms in the Marish war, but finding himself better pleased with the arts of peace, he appeared a pleader at the bar in the 25th year of his age. The professions of advocate and lawyer were then so distinct, that the former were accustomed to consult jurists upon all difficult points. Servius having once applied for that purpose to Quintus Mucus, a very eminent lawyer, the latter perceiving that Servius did not comprehend his explanations, asked him if it were not a shame that he, a patrician and pleader, should be ignorant of the law upon which he was frequently called to speak. This reproach is laid to have had such an effect upon him, that Servius quitted the bar, and gave all his attention to legal studies; and such was his success, that Cicero said of him, "If all, in every age, who in this city have acquired a knowledge of the law, were brought together, they would not be so well compared with Servius Sulpicius," and he further adds, that "he was not less the oracle of justice than of the law: he always referred to principles of equity and obvious interpretation what he deduced from the civil code, and was lea defers of finding grounds for actions than of settling disputes." There was a great intimacy formed between these two personages, and there are several letters extant from Cicero to Sulpicius, and two from Sulpicius to Cicero, of which
SERVUS TULLIUS, the sixth king of Rome, was the son of Ocrisius, a native of Coreum, who was made a captive when the Romans took that place. Tarquin the Elder presented Ocrisius to his queen Tanaquil, and having a son born while she was in a state of servitude, he was named SERVUS. It is not at all known who the father of this king was, and it was probably not till after his elevation to the regal dignity that he was represented as having been a person of rank who was killed in the defence of his country. Young Servius was brought up in the palace, and became a great favourite of the king and queen. He distinguished himself both in a civil and military capacity; was raised to the patrician order; had an important command in the army given him; and was at length united in marriage to Tullia, the king's daughter. On the affabination of Tarquin, Servius took possession of the throne, which event is dated in the year 577 B.C. As the sons of Ancus Martius, who were the authors of the conspiracy against Tarquin, had a strong party among the patricians, Servius pursued the policy of attaching the people to his interest, by paying off their debts, and making several regulations in their favour; and having added to his reputation by a defeat of the revolted Etruscans, he strengthened his title to the crown by procuring a legal election from the curia. He then applied himself to the improvement of the public police, and several of the most useful institutions of the Roman state took their origin in his reign. Servius enlarged the city by taking two more hills into its limits; he added a fourth tribe to the three old ones: he divided the whole Roman territory into tribes, with a pagus, or fortified post to each, and instituted a cenus, by which all the Roman citizens were distributed into six classes, according to their property. He also gave to the freedmen the privileges of citizens; and finding the duties of the regal office under the augmented population too numerous, he committed to the senate the determination of ordinary causes, referring to himself only the cognizable crimes against the state. Aware that he was still looked upon by the nobles as an intruder on the throne, he endeavoured to add consequence to his family by marrying his two daughters to the grandson of the late king. He now created a closer connection between the Romans and their allies, the Latins and Sabines, by the erection of a temple of Diana at Rome, at their common expense, in which they were to join in annual sacrifices, and in the amicable decision of all disputes among them. Servius, in many respects, was fortunate as a man and a monarch; but his greatest calamity was in his youngest daughter, who was continually urging her husband Aruns to criminal attempts against her father, but he nobly rejecting her infamous solicitations, she attacked herself to the other brother, her father's husband, Tarquin, a prince of a character and disposition very similar to her own. They got rid of their partners by poison, and then, having formed an inexcusable union, they boldly and openly declared Servius an usurper, and Tarquin laid claim to the throne before the senate. The patricians generally came over to his interest; but the great mass of the people were determined to support their king, who, whatever might have been his defects, had shewn himself worthy of the crown which his infamous relations wished to tear from his head. Tarquin, however, continued to intrigue with his party, and at length took the daring step of assuming the royal robes and insignias, and feated himself on the throne at the temple in which the senate assembled. He there pronounced a violent invective against the perfon and government of Servius, who arrived while he was speaking, and approached to pull down his fon-in-law from the throne; but Tarquin feized the venerable monarch by the waist, and threw him down the steps of the temple. He rofe with difficulty, and was moving away by the help of some by-standers, when his unnatural daughter Tullia arrived, who, having faluted her husband as king, fuggested to him the necelcity of dispatching her own father. Tarquin lent perfons to perpetrate the foul deed, and Tullia feared her cruelty and impety by driving her chariot over the dead body. Servius was murdered in his 74th year, after a reign of forty-four years, during which he had done enough to merit the title and character of one of the best kings of Rome.

SERULA, in Ornithology, the name of a web-footed seabird, a kind of mergus, very common about Venice, and called by Mr. Ray mergus cirratus fusCUS, the brown-crested, or leffer-toothed diver, and supposed to be the anas longirostra, or long-beaked duck of Gesner. This is the red-breasted merganfer of Pennant.

It is very nearly of the size of the duck; its head and throat are of a fine changeable black and green; on the first there is a long pendent crest of the same colour; the upper part of the neck and of the breast, and the whole belly, white; the lower part of the breast ferruginous, spotted with black; the upper part of the back black; near the setting on of the wings some white feathers, edged and tipped with black; the exterior capular black; the interior white; lower part of the back, the coverts of the tail, and feathers on the sides, under the wings, and over the thighs, grey, marked with waving lines of black; covers on the ridges of the wings dusky, succeeded by a broad bar of white; the quill-feathers dusky, the tail is short and brown, and the legs orange-coloured; the head and upper part of the neck of the female are of a deep rust colour; the crest short, the throat white, and distinguished by some other varieties of colour from the male. These birds breed in the northern parts of Great Britain. Pennant.

SERUM. See Blood.

SERUS. Alum-safum, Alum-sahuy, a form of medicine prescribed in the late London Pharmacopeia, made of a pint of milk boiled to whey with a quarter of an ounce of alum.

SERVONG, in Geography, a town on the N. coast of Sumatra. N. lat. 5° 3'. W. long. 96° 18'.
1. S. orientale. Common Sefamum or Oily-grain. Linn. Sp. Pl. 883. Wild. n. 1. Att. n. 1. (Sefamum seu Sampiemen; Alpin. Egypt. 98. i. 100. S. iive Sefamum; Ger. Em. 1332.)—Leaves ovate-oblong, undivided; the lower ones somewhat serrated.—Native of the East Indies. Vol. XXXII.

A tender annual, occasionally raised to the status of a sub-shrubs, in the leaves of Egypt and the Indies, and in the buds of its flowers. The seeds are used as a narcotic. The plant is much used in Egypt and the Indies, as a narcotic. The leaves of the common Sefamum are used as a narcotic, and the plant is much used in Egypt and the Indies. The seeds are used as a narcotic, and the plant is much used in Egypt and the Indies.


3. S. indicum. Indian Sefamum. Linn. Sp. Pl. 552. Wild. n. 3. Rumph. Ambon. v. 5. 204. f. 1. Spec. Bot. 2, 100, f. 4.—Lower leaves terete, or three-lobed, lower undivided. Stem erect.—Native of the East Indies, Mauritius, &c. Differs from the first species principally in the division of its lower leaves. The flowers are whiter, compared by Rumphius to those of Huesana. Both callix and corolla are externally hairy, as in S. orientale. There is a variety with black, and another with brown or greyish, seeds. Both are used in Amboyna, but the latter is preferred.

4. S. laetivium. Jagged Sefamum. Wild. n. 4.—"All the leaves deeply three-lobed, jagged. Stem profusely, bifid."—Gathered by Klein, in the East Indies, near Hydrabad.—The stem is branched, the extremities of its branches only ascended. Leaves opposite, on short stalks, rough on both sides; the stems are blunted, deeply toothed. Flowers axillary, solitary, on very short stalks. Cappule obtuse at each end, tipped with the broad permanent style. Wildflowers.

Both this and the preceding may possibly be mere varieties of the first species. S. luteum appears to be distinct.

5. S. profusum. Dwarf Hoary Sefamum. Retz. Obs. f. 28. (Euphrasus affinis pulla planta, periparuo ligundo oblongo quadrato bivalvis; Phil. Am phil. 85. t. 373. f. 2.)—Leaves roundish, toothed, hairy; hoary breast. Stem profusely, villous. —Nature of the U. S. plant, near Madras; very rare elsewhere. Kerrias, Rinder. Root woody, thick and strong, evidently perenn. Stems several, woody at the base, about a span long, much branched, leafy, villous, spreading flat on the ground in every direction. Leaves opposite, toothed, small, from one quarter to three quarters of an inch long, obtuse or abruptly, toothed, or wedge-shaped; the base of the upper surface hairy; lower white and grey; the upper two, beyond the flowers, often alternate. Flowers axillary, solitary, toothed, one to two; as long as the leaves, very hairy. Corolla externally hairy and hairy; internally villous, beautifully flavous and dotted with black red. Cappule ovate, quadrangular, hard woody, hairy, scarcely more than half
half the length of the corolla. *Seeds* numerous, oblong, angular, black.

Linnaeus has erroneously referred the above synonym of *Platen* to his *Tantina asiatica*, a very different plant. Hence Willdenow was led to omit the present species of *Sesamum*, as very uncertain. *S. javanicum*, Born. Ind. 133.


*Sesamum* is also a name given by some authors to the mygamura, or gold of pleasure.

*Sesban*, a barbarous and inadmissible generic name, even when altered by Mr. Pursh into *Sesbania*, in his Flora of North America, v. 2. 460, 485. This name is given by Poiret in Lamark's Dictionary, v. 7. 146, to a genus selected by him out of *Aeschynomene*, see that article; and consisting of the Linnean *A. grandiflora*, *Eccinum*, and *Sesban*, with several others more recently discovered. These plants are mostly referred by Willdenow to *Coronilla*, with which they do not ill accord. They certainly cannot remain with the original species of *Aeschynomene*, which fearfully differ from *Sesbania*, see that article.

*SESEL*, Poiret in Lam. Dict. v. 7. 130, the Amboyna name of a tree, which, according to Corripphus, affiumes a very different appearance on the coast to what is usual in the adjacent plains; the leaves, always strongly three-ribbed and entire, lanceolate in the latter situation, being roundish-ovate, and much shortened in the former. He speaks of this plant as allied to *Metabularia*, the wood being to hard as to spoil the tools used in cutting it down. Nothing is known of the fruitification, except that the *flowers* form small whitish heads, subequently brown, and the *fruit* seems a globose yellow berry, or drupa. See Rumph. Amb. v. 3. 64. t. 36. 37.


Gen. Ch. General Umbel rigid; partial very short, of many rays, globose. General involucrem of very few leaves, or none; partial of several pointed leaves, about the length of the partial umbel. *Perianth* scarcely discernible. Cor. *Unifloral* uniform; flowers all fertile; partial nearly flat, of five petals, whose inflexed points render them heart-shaped. Stam. Filaments five, awl-shaped; anthers simple. Pil. Germen inferior; styles two, dilat. stigma obtuse. Peris. Fruit ovate, small, oblong; separable into two parts. Seeds two, ovate, convex and inflated at the outer side, flat on the inner.

Eff. Ch. Umbels globose, rather rigid. Flowers regular, all fertile. General involurem of one or two leaves; partial of several. Fruit ovate, inflated.

Obf. *S. Hippomorathrum* offers a remarkable exception to the above generic character, having a partial involurem of one leaf, orbicular and toothed, like the wheel of a clock. That of *S. gymniferum* is nearly similar.

1. *S. filiformum*. Thread-leaved Meadow-faxifrage. Thunb. Prodr. 51. Willd. n. 1.—Leaves linear-threaded, stem zigzag, erect. Perianth awl-shaped.—Gathered at the Cape of Good Hope, from which we have an authentic specimen. The *flom* is a foot high, slightly branched, round, furrowed, smooth. *Leaves* two or three, one of which only remains perfect, an inch long, undivided, very narrow, acute, ribbed, smooth, somewhat channelled. Umbel terminal, of four rigid flat-topped, with a general involurem of as many unequal, lanceolate, ribbed, smooth leaves, the longest but half the length of the rays. Partial umbels level-topped rather than globose, of ten or more short, flat, angular rays, and several lanceolate partial involurem leaves, of the same length. The half-rice fruit is oblong, about as long as the *flom* which support it, furrowed, crowned with a very evident *calyx*, of five awl-shaped, sharp, permanent, somewhat fimbrous, teeth, finally recurved at the points. We have been the more particular in our description, as there is no figure of this plant extant, and yet botanists would recognize it for a *Sofelii*.

2. *S. pinnatifolium*. Nodding Meadow-faxifrage. Linn. Sp. Pl. 372. Willd. n. 2.—Stem declining, and umbels drooping, before flowering. Leaves pinnate; leaflets doubly pinnatiradiate, with alternate, flat, linear, deciduous segments.—Native of the fourth of Europe. Cultivated by Linneaus at Uplal. Perennial. Stem a foot high, slightly leafy, round, finely striated, smooth, decumbent at first, but finely erect as the *flowers* come to perfection, and bearing about three rather large umbels, which in a young late droop, like those of *Pinimella Soffixifrage*. Radical leaves *flaked*, a span long, smooth, of a light glaucous green; their segments spreading, acute, entire, veiny, very uniform. *Flowers* white. Partial involurem of one or two, almost capillary, leaves. *Seeds* a quarter of an inch long, nearly oval, with five elevated ribs, three of which are central, two marginal, and dark intermediate furrows.

3. *S. montanum*. Mountain Meadow-faxifrage. Linn. Sp. Pl. 372. Willd. n. 3. *Ait. n. 1. (S. multicaule; Jacq. Hort. IND. v. 2. 59. t. 129. Carvifolia; Vaill. Paris. t. 5. f. 2.)—Foot-talks under the branches oblong, entire, with a membranous edge. Stem-leaves with linear very narrow segments. Seeds downy.—Native of hillocks in Italy and France. Cultivated at Oxford in the middle of the 17th century. A hardy plant, flowering in summer. *Root* perennial, tapering, crowned with the fibres of decayed foot-talks. *Stems* erect, from one to three feet high, round, striated, smooth, branched, leafy. *Leaves* doubly pinnate, three-clasped; their segments of the upper ones longest, narrow, and most glaucous; their foot-talks sheathing, clove, striated, with more or less of a membranous border, entire at the summit. *Umbels* smaller than in the preceding; erect, white, of many rays, sometimes accompanied by a general involucral leaf. *Seeds* obvate, one-fourth the length of the former, ribbed, minutely downy.


5. *S. glaucomum*. Glaucous Meadow-faxifrage. Linn. Sp. Pl. 372. Willd. n. 5. *Ait. n. 2. Jacq. AnnuL. t. 144.—Foot-talks under the branches oblong, entire, with a membranous edge. Branches spreading. *Leaflets* linear, channelled, smooth, glaucous, longer than their foot-talks. *Seeds* ovate, downy. *Umbels* lax.—Native of France. To define the difference between this plant and *S. montanum* is very difficult. The *glaucum* has longer leaflets, and the primary divisions of its radical leaves seem to be always flattened, not fitting clove to the mid-rib. The *branches* are more divaricated,
eated, and umbels more lax. Seeds rather shorter. In Jacq.'s figures these plants appear very different, but the *gymnium* of most authors is merely *monatum*. Jacquin does not notice the hairy seeds.

6. S. arvatum. Bearded-leaved Meadow-faxifrage. *Linn.* Sp. Pl. 273. Wild. n. 10. *S. melandrioides*.—Footstalks under the branches lax, entire, somewhat membranous. Leaves repeatedly compound; leaflets lanceolate, bristle-pointed. Flowers ovate.—Native of the Pyrenean mountains. Cultivated by Miller at Chelsea. A hardy perennial, flowering in June and July. Miller says the *root* is biennial. *Leaves* doubly pinnate; lobes very narrow, and finely divided. *Stems* branching, a foot and half high, furnished with flaking winged leaves, and terminated by pretty large umbels of *white flowers*. A specimen sent by Gouan for S. annuum, which it certainly is not, seems to be the plant under consideration. The segments of its leaves have callous tips. The leaves of the *partial involucrum* are ovate, with broad white membranous edges, their points extending beyond the flowers.

7. S. annuum. Caraway-leaved Meadow-faxifrage. *Linn.* Sp. Pl. 273. Wild. n. 7. Jacq. Auct. t. 55. (S. carvifolium; Villars Dauph. v. 2, p. 586, from the author. S. co- luratum; Ehrh. Herb. n. 115. Beitr. v. 5, 179. Pimpinella tenuefolia; Rivin. Pentap. Irr. t. 83. f. 1. Foeniculum vulgare annuum, tragoselinum odor, umbellata alba; Vail. Paf. 54. t. 9. f. 4.)—Footstalks of the upper leaves lax, membranous, margined. Stem and branches erect. Leaves doubly pinnate, cut; their primary divisions fimbriate. Seeds smooth.—Native of France, Germany, and Switzerland. *Root* tapering, woody, crowned with fibres of decayed leaves, and having all the appearance of being perennial. *Stem* twelve or eighteen inches high, erect, stiff, some- what zigzag, round, fluted, leafy, often purplish; its branches very little spreading. *Leaves* filiform, varying greatly in the length of the leaflets and their divisions, green rather than glaucous; occasionally purplish; their segments linear-oblong, narrow, keeled. Umbels white or purplish, of many general as well as partial rays, all more or less downy. *Partial involucrum* of many lanceolate membranous-edged leaves, whose taper points reach beyond the flowers. *Seeds* elliptic-oblong, very convex, with three dorsal ribs, deltoid of pubescence in every part. We have this species from M. Du Croze Haller's t. 762, to which it seems well enough to ascribe, but if so, Gouan mistakes Haller's plant.


9. S. Ammodites. Milfoil Meadow-faxifrage. *Linn.* Sp. Pl. 373. Wildl. n. 9. Ait. n. 4. Jacq. Hort. Vind. v. 1, t. 20. t. 52. (Ammodiae; Bauh. Pin. 150. Ammi; Matth. Valgr. v. 2, 170. A. Matthioli; Dalech. Hift. 695.)—Leaflets of the radical leaves imbricated; those of the upper ones almost capillary. Stem spreading. Rays of the umbel capillary, very unequal. Seeds smooth.—Native of Greece, Portugal, Italy, Sicily, and the south of France. A slender annual plant, about a foot high, its *stem* generally branched from the very bottom. Lower leaves on long slender flanks, pinnate, their leaflets in many narrow-lanceolate, channelled segments, lying over each other; upper usually twice ternate, with much longer, and very slender, undivided leaflets; their footstalks short, sheathing, furrowed, and membranous. Umbels terminal, very delicate and lax, of about seven or eight extremely unequal capillary rays; the partial ones of more numerous, but like-
high, nearly upright, rigid, round, smooth, rufous, somewhat branched above, bearing several oblong, sheathing, membranous-edged footstalks, with only very short or abortive leaves. The proper leaves are radical, pretty numerous, flanked, two or three inches long, doubly pinate and cut, linear, glaucous and smooth like the rest of the herbage. Umbels terminal, foliary, small and close, rigid, minutely downy, with several principal rays, and sometimes a sheath-like leaf at the base; the partial ones of many white, nearly fleshy, flowers, chiefly remarkable for the simple, cup-like, partial involucrum, whose membranous downy edge is variously jagged and toothed. Dillenius rightly observes, in the letter to Haller, quoted under our last species, that this singular part is not shown in the figure of Clausius and Gerarde. It indicates an affinity to our gummiferum, which obliges us to place these two species together, next to tortuosum, with which they accord greatly as to habit.

13. S. Turbitii. Turbitii Meadow-faxifrage. Linn. Sp. Pl. 374. Ameon. Acad. v. 4. 310. Willd. n. 11. (S. que folus face, Thapféa, five Turbitii, gallorum; Bauh. Hift. v. 3. p. 2. 45. Boich. Lugd. Bat. v. 1. 50. Thapféa Dioec.; Lob. Ic. 779. T. telufolia; Ger. Em. 1030.)—Leaves repeatedly three-cleft, divaricated, awl-shaped. General involucrum of one to two awl-shaped leaves; partial of many short, pointed, membranous ones. Seeds villous, the length of the permanent styles. —Native of Spain, and the south of France. The root is perennial, thick, discharging a milky juice, which, according to John Bauhin, to whom it was pointed out by his preceptor Rondelet, pos sesses a valuable purgative quality. Stem erect, branched, round, smooth, not so clumpy as in Bauhin's figure. Leaves chiefly opposite, with broad sheathing footstalks, spreading, repeatedly subdivided into divaricated, slender, awl-shaped segments, crossing each other, and much resembling fennel. Umbels terminal, large, of many slender, downy, spreading, general as well as partial, rays. General involucrum of very few and short, tapering, scarcely membranous-edged leaves; those of the partial ones more membranous, lanceolate, fringed, half the length of the flower-stalks, quite distinct at their base. Petals white. Fruit ovate, covered with fine hoary dense bristly hairs, and crowned with the long spreading styles, very tumid at their base. Stigmas obtuse, but hardly capitately.

14. S. pyrenaeum. Pyrenean Meadow-faxifrage. Linn. Sp. Pl. 374. Willd. n. 13. Ait. n. 7. (Selimum pyreneæ; Gouan IIuftr. n. 1. t. 5. Carvi album; Bauh. Prodr. 84. Lachenal Act. Helif. v. 7. 332. t. 12.)—Leaves doubly pinnate, with many linear, acute, decurrent, flat segments. Partial involucrum fetaeous, equal to the flowers. Seeds smooth, nearly orbicular, with three close central ribs. —Native of the Pyrenees. Miller appears to have cultivated it in 1731. The root is perennial, the size of the finger. Stem a foot high, erect, arrowed, smooth, scarcely branched, moit leafy at the lower part. Footstalks long, dilated and sheathing at the base. Leaves three or four inches in length, light green, smooth, their leaflets uniform, with linear, alternate, pointed, decurrent, veiny segments. Umbels of six or eight unequal rays, without any general involucrum; the partial ones convex, dense, many-flowered, with a partial involucrum of many smooth, slender leaves, almost capillary, distinct at the bottom. Petals yellowish, with a purple tinge externally. Seeds with a broad, flat, even margin, their centre marked with three close prominent ribs.

15. S. faxifragum. Slender Meadow-faxifrage. Linn. Sp. Pl. 374. Willd. n. 14. (Pimpinella faxifraga tenuifolia; Bauh. Prodr. 84.)—Stem thread-angled, divaricated. Leaves doubly ternate, linear. Umbels of about fix rays. —Plentiful about the lake of Geneva, according to C. Bauhin, who describes the with an oblong root. Stem a foot high, green, smooth, friated, bent, divided from the base, and subdivided into slender branches. Leaves in slender, afterwards almost capillary, segments. Leaves of a minute, white, in a small umbel. It is not possible to determine this from the description, nor have we seen an authentic specimen. Linnaeus faw this species in Burser's herbarium only. His account agrees with the above, only adding that the partial involucral leaves are brittle-shaped.

16. S. elatum. Tall Meadow-faxifrage. Linn. Sp. Pl. 375. Mant. 357. Willd. n. 15. Ait. n. 8. Gouan IIuftr. 16. t. 8.—Stem much branched, round, rigid, very smooth. Leaves twice ternate, with linear, fleshy, dilatant leaflets. Fruit smooth, ovate, with dilatant obtuse ribs. Partial involucrum awl-shaped, shorter than the flowers. —Native of Italy and the south of France. Specimens are in the Linnaean collection from Arduins and Gouan, as well as the garden plant alluded to in the letter of Linnaeus, cited by Gouan. These, as well as Gouan's figure, prove the present species to vary greatly in luxuriance. The stem is from eighteen inches to five feet high, much branched from top to bottom, very smooth, pale at the joints, leafy, the upper part greatly divaricated. Lower leaves twice ternate; upper quite simple; all linear, very narrow, fleshy, smooth; each leaf, or leaflet, from one to two inches long. Footstalks linear, channelled, sheathing, close, with an evident, though narrow, membranous edge. Umbels numerous, terminal, of from two to three to ten rays, smooth, without an involucrum; partial ones of many sheathless unequal rays, their involucral leaves slender, but membranous, rarely equal to the flowers. Petals white. Seeds ovate, gibbous, smooth, by no means tuberculated, though Gouan describes them dotted; each is marked with three slightly prominent ribs, but not bordered. The synonym of Maegard quoted in Sp. Pl. was afterwards referred to Linnaeus to his Pimpinella glauca.

17. S. trichorum. Yellow Meadow-faxifrage. Pursh v. 1. 197.—"Leaves triply ternate; leaflets linear, elongated. Umbels hemispherical. Partial involucrum of many linear leaves, as long as the flowers."—About the waters of Columbia river, where it was found by governor Lewis, flowering in April and May. The spindly-shaped perennial root is one of the grateful vegetables of the Indians, who use it baked or roasted. Flowers deep yellow. Pursh.

18. S. junceum. Rushy Meadow-faxifrage. Sm. Prodr. Fl. Græc. Sibth. n. 698.—Stem much branched, divaricated. Footstalks of the item-leaves very short, and spreading. Umbels solitary, simple, of few flowers. —Found in the Greek herbarium collected by Dr. Sibthorp, but without any name, or mention of the place where it was gathered. The root appears to be perennial. Herb a sparsely high, rigid, smooth, rather glaucous. Radical leaves twice ternate, with keeled three-pointed leaflets; those of the item very small, and as if abortive. Umbels small, white.

19. S. caespitosum. Tufted Meadow-faxifrage. Sm. Prodr. Fl. Græc. Sibth. n. 699.—Stem simple, nearly naked. Radical leaves tufted, flat, pinnate, cut; the terminal leaflet three-cleft, decurrent. —Gathered by Dr. Sibthorp, and his companion Borone, on the summit of the Bithynian Olympus. The root is thick, perennial, dividing at the crown into many heads. Stems from four to eight inches high, simple, scarcely ever divided, erect, straight, stiff and smooth, bearing a solitary leaf only. Radical leaves forming a dense tuft, smooth, rigid, of various sizes. The footstalk of the item-leaf has a membranous edge. General umbel of.
The common hart-wort is possessed of the same sort of virtues with the other two, but its heat is more warm and aerid than that of either of them. It is esteemed a very efficacious remedy in obstructions of the menes, and Schroder tells us, that it has the credit of being an antidote to the poison of hemlock.

The feed of the French hart-wort, or jepsh Ruffens, has been esteemed of great virtue in diseases of the head and nerves, in convolutions and epilepsy, and in weaknesses of the sight. It is also given in elecatures, intended against all disorders of the breast and lungs. They are given in suppositories of urine, and of therectum, and in all kinds of flatulencies; and are, among the German phlœtisans, a common ingredient in medicines, intended to promote expectoration.

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See SERMENTAINE.

SERIPTANUS. See SANKAPRADEGA.

SEEMELEQUIAN, in Geography, a river of the New territory, in the United States of America, which runs into the Illinois.

SESEN, or SDOI, a town of the principality of Wellenbuttle; 12 miles S.W. of戈fight.

SESERINUS, in Ethnology, a name given by Rondetius, and some other authors, to a broad and short sea-fish, seeming the same with the lampyra of Italian fishermen; and described by authors in general, and by this very author in another place, under the name of Hosterus.

SESHA, in Hindoo Mythology. Images of Naga, or Selna, in brahs, are said to be instated in cates of ill-health, with appropriate ceremonies, according to the author of the Hindu Pashithon, they are very common in India, where the idea of the medicinal virtues of snakes appears to be of very old date. A Hindu, attacked by a fever, or other disease, makes an image of Naga in brahs, clay, or wax, and perforates appropriate ceremonies in furtherance of his recovery. Such ceremonies are particularly efficacious when the moon is in the nakshathras, or allerims, called Sarpa, or the serpent. We have observed that the snake, in all mythological language, is an emblem of immortality; its scaly figure, when its tail is inerled in its mouth, an astrological mysticism common to Asia and Europe; and the annual renewal of its skin and vigour allude symbols of continued youth, of duration, and eternity; and its supposed medicinal virtues, or life-preserving qualities, may also have contributed to the fabled honours of the serpent tribe. In the mythological machinery of India, Egypt, and Greece, these coincidences are numerous. Some learned writers attribute this universality of serpent-forms to the early and all-pervading prevalence of fire, its first shape on earth. For the seed of a plant that is stowed hereafter in Kalka and Haranaka. With the Haranaka, Haras is named, and all of them. A multiplicity of names, called 'serpent of the form of serpents, or that are consecrated in the Pashita and Ganges Paranvitha.' Cn the towns, rivers, men, women, trees, and mountains, the Hindus used in their poetical oracles. Ngnner, the god of the wrath of Pashita and Naga, and after one of the common names of Selna, as all a town is Metre, Nagmungan, properly Nagmungala. See MAHAGAN,

One of the tables commonly alluded to in Hindoo writings, is Vishnupopesh Sela, and it is a favourite subject with painters. In a beautiful ode, by the fr. J. J., addressed to Lakithuna, the Mag is a master of her lectures, (see LAHJEMH) her union with Vishnupopesh introduced. On this occasion the bride rode from the church on a horse, like our Venus, and choosing Vishnupopesh for her husband, the subject of this article formed a nuptial couch for her reception: it is poetically described.

"... Love bade the banqgovm ile,..."

The operation of churning the ocean, alluded to above, is described under the article KURMAVATAR of this work, and a poetical allusion to the reflecting gems or mirrors on the head of Sela, will be found under SHITAKOSHTI.

SESHNAGA, a name of a wisp play mythological serpent among the Hindus, otherwise called Sela; which see.

SESHTI-MATRIYA, a name of Kartikya, the mythological commander of the celestial armies in Hindoo fable. The name means having for masters. Shanmatriva has the same meaning, and is another of his names, and Shanmura. Shanmuka is another, and means with six faces or mouths. For the origin of these appellations, and for some particulars of the hero to distinguish, see KARTIKYA, and SKANDA, another of his names.

SESA, in Geography, a river of Italy, which rises in the Alps, on the borders of the Valais, and runs into the Po, a little below Catal.

SESA, one of the six departments of France, into which Piedmont was divided, when it was united to the French republic, Aug. 26, 1802; it is composed of Vercell and materials, in lat. 45° 25', E. of Dure, and contains 140 square leagues, and 204,445 inhabitants; it was divided into three circles, viz. Vercell, composed of 70,551 inhabitants; Santra, with 36,014; and Bene, having 89,459 inhabitants. The climate of the department is doubtful; the emenues and hillys are favorable for the culture of the vine; and the cultivated plains yield abundance of grain, fruits, and vegetables.

Sesa, a town on the N.W. coast of Timor, S. lat. 8° 34', E. long. 125° 26'.

SESKAR, a small island in the N. part of the Gulf of Bothnia, N. lat. 65° 38', E. long. 23° 39'-Al, a small island in the gulf of Finland, N. lat. 59° 57', E. long. 25° 14'.

SÉSÉLIA,
SESLERIA, in Botany, received that appellation from Scopoli, who in the first edition of his excellent Flora Carolinica, 1745, he could never forget the delightful garden, so rich in scarce plants, which he often used to visit, while at Venice, in the year 1745. It was formed in the island of St. Helen, by Dr. Leonard Seler, whole great diligence in observing and cultivating plants justly entitled him, in Scopoli's opinion, to this botanical commemoration. A letter from his, describing a supposed new genus, under the name of Vitaliana, is subjoined to Donati's Storia Naturale del Adriatico, but Linnæus reduced the plant to Primula.—Scop. Carn. ed. t. 189. Sm. Fl. Brit. 93. Prodr. Fl. Græc. Sibth. v. t. 52. Ait. Hort. Kew. v. t. 153. Jull. 31. Lamarck Dict. v. 7. 138. Illstr. t. 42. —Clas and order, Triandra Digynia. Nat. Ord. Gramina.

Gen. Ch. Cal. Glume of two, nearly equal, ovato-lanceolate, concave, pointed valves, containing about three flowers. Cor. of two unequal, erect, parallel, acute, valves; the inner folded, two-ribbed, cloven; outer rather the longest, entire or some-leafed. Stam. Filaments three, capillary, longer than the flower; anthers pendulous, obtuse, cloven at the end. Pyl. Gernmen superior, ovate; styles two, various in length, capillary, more or less combined; stigmas oblong, cylindrical, feathery. Peric. none, except the corolla, which embraces the seed, but is not attached to it. Seed solitary, ovate, smooth.

Eff. Ch. Calyx of two valves, containing about three florets. Corolla of two valves; the inner cloven; the outer variably pointed. Styles united at their base.


2. S. albus. White Moor-grass. Sm. Fl. Græc. Sibth. v. t. 56. t. 72. v. 2. (Carex dubia; Sibth. MSS.)—Spikes ovate-oblong, imbricated, Bractæae alternate. Outer petals lanceolate, acute, undivided. — Discovered by Dr. Sibthorp, who wrote about the village of Belgrad, near Constaninople. The general aspect of this grass, so like some of our common species of Carex, with compound androgynous spikes, easily led its learned discoverer to refer it to that genus. He was, at the same time, too accurate to overlook the differences of its generic character; though not sufficiently acquainted with Seleria, to perceive its agreement herewith. This species is somewhat larger in every part than the foregoing, and has a creeping root, sheathed with the wrinkled bals of old leaves. The fruits are twelve or eighteen inches high, and the foliage nearly as tall. Spike of a greenish-white, rather shining, scarcely branched. Spikelets two or three together, falked. Calyx three or four-flowered, membranous, taper-pointed; the middle faplets falked. Petals membranous, whitish, with green roughish keels; the outer one lanceolate, pointed, undivided; inner cloven a little way down into two sharp-pointed lobes, each of which has its own folded rib or keel. Stamens white, considerably longer than the flowers; anthers pale yellow, drooping. Styles smooth, united throughout, the length of the corolla; stigmas divaricated, awl-shaped, clothed with short pubescence. This Seligeria serves greatly to confirm the genus, and to indicate its true effential character.

3. S. pharocephala. Round-headed Moor-gras. Arduin. Spec. 2. 20. t. 7. Poiret in Lam. Dict. n. 2. Lamarck Illstr. t. 47. f. 2. (Cynogorphus pharocephalas; Jacq. Mifc. v. 2. 71. Ic. Rar. t. 20. Wild. Sp. Pl. v. 1. 414. C. microcephalus; Hoffm. Germ. 49.)—Spike capitata, globofæ, bracteated at the base. Outer petals with three teeth; the middle tooth awned. — Of the loftiest alps of Carinthia, Austria, the Tyrol, &c. A very much more slender plant than either of the former. The root is fibrous. Stem four or five inches high, somewhat quadrangular, bearing one leaf only, at the lower part, which is flat, short and broad, with a long fhorted fiolet, and a more elongated filipula than that of the other species. Radical leaves larger and narrower, folded, numerous. Spike almost globular, the size of a common currant, subtended by two or three opposite, broad, concave, notched, membranous, coloured brachias, not half its own length. Spikelets imbricated every way, of a blue-hus-purple, nearly kefts. Each calyx contains two or three florets. The petals are divided as in S. cerulea, but the middle segment of the outer one is lengthened out into an awn, of a dark hue, twice or thrice as long as the reat. Wullen, who communicated this species, and its description, to Jacquin, observed what he fupposed a variety, with white flowers, in rather larger spikes, four or five florets in each calyx, and a shorter central awn to the corolla. This seems to be represented in Jacquin's plate, and Hoffmann, after Henk and Hopp, has made it a distinct species, by the name of Cynogrophus pharocephalas, calling our's microcephalus. We do not fife sufficiently permanent characters to authorize this. Haller makes another Seligeria, at his n. 1447, which is Poa dityclus, Jacq. Mifc. v. 2. 74. Ic. Rar. t. 19. Wild. Sp. Pl. v. 1. 400. Allioni has given it the barbarous appellation of F. jeflérioides. This plant is unquestionably a true Poa, see that article.

SEOSTRIS, in Biography, king of Egypt, of whom the accounts are so much mixed with fable, and so obscured by antiquity, that it has been found extremely difficult to form a confluent and probable story. Historians are even divided as to the identity of the name Selotritis with that of some other refembling names in the Egyptian history, and several hold him to be the fame with the Sefas or Shellac of the Hebrew scriptures. The following is regarded as the most probable account of this monarch. He is generally placed by chronologists in the 15th century B.C., and is by some thought to have been the son of Amenophis. Educated in many exercises with a number of companions, he is said to have been fent, by his father, at an early age, upon an expedition into Arabia; and after subduing that country, into Africa. While engaged in the conquest of the latter, his father died; and his successes having inflamed his ambition, he resolved to grasp at universal empire. Before his
his departure from Egypt, he ingratiated himself with the people by many acts of kindness, and made a division of the country into thirty-six departments, to each of which he assigned a governor. Then having constituted his brother Armas regent, he marched with a numerous army into Ethiopia, which he reduced tributary, penetrating near to the limits of Hildahmish. As he now perceived that he could not carry on his great designs without a navy, he fitted out two fleets, notwithstanding the aversion of the Egyptians to maritime occupations, one in the Mediterranean and the other in the Red sea. By means of the former he reduced the countries of Phoenicia, Cyprus, and several of the Cyclades, and with the latter he failed into the Indian gulf, and made himself master of its coasts. Then, purging his conquests by land, he is represented as having overrun all Asia, and even as having crossed the Ganges. On his return, he invaded the country of the Scythians and Thracians, in which, however, he lost a great part of his army. It is commonly thought that he left an Egyptian colony at Colchis, but Thrace was his fatherland progres wellward. On his arrival at Pelusium, after an abecence of nine years, laden with spoil, and attended with a vast number of captives, he was received by his brother Armas with pretended joy and submission, though he had formed a plot against him. For this traitorous attempt he expelled Armas from Egypt, and then, disbanning his army, he sat down to the improvement of his country. He erected magnificent temples in all the cities of Egypt, in the building of which none but his captives were employed. He raised obelisks, with inscriptions recording his conquests and revenues. He built a wall of great length, on the eastern boundary of Egypt, to protect it from the incursions of the Arabs, and he dug a number of canals, branching from the Nile in all directions, for the purpose both of commerce and navigation. He is said, in the height of his pride, to have harried tributary kings to his chariot, till one of them, pointing out to him the rotation of the wheels, by which each part was succesively at top and bottom, brought him to reflection. Becoming blind in his advanced years, he finished his course by a voluntary death.

It may be observed that sir Isaac Newton has endeavoured to prove that Seoforio is the Ofris of the Egyptians, and the Bacchus of the Greeks, as well as the Sebac of scripture. Univer. Hift.

SESI, a particle often used by old masters and theorists, in Myci, in the composition of words to express different kinds of measure. They called sesqui-measures those which contain notes equal to one-third more than their usual value; that is, when equal to three notes of less value, instead of two. This happened in what was called perfect time, before the use of points or dots, when the breve was equal to three semibreves, the semibreve to three minims, &c.

In Italian treatises by old theorists, sesqui is much used to express a kind of ratio, particularly in different species of triads; that is, when the greater term contains the less once, and some small quantity more; as 3 : 2, when the first term contains the second, and unity over, which is the half of 2. So that if the part remaining be just half the less term, as 4 : 3, the ratio is called sesqui terza, or tertia; if a fourth, or 5 : 4, the ratio is sesqui quarta, and so on to infinity; still adding to sesqui the ordinal number of the less term.

SESQUIALTER is a stop in the organ, implying a whole and a half. In large organs this stop has usually five ranks of pipes, each note having one found in unison with the diapason, one with the principal, one with the twelfth, and one with the fifteenth.

SESQUI-ALTERATE, the greater perfect, which is a triple where the breve is three measures, or femibreves, and that without having any point or dot annexed to it.

SESQUI-ALTERATE, greater imperfect, which is where the breve, when pointed, contains three measures, and without any point, two.

SESQUI-ALTERATE, lesser perfect, which is where the semibreve contains three measures, and that without any point.

SESQUI-ALTERATE, lesser imperfect, a triple, where the semibreve, with a point, contains three measures, and two without.

According to Buontempi, one may likewise call the triples 3, 4, sesqui-altarates.

SESQUI-ALTERATE, in Geometry and Arithmetick, is a ratio, between two lines, two numbers, or the like, where one of them contains the other once, with the addition of a half.

Thus 6 and 9 are in a sesqui-alterate ratio; since 9 contains 6 once, and 3, which is the half of six, over; and 20 and 30 are in the same; as 30 contains 20, and half 20 or 10.

SESQUIDUPPLICATE, in Myci, a concord, resulting from the founds of two flingos, whose vibrations, in equal times, are to each other in the ratio of 3 to 4. See Ditone and Trientail.

SESQUIDUPLICATE RATIO, is when of two terms, the greater contains the less twice, and half the terms remains; as 15 and 6; 50 and 20.

SESQUI-OCTAVE, is a kind of triple, marked C, called by the Italians nonupla di creme, where there are 9 quavers in every measure or bar, in lieu of 8.

SESQUIDUPLICATE, an aspect, or position of the planets, when at the distance of four ligus and a half, or 135 degrees, from each other.

SESQUI-QUARTA, DUPLA, is a kind of triple, marked C, called by the Italians nonupla di feminimin, where there are 9 crotchets in each measure, instead of 4; that is, three crotchets to each time.

SESQUIQUINTILE, an aspect of the planets, when 108 degrees distant from each other.

SESQUIQUINTAL PROPORTION. When any number or quantity contains another once and one-third, they are sesquiquintal proportions.

SESSA, in Biography, an Indian philosopher and mathematician, and the inventor of the game of chefs, which he communicated to his soverign Scheram, who was so pleased with it, that he ordered him to demand what he pleased as a reward for his ingenuity. Sessa asked only for a single grain of wheat to be laid on the first square, two on the second, four on the third, and so on in progression through the sixty-four squares. The king, offended that he should demand so mean a gift, directed that he should have just what he asked, and no more; but upon coming practically to the sixtieth, it was, in a very short time, found that all the grains in the kingdom would not supply the demand. Scheram, aľmoxified at the fact, crowned Sessa with very high honours, He lived about the eleventh century.

SESSA, in Geography, a town of Naples, in Principato Citra; 13 miles S.W. of Caugiano.

SESSA. See ZEFESE.

SESSA, in Botany, a Peruvian genus of plants, dedicated by the authors of the splendid flora Peruviana, to the honour of a Spanish botanist, named Martin Zelleso, to whom the care of the botanic garden at Mexico was entrusted. —Poiret in Lamarc 'Dict. v. 7. 139. "Ruiz and Pavon, Fl. Peruv. v. 7. 9."—Clacs and order, Pentandria Monogyna. Nat. Ord. Liridae. Linn. Solanace, Jull.

Gen.
Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, with five angles, each angle terminating in an oval tooth, permanent. Cor. of one petal, funnel-shaped; tube as long again as the calyx; throat globose; limb plaited, in five deep, straight, oval segments, revolute at their margin. Stam. Filaments five, inserted towards the middle of the tube, curved and downy at their base, as long as the tube; anthers oval, of two cells. Pij. German superior, small, oblong; style terminal, thread-shaped, the length of the stamina; stigma of two unequal lobes. Peric. Capsule cylindrical, slightly curved, as long again as the calyx, of one cell, and two cloven valves. Seeds numerous, imbricated, oblong, compressed, each encompassed with a membranous border.


1. S. stipula. "Fl. Peru v. 2. 9. t. 115. f. B."—"Leaves lanceolate, or heart-shaped. Clusters panicled."—Native of cool situations, on the mountains of Peru, flowering in June and July. A feedit shrub, five or six feet high, having the apect of a Cæstrum. The branches are straignt, leafy, alternate. Leaves alternate, falked, mostly lanceolate, heart-shaped at the base; others, especially the upper ones, narrower, oval, oblong, entire, pointed, from three to five inches long, and one or two broad, smooth above, white and downy beneath. Stipulas at the base of the footstalks, equal to them in length, opposite, large, oval, obtuse, fellite, a little heart-shaped at the bottom, deflexed at the sides, deciduous. Panicula terminal, composed of straight, downy clusters, with corystome falks, of yellow downy flowers, accompanied by small, awl-shaped, deciduous bracteas.

2. S. dependens. "Fl. Peru v. 2. 9. t. 116."—"Leaves oblong, heart-shaped. Clusters very long, pendulous."—Native of the banks of rivers in Peru, flowering in November, December, and January. A tree, twenty-five or thirty feet high, agreeing in many respects with the foregoing, but the leaves are very powdery at the back, and the clusters very long, fimple, and pendulous, slightly zigzag. The flowers are usually placed three together, in alternate fellite tufts. Calyx powder, Corolla with a black tube, and yellowish limb, externally downy. Capsule black.

Both species are esteemed emollient anodyne. Poir. 

SESI, in Geography, a town of Bengal; 5 miles N.W. of Dofea. N. lat 23° 4'. E. long. 84° 58'.

SESENREUTH, a town of Germany, in the princi- pality of Cumbach; 10 miles N. of Bayreuth.

SESSERY, a town of Hindooflan, in Oude; 15 miles S. of Lucknow.

SESSILE, in Botany, a term applied to any part of the herbage or flowers of a plant, that is not elevated on any kind of stalk; from the Latin sessilis, sitting close. Many plants bear flores sessiles, fellite flowers, on the branches; very few at the root, like Crocus, Colchicum, and Apolytis. It is not unusual for the fructification, though sessile at the flowering period, to become falked as the fruit advances toward maturity. The german is fo usually sessile, as feldom to require to be fo defcribed, it being sufficient to notice a falked ferman, whenever fuch occurs, as affording moftly an im- portant generic character. For folia fessilis, fellite leaves, fee LEAF.

SESSILE Roots, such tuberous roots as adhere to the bafe of the flalk. See Root.

SESSION, Sessio, denotes each sitting, or assembly, of a council.
to advise it himself, or to advise with the whole lords upon it. And it was of the parties think themselves wronged by the sentence of the ordinary, they may complain to the lords, and get their answer upon a bill.

An appeal lies from the court to the house of lords.

The lords of session were first appointed by James I. of Scotland, who selected, among the estates of parliament, a certain number of persons, and distinguished them by this appellation. They were empowered to hold courts for determining civil cases three times a year, and forty days at a time, in whatever place he pleased to name. James IV. on pretence of remedying the irregularities arising from the short terms of the court of sessions, appointed other judges, called lords of daily council. The session was an ordinary court, and met seldom; the daily council was fixed, and sat constantly at Edinburgh; and though not composed of members of parliament, the same powers which the lords of session enjoyed, were vested in it. At half, James V. erected the new court that still subsists, and which he called the college of justice, the judges or senator of which were called lords of council and session. Robertson's Hist. of Scotland, 1776, i. vol. i. p. 40.

Sessions, Kirk. See Kirk.

SESSLACH, in Geography, a town in the duchy of Wurzburg; 50 miles N.E. of Wurzburg.

SESSA, a town of Bengal; 21 miles S. of Dacca.

SESTO, a town of the Ligurian republic; 5 miles N.W. of Brugnetto.

SESTA, half the interval and consonant of the sixth, in Music. See Hexachord, and Hexachordon.

SESTERCE, Sestertiis, a silver coin, in use among the ancient Romans, called also simply nummus, and sometimes nummum septertia.

The sesterce was the fourth part of the denarius, and originally contained two asses and a half.

The sesterce was at first denoted by IIIC; the two I's signifying two librae, and the S half. But the librae, afterwards converting the two I's into an H, expressed the sesterce by HS.

The word sesterce was first introduced by way of abbreviation for semisemisemisemisemisemifemisertium, which signifies two, and a half of a third, or, literally, only half a third; for in expressing a third, it was understood that there were two before. Hence sesterce came to be the great estimate of Roman money.

Some authors make two kinds of sestertii: the less, called sestertii, in the masculine gender; and the great one, called sestertium, in the neuter: the first, that which we have already dervived; the latter containing a thousand of the other. Others will have any such distinction of great and little sestertii unknown to the Romans, sestertius, say they, was an adjective, and signified as sestertius, or two asses and a half; and when used pluraliter, as in quingenarius sestertium, or sestertii, it was only by way of abbreviation, and there was always understood centena, millia, &c.

This matter has been accurately stated by Mr. Raper, in the following manner. The substantive to which sestertius referred is either as, or pondus; and sestertius is to two asses and a half; sestertium pondus, two ponders and a half, or two hundred and fifty denarii. When the denarius padded for ten asses, the sesterce of two asses and a half was a quarter of it; and the Romans continued to keep their accounts in these sestertii long after the denarius padded for six times a denarius; till, growing rich, they found it more convenient to reckon by quarters of the denarius, which they called nummi, and used the words nummus and sestertius indifferently, as synonymous terms, and sometimes both together, as sestertius nummus; in which case, the word sestertius having lost its original significance, was used as a substantivum; for sestertius nummus was the supposed value of a denarius and a half, but a single denomination of four asses. They called any sum under two thousand sestertii to many sestertii in the masculine gender; two thousand sestertii they called desso or dina sestertii in the neuter; so many quarters making five hundred denarii, which was twice the sestertium; and they said dena, vicena, &c. sestertius, till the sum amounted to a thousand sestertii, which was a million of sestertii. But, to avoid ambiguity, they did not use the neuter sestertium in the singular number, when the whole sum amounted to no more than a thousand sestertii, or one sestertium. They called a million of sestertii, decies nummum, or decies sestertium, for decies centena millia nummorum, or sestertiorum (in the masculine gender), omitting centena millia, for the sake of brevity. They likewise called the same sum decies sestertium (in the neuter gender) for decies centia sestertiorum, omitting centia for the same reason; or simply decies, omitting centia millia sestertiorum, or centes sestertiorum; and with the numeral adverbs, decies, vicies, centies, millies, and the like, either centia millia, or centes, was always understood. There were their most usual forms of expression; though for bina, dena, vicena sestertias, they frequently said bina, dena, vicena nummorum. If the consular denarius contained sixty four grains of fine silver, it was worth somewhat more than eight pence farthing and a half shilling; and the iso, of sixteen to the denarius, a little more than a halfpenny. To reduce the ancient sestertii of two asses and a half, when the denarius padded for sixteen, to pounds shillings, multiply the given number by 1543; and cut off the figures on the right hand for decimals. To reduce nummi sestertii, or quarters of the denarius, to pounds shillings; if the given sum be consular money, multiply it by 8727; and cut off the figures on the right hand for decimals; but for imperial money, diminish the paid product by one-eighth of itself. Phil. Trans. vol. I. part ii. art. 48. See Denarius and Drachm.

To be qualified for a Roman knight, an estate of four hundred thousand sestertii was required; and for a senator, of eight hundred thousand.

Authors also mention a copper sesterce, worth about one-third of a penny English.

Sestertii, Sestertius, was also used, in Antiquity, for a thing containing two wholes and a half of another; as at was taken for any whole, or integer.

SESTINI, in History, engaged as a prima buffa in the comic opera, arrived in England from Lisbon in 1755; and her first performance was in Aucocin's comic opera, entitled "La Marchesa Giardiniera." Her face was beautiful, her figure elegant, and her action graceful. Her voice, though by nature not perfectly clear and sweetly toned, had been well directed in her studies, and she sung with considerable agility, as well as taste and expression.

She was married to a young man of family at Lisbon, by which imprudent step he had totally lost all parental favour, and even support; so that, instead of being an auspicious match for herself, she had him and a large family to maintain by her talents; which not being of the first class, were soon disregarded by the public. And after languishing some years unemployed, she went with her helpless husband and family to Italy, where, it is to be feared, they suffered all the melancholy mortifications of extreme indigence.

SESTO, Cesare, known by the name of Cesare Milanese, was a native of Milan, and flourished about the year 1500. He is one of those painters by whom probably were executed some of the many pictures attributed to Leonardo da Vinci; and in the Ambrosian library was a head by him often attributed to Leonardo. In some of his works he also

imitated
imitated Raphael, to whom he was known. He died at Milan in 1524.

Sesto, in Geography, a town of Italy, in the Milanese; 28 miles W.N.W. of Milan.—Alfo, a town of Italy, in Friuli; 5 miles N. of Concordia.

SESTOLA, a town of Italy, in the department of the Pararo; 17 miles S. of Modena.

SESTOS, a fortress of European Turkey, in the province of Romania, opposite to Abydos; 24 miles S.S.W. of Gallipoli. N. lat. 40° 6'. E. long. 26° 25'. Abydos (which see) and Sefos were two towns, opposite one another at the most narrow part of the Hellepont: they were famous for the love-adventures of Leander, who lived at Abydos, and Hero, a priestess of Venus, at Seftos. Leander swam across the Hellepont to visit his mistress, guided by a torch, which he lighted on the top of a tower; but, in a tempestuous night, Leander, having too imprudently committed himself to the waves, could not reach the other shore, and was unfortunately swallowed up by the agitated waves. Hero, in true despair, threw herself into the sea, in order to share the fate of her lover. Propocapis places Seftos in the cove the nearest to Abydos; and he adds, that the emperor Julianian caused a citadel to be built near that city: the remains of this citadel are still to be seen on the east-fore. On the declivity of the hill, the walls of the ancient city may very easily be traced. Four miles from Seftos, on ascending the渠道, is another harbour, near which is seen only a single habitation of derelicts, occupied by three or four Mussulman monks.

Sestos, a river which rises in the mountains of Sierra Leone, traverses the Grain Coast, and runs into the Atlantic, N. lat. 5° 30'.

SESTRE, Grand, or Great Paris, a town of Africa, on the Grain Coast, being one of the largest commercial towns of the country. N. lat. 4° 10'. W. long. 8° 20'.

SESTRE, Petit, or Little Paris, a town of Africa, on the Grain Coast, near Grand Sefite.

SESTRE-KRO, or Settra-Kroo, a town of Africa, being the chief town of the Kroo country, which extends along the Grain Coast, between Cape Mount and Cape Palmas, from 5° 34′ to 5° 7′ N. lat. The chief town is in long. 7° 48′. This district, though small, is extremely populous, and the natives are of a migratory disposition. Above 800 are employed as labourers at Sierra Leone; and they are to be found at every factory and town along the coast for a space of 350 miles. They are employed as factors or intermediate merchants, boatmen and sailors; and while the slave trade was carried on upon this coast, they had their share of its occupations. After the age of forty, they return and settle at home. Their country produces grain, particularly rice, pepper, and cattle; but their staple article is their own labour, with which they purchase goods, and return to their homes with the produce. Wars are rare among these people; they never fell one another, nor kill their captives; nor do they punish any offence by slavery, though witchcraft among them is a capital offence, and the only one that is invariably so among them. One of the most singular parts of the character of the Kroomees, is their extreme love for their own country, and their confident belief in its vast superiority over all others. Every action of their lives bears a reference to it. With regard to their talents and acquirements, they are sufficiently acute and observant, where the occasion calls their minds into action. They have not the use of letters, nor will they permit their children to learn; their language in conversation is very bad; and as they live by daily labour, which is paid for in European goods, they have no occasion for manufactures of their own, and of course no opportunity for displacing their talents. They make their own canoes, some implements of agriculture, and a few musical instruments.

SESTRI di Levante, a town of the Ligurian republic; 12 miles W. of Brugnetto.

SESTRI di Ponente, a town of the Ligurian republic; 4 miles W. of Genoa.

SESTUPLA, in Majic. See SEXTUPLA.

SESVAH, or Ramour, in Geography, a town of Hindoo land, in Bahar; 22 miles E.S.E. of Bettinah.


Gen. Ch. Cal. Periath inferior, of one leaf, bell-shaped, deeply cloven into five, ovate, acute, withering segments, coloured on the inside. Cor. none. Stam. Filaments numerous, sub-lilaped, shorter than the calyx and inferted at its base; anthers roundish. Petals German inferior, oblong, at the bottom of the calyx, triangular at the upper part; styles mould three, capillary, erect, the length of the flaments; filaments simple. Peric. Capule ovate, of three cells, burrowing all round. Seeds rounded, flatshaped, with a beak at the margin.


1. S. Portulacolstrum. Purflane-leaved Sewsvium. Linn. Sp. Pl. 684.Jacq. Amer. 95. (Portulaca alozoides maritima procumbens, flore purpureo; Sloane Jam. v. 1. 204. Crithimus indicus; Rump. Amboin. v. 6. 165. t. 72. f. 1.)—Stem round. Leaves opposite, oblong. Flower-flake solitary, much shorter than the leaves.—Native of the West Indies, in maritime situations; flowering in July and August.—Root perennial. Stems succulent, four or five inches long, round, thick, diffus, branched, at first procumbent, then erect. Leaves on short stalks, feathery, bright green; their stalks feathery, with membranous edges. Flowers solitary, axillary, green on the outside, white and blood-red or purple on the inside, inodorous. Seeds black.—The whole plant is very succulent, and abundant with a neutral-alcalieent salt, which is easily extracted, and would probably serve as a subtitute for Kail.


SET, a term used for a pole or shaft, used to shove boats along a canal, &c.

Set is also a term signifying to let, as land.

Set, in Agriculture and Gardening, a term used in Ireland to signify a fort of ridge. It also signifies a cutting of any fort of feathery root, flax, or tree of the fruit kind. Likewife any fort of young plant from the feed-bed to be planted out.

SET-off, in Law, is an a€, by which the defendant acknowledges
SET

knowledges the justice of the plaintiff's demand on the one hand; but, on the other, sets up a demand of his own, to counterbalance that of the plaintiff, either in the whole, or in part; as, if the plaintiff sues for ten pounds due on a note of hand, the defendant may set-off nine pounds due to himself for merchandise sold to the plaintiff; and, in case he pleads such set-off, must pay the remaining balance into court. This answer very nearly to the *compensatio*, or hagglmage, of the civil law, and depends upon the statutes 2 Geo. 11. cap. 22. and 8 Geo. 11. cap. 24.

SETCHOU, or Setchen, a town of Africa, alyently called Sinthi, and capital of a part of Mauritania, which made a stout resistance against the Saracens. There is scarcely any fragment left, either of the ancient walls, pillars, or columns of the Romans; the few remaining structures being obviously the work of the later inhabitants. The fountains, which continue to flow very plentifully near the centre of the city, are equally delightful and convenient; and without doubt gave occasion formerly for many ingenious and useful contrivances in the distribution of the water; 50 miles S.W. of Concastante. N. lat. 35° 58'. E. long. 5° 36'.

SETECUT, or SETHERA, a town of Africa, on the Grain Coast.

SETHIAH, SETHIANS, SETHIAN, or Sethianus; an Eclectic History, a branch of the ancient Gnostics; thus called, because of their pretending to deduce their origin from Seth, son of Adam, whom they called Jesus and Christ; from an opinion, that Seth and Jesus were the same person, who came down from heaven at two several times.

As the Sethians had the same philosophy with the other Gnostics, they had numerous other names in their system. They pretended to have several books of the ancient patriarchs; particularly, seven of their great master Seth; besides one of Abraham, which was full of manifest futilities, which yet they called Apocalypsis, or Revolution. The book called the "Little Genesis," anciently very common in the churches of the East, was borrowed from them. From this book they learned the name of Seth's wife, who, they say, was called Horei. Some imagine, they borrowed a great many of their fictions from the Hellenist Jews.

SETHRON. in Geography, a town of Egypt, on the S. coast of the lake Mentach ; 16 miles W. of Tmhe.

SETHON, in Geography, a mountain in the E. part of the Tyroles. SETULANA, a town of Hindoostan, in the circom of Siroy; 35 miles N.W. of Siroy.

SETELLE, a town of Turkish Armenia; 30 miles S.W. of Akalzikey.

SETELLE, a river of Hindoostan, which rises in the mountains of Thibet, and runs into the Indus, near Veh, anciently called Hesmarus.

SETON, a river of Spain, which runs into the Gallego, in the province of Aragon.

SETON, Setuxum, denotes, in Surgery, a sheen of silk or thread, introduced through a part of the flesh by means of a needle, and left there to keep up a continual discharge of matter, and a degree of counter-irritation, with a view of relieving or curing a variety of diseases. In a few cases, fetons are employed on another principle. When sinuses and fistulae have lost all disposition to heal, in consequence of a want of action in the parts affected, a feton, passed through the track of the diseaee, will sometimes excite a salutary kind of inflammation, which brings on the healing process. Great judgment, however, is necessary in the application of a feton for this purpose; for, unless the fistula be prevented from healing merely by the caufe above specified, namely, a want of action in the parts, no success can be expected to attend the practice, and the patient will be put to much unnecessary pain and inconvenience.

A feton is also sometimes employed as a means of discharging X x 2 charging
charging the contents of large chronic abscesses. It is thought by some practitioners that this method has the advantage of letting the matter escape very gradually, a circumstance, by which the dangerous effects, often arising from emptying the abscesses all at once, are in a great measure avoided. Many surgeons even suppose that fevers hinder the external air from getting into the cavity of the abscesses, and, as prejudice and exaggeration have filled their minds with fictitious apprehensions upon this subject, they are perhaps more attached to the practice than any recommendations which it really possesses would justify.

Formerly, fevers were frequently used for accomplishing the radical cure of the hydrocele. The celebrated Mr. Pott was an advocate for this method, which he certainly brought to great perfection. It is scarcely necessary for us to remark here, that the fevers excited the requisite degree of inflammation in the cavity of the tunica vaginalis tectis, and the adhesion of its opposite surfaces to each other. See HYDROCELE.

The common mode of making a fever is with a flat broad flat needle, which is somewhat curved towards the point, and furnished with cutting edges. This form enables the surgeon to bring the needle out of the part again without any difficulty. The incisions are pinched up into a fold, of which the operator raises one end with the fore-finger and thumb of his left hand, while an ailant raises the other. The needle, armed with the filk or thread dipped in sweet oil, is then to be pushed through the skin thus lifted up. It is only necessary to draw the end of the filk or thread a little way out of the fecond aperture: the needle may now be removed. The next object is to fix the ends of the filk, which is usuallly done with adhesive plaster. The wounds are then to be covered with plasters, and a retentive bandage. The oil prevents the skin from adhering to the feff, and facilitates its paffage through the wound; for, as soon as suppuration has taken place, that part of the filk which is in the wound is to be drawn out and cut off. The fame method is to be repeated every day, and the fame plan of dreffing continued. When the skin of filk is exhausted, a new one, oiled in the above manner, is to be introduced by means of an eye-probe.

Settons, unless kept exceedingly clean, and drest with much tenderness, sometimes excite a great deal of irritation, and prove very troublesome to the patient. The thread is also apt, with the leaff neglect, to cut its way out, and leave an ugly sore.

When a fever is made in a cafe of large chronic abscesses, a puncture is first made in the upper part of the tumour; an eye-probe, armed with a feck of filk, is introduced downward; and the end of the instrument being felt against the inside of the lower part of the swelling, an incision is made upon it, so that the end of the filk can then be drawn out.

The manner of making a fever for the cure of hydroceles has been described in a former volume. See HYDROCELE.

The like operation is frequently practiced on hordes, &c. and called, by the farriers, rowelling.

SETOSCH, in Geography, a town of Bohemia, in the circle of Chrudim: 8 miles S.S.W. of Chrudim.

SETRA-JETA, the name, in Hindoo romance, of the father of one of the favourite wives of the popular deity Krishna. Her name was Satyavama; and she is sometimes said to have been an incarnation of Lakshmi, consort of the god Vishnu. See those articles.

SETS, in Agriculture and Gardening, a term applied to the cuttings or planted parts of potatoes, hops, liquorice, lavender, &c. It has lately been found to be of material consequence for the fets which produce the plants, in some cafes, to have a large sufficiency for their early nourishment and support, as in theofe of the potato; as though the small parts, called eyes or buds, will grow and produce crops, they are far from being equit thumbs when the fets of a large size. In short, the result of various experiments has shown that crops of this fort prove, ceteris paribus, abundant or otherwife, nearly in proportion to the fize of the fets. Therefore, as there is no material faving produced by the ufe of small fets or cuttings of this root, while the difference in the quantity of produce is from one hundred to one hundred and fifty fiftles the acre, the practice of employing fuch small fets in planting should be discontinued in all situations; and for the very fame reafon that heavy well-fed corn, when otherwise in good condition, should, in all cafes and circumstances, be preferred to that which is light. See POTATO and Seed.

SETSE, in Botany, the name of a Chienefe tree, called alo chifta, and much efteemed by the people of that country for its beauty, and for the goodnefs of its fruit. In the provinces of Canton and Honan there are whole plains covered with thefe trees, many of which grow to the fize of our walnut-tree. The fruit ripens every where in the Ealt, where the tree grows, but it is of a much more delicious flavour in fome places than in others. The leaves are of the colour and fhape of thefe of our walnut-tree, only that they are more round at the ends. The fruit is fometimes round, fometimes pointed at one end, fometimes oval, fometimes flat, and not unfrequently composfed of two pieces, as it were, and resembing two apples, cut and joined together. The rind is always green, never changing yellow or red, and the fruit keeps its freshness all the winter. They are about the fize of the orange, and the skin is very tender and thin, and the fruit has a mixed taste of the sharp and the luscious. It is very wholesome and good.

SETTE'S, in Geography, a town of Africa, and capital of a country the fame name, fubjet to Loango, on the river Sette: 160 miles north of Loango.—Alfo, a country of Africa, south of cape Lopez Gonfalvo, watered by a river of the fame name. This country is gouverned by a mani, who is fubjet to the king of Loango.—Alfo, a river of Africa, which runs into the Atlantic, S. lat. 2° 15'.

SETTEE, in Sea Language, a veftel, very common in the Mediterranean, with one deck, and a very long and sharp prow. They carry, fome two mafts, fome three, without top-masts. They have generally two mafts, and are rigged and navigated like xebecs or galleys, with fetteis flats instead of lateen falls. The leaff of them are of fixty tons burden. They ferve to transport cannon, and provisions for ships of war, and the like. These veffels are peculiar to the Medi-terrannen fea, and are ufually navigated by Italians, Greeks, or Mahometans.

SETTEFRAtri, in Geography, a town of Naples, in Abruzzo Ultra, 10 miles N. E. of Teramo.

SETTENIL, a town of Spain, in the province of Grenada; 8 miles N. of Ronda.

SETTER, among Farmers. To fetter, is to cut the dew-hairs of an ox, or cow, and into the wound to put the root of the helleborafter; by which an iffe is made, for ill humours to vent themfelves.

SETTER-Wort, in Botany. See HELLEBORE.

SETTIA, in Geography, a province of the ifland of Candia, occupying the whole eastern part of the ifland; it is the moft extensive, but the leaff peopled, and the leaff productive,
producing, though in a great measure susceptible of culture, and though most of its lands are very fertile. But distance from the capital, want of harbours, and the incen- dative injustice of the ages, and almost every other circum- stance, contribute to render the inhabitants of this part of the island more indolent than the others. Contented with gathering corn and fruit for their subsistence, oil for paying their taxes, and procuring for themselves a few clothes, and the utensils necessary for their family, they are not eager to seize from the earth a surplus of productions, which would render them more subject to the oppression and foliation of the ages. The town is situated on a flat shore, with a cape not much advanced, and three hills placed at upwards of a league's distance, protect it feebly from the N. and N.E. winds. When the Venetians were masters of the island, it was tolerably well fortified, and sufficiently peopled. They constructed a mole, in order to shelter the vessels which came thither to load with the productions of the province, or which brought those that were necessary to supply the wants of the inhabitants. At this day none but small boats may be seen at Settia. The popula ction has diminished considerably, and the fortifications are in the greatest disorder. It is the fee of a Greek bishop; 44 miles E.E. of Candia. N. lat. 35° 3'. E. long. 16° 3'.

SETTIAVERAM, a town of Hindostan, in the cir- car of Ciaccole; 30 miles S.W. of Coimicotta.

SETTIMA, ItaL., in Music, the interval of the seventh; which fee.

SETTIMANA Santa, ItaL, passion-week, during which holy time, the sacred music of the highest class used to be performed in the most perfect and impressive manner in the pontifical chapel. See Miniserka and Allegro.

SETTIMO, in Geography, a town of France, in the department of the Po; 8 miles N. of Turin. — Alfio, a town of Italy, in the department of the Tefino; 5 miles N.E. of Pavia.

SETTING, in Astronomy, the withdrawing of a star or planet; or its sinking below the horizon.

Astronomers and poets make three different kinds of setting of the stars: coelical, aeronical, and helical.

To find the times of the setting of the sun and stars, see Globe.

Setting, in Seamanhip. To set the land, or the sun, by the compass, is to observe how the land bears on any point of the compass, or on what point of the compass the sun is; likewise the act of observing the situation of any distant object by the compass, in order to discover the angle which it makes with the nearest meridian: as at seven pole meridian, we set the tower of Arabia near the port of Alexandria, and it bore S.E. distant four leagues by elimation. (See Bearing.) Also, when two ships fail in sight of one another, to mark on what point the chafed bears, is termed setting the chase by the compass.

Setting also denotes the direction of the wind, current, or sea, but particularly the two latter; as, the tide, which sets to the south, is opposed to a swelling sea, setting to the north-west.

Setting, when applied to the sails, is the loosening and expanding them, so as to give the ship motion, or to acce- lerate her velocity, when she is already moving, and perhaps give a new direction to her motion. It is used in contra- distinction to taking-in the sails, as loosening or heaving-out is opposed to furling or flowing them.

Setting, in the language of Sportsmen, a term used to express a manner of attacking partridges, in order to the taking of them by means of a dog peculiarly trained to that purpose. The setting dog generally used is a large land-spaniel, taught by nature to hunt partridges more than any other game, and in his unsought state running over the fields in search of them, with an alacrity that is truly wonderful; yet by art this creature is taught under such excellent command, that he will, in the midst of his highest career, attend to the least hint from his master, and stand still to look in his face, and take his orders by the slightest signals; and when he is, to near his game, that it is almost in his mouth, he will stand still, or he soon on his heels till his master arrive, and he receives his directions.

The setting-dog being taken to the haunt of the partridges is to be call off, and sent to range; but he must be made to keep near the sportsman, and not to run wildly on, but to beat all the ground regularly. On being reproved for ranging too widely and too fast, he will keep close the whole day, and at times look up in his master's face, to know if he does right or wrong. If in the dog's ranging he drop of a sudden, the sportsman is to make up to him, and as there is certainly game before him, he must be ordered to advance; if he refuses this and book back and shake his tail, it is a signal that they are close before him, and the sportsman is then to take a circumference, and look with a careless eye before the dog's nose to see where they are, and how they lie; then going up, and faking down one end of the net, he is to command the dog to lie still, and to draw the net gently over the birds; then making in with a noise, he is to spring them, and they will be en- tangled and taken as they rise. It is a rule with fair sports- men, when they take a covey in this manner, always to let the cock and hen go.

Setting, among Cock-Masters, is the placing a cock that has fought so that he cannot stand, beak to beak against the other cock, and if he does not strike, the battle is won.

Setting-down, in Falconry, is when a hawk is put into mew.

Setting-dog, one trained up to find out and discover for the sportsman whereabout fowls are. See Spaniel and Dog.

Setting-up, in Ship-Building, is raising a ship by shores and wedges from her blocks, the act of extending the shores, flats, and back-flats, to secure the masts, by the application of tackles, &c.

Setting, or Setting-is, the act of making the planks, &c. lay or set cleve to the timbers, by driving wedges between the plank, &c. and wrench-flatt. Hence "set, or set away," means to exert more strength. The power or engine used for this purpose is simple, and called a fet, and is composed of two ring-bolts, and a wrench-flatt, cleats and lashing, or flares.

Setting, in Agriculture and Gardening, the business of putting lots of different kinds into the ground, as those of the potato, hop, madder, liquorice, lavender, and many other kinds.

Setting out Plants, the practice of thinning and reducing them; in the former, to their proper distances, in order to stand for crops, as in the turnip, cabbage, and many other sorts of plants; and, in the latter, the business of putting them into the ground as crops; it being practiced for a great many different sorts of plants that are raised on feed- beds, as all the cabbage kind, lettuces, endives, beets, and many other plants of a similar nature. It is usually performed as soon as the plants have acquired a proper state of growth in the feed-beds, and mostly when the weather is cloudy and rather moist, as it can then be done to the greatest
greatest advantage, in so far as the plants are concerned. They are commonly put out in this way to the proper distances for growing as crops, and the work is for the most part done by means of a line and dibble. See THINNING out CROPS, and TRANSPLANTING.

Setting of Wheat, is a method of cultivating wheat, which was probably first suggested by planting grains in a garden from mere curiosity, and first attempted on a larger scale by a farmer near Norwich, about the year 1768. His example was followed by some of his neighbours, and particularly by one of the largest occupiers of land in the county of Norfolk, who set fifty-seven acres in one year. His success, from the visible superiority in his crop both in quantity and quality, was so great, that the following autumn he set three hundred acres, and afterwards continued the practice. The method of setting was generally introduced, in consequence of this experiment, among the intelligent farmers, in a very large district of land. And it has been observed, in recommendation of it, that, although the set crops appear very thin during the autumn and winter, the plants tiller and spread prodigiously in the spring. The ears are indubitably larger, without any dwarfish or small corn; the grain is of a larger fathom, and specifically heavier per buchel than when town. It furnishes employment for aged persons and children, at a season when they have little else to do; it favours to the farmer fix pecks of seed-wheat in every acre; the expense is already reduced to about five shillings an acre; and a drill-plough has been invented, by which one man may let an acre a day.

The lands on which this method particularly succeeds, are either after a clover stubble, or those on which trefoil and grås-feed were sown the spring before the fall, and on which cattle have occasionally pastrised during the summer. These grounds, after the usual manuring, are once turned over by the plough in an extended fall or turf, at ten inches wide; along which a man, who is called a dibbler, with two setting-irons, somewhat bigger than ram-rods, but considerably bigger at the lower end, and pointed at the extremity, leaps backwards along the turf, and makes the holes about four inches afunder every way, and an inch deep. Into these holes, the droppers (women and children) drop two grains, which are quite sufficient. After this, a gate, bushed with thorns, is drawn by one horse over the land, and closes up the holes. By this mode, three pecks of grain are sufficient for an acre; and being immediately buried, it is equally removed from vermin, or the power of frost. The regularity of its rising affords the best opportunity of keeping clear from weeds, by weeding or hand-hoeing.

Setting, a term used in sheep management, which signifies the picking, checking, and selecting those which are the best formed, and most perfect for the purposes of breeding, forming the flock, and keeping as stock; the others, or the refuse ill-formed sheep, being sold off, or lent to be fattened in the proper pastures. The practice is extremely useful and necessary, where good stock of this kind is aimed at, as it cannot be well obtained without it. See SHEEP, and SORTING SHEEP-STOCK.

Setting Lamb-Stock, a term made use of to signify the practice of culling and removing those lambs, which are any way improper for being kept as stock. It is an excellent custom in sheep-management, which should be as seldom as possible neglected.

Setting of Farms, the business of letting them to tenants of different kinds. Much care and attention are necessary in the management of this business. See LETTING FARMS.

Setting of Bricks. See BRICKS.

Setting-Pin, the name of a dibble or setting-tool.

Setting-Stick, the flick used in setting out plants or cuttings as field crops, and in putting in and planting out those used for garden culture.

SETTLE, in Geography, a market-town in the parish of Giggleswick, wdd division of the wapentake of Staincliffe and Ewecroft, West Riding of Yorkshire, is situated at the distance of 58 miles W. by N. from York, and 323 miles N.W. by N. from London. The position of this town, though singular, is pleasant, standing close to the base of an almost perpendicular limestone rock, about 350 feet high; from the summit of which is a fine prospect on a commanding vale, bounded on all sides by craggy mountains. This vale, which is watered by the river Ribble, and hence has acquired the appellation of Ribblefdale, is not surpassed by any in England in richness of verdure. As the prevalence of fogs and rains prevents the ripening of corn, it is almost wholly appropriated to pasturage; and fitch is its fertility, that the greater part of it rents as high as six pounds an acre. According to the parliamentary returns of 1811, Settle township contains 274 houses, and 1153 inhabitants, who are chiefly engaged in the cotton manufacture, and in the pursuits of husbandry. Like most of the other towns and villages in this district, it is principally built of stone, brick being used only for the chimneys. The market day here is Friday, weekly; and the fairs are on Tuesday before Palm Sunday, Thursday before Good Friday, and every alternate Friday till Whit Sunday, 26th April, 2d June, 1st August, 1st Tuesday after 27th October, and every other Monday throughout the year. These fairs are generally well attended, and are noted for large supplies of cattle.

About a mile to the N.W. of Settle is the village of Giggleswick, which gives name to the parish, and where the church is accordingly situated. This village is remarkable for an excellent free grammar-school, founded in the reign of Edward VI., and supported by rich endowments in land. At present the salary of the master is 50l. per annum, that of the usher 20l., and that of the writing-master 15l. per annum. The school is situated in a good house, garden, and every convenience for a comfortable dwelling. Near Giggleswick is a spring, which exhibits the singular phenomenon of a constant influx and reflux of its waters at irregular periods, sometimes thrice or oftener in an hour. No satisfactory explanation of this singularity has yet been offered to public notice.

At the distance of several miles further to the N.W. from Settle, on the road to Kendle in Westmoreland, stands Ingleton, a large village, the vicinity of which presents many objects worthy the attention of the admirers of romantic scenery. Among these are Thornton-Scar, Yorond Cave, and Weathercote Cave, and the mountains of Ingleborough, Pennignant, and Wharfnnde. Thornton-Scar is a tremendous chasm, above 300 feet in depth, which extends a considerable way into the mountains, and is so narrow towards the bottom, that the sides in some places approach within a few feet of each other. Yorond Cave is situated under a mountain, called Greg-roof. It is entered through a rude arched opening, resembling the gateway of an ancient caille, and extends about 170 feet in length, 40 in breadth, and 48 in height. On one side are several recesses, and the roof and walls exhibit a variety of petrifications. Weathercote Cave displays, in every still more romantic and sublimine nature, a form, and divided into two by a grotesque arch of lime-stone rock; the total length about 200, and the breadth about 90 feet. At the fourth
fourth end is an entrance down into a small cave, which communicates with the larger one by a subterranean passageway, "where the abundant resultant fosse, fluming from a large aperture in the rock, an immense cataract, falling above 20 yards in an unbroken sheet, with a noise that drowns the ear. The water disappears as it falls from the rocks and pebbles, and runs about a mile under ground. The whole cave is filled with the spray that arises from the cataract, and sometimes a small vivid rainbow appears, which, for colour, size, and situation, is scarcely any where else to be equalled."

"That the most sublime features of this romantic district are the mountains of Ingleborough, Penningant, and Wharnside. The summit of Ingleborough is level and horizontal, and, from its great elevation, commands extensive prospects on all sides. To the east, the picturesque country of Craven presents 9 confluent affluent of hills, gradually diminishing in height till they vanish in the horizon. Penningant, at the distance of four miles, appears to be almost within a leap; as do also the rocks of Settle and Pendlehill. The northern and north western prospect exhibits a mass of mountains. Wharnside is within the distance of six miles, and Snowdon and Coflmer are clearly visible in the back ground. Towards the west the flat country of Lancashire lies as a map, and the prospect extends far into the Irith sea. the nearest point of which is 24 miles from Ingleborough. Beauties of England and Wales, vol. xi. by John Bigland, 8vo. 1816."

SETZINI, in Geography, a town of Poland, in the palatinate of Sandomirr: near it are some silver mines, and some lapiz-lazuli; 16 miles W. of Malpocez.

SEV, a river of Russia, which runs into the Dufna, near Trubchevsk, in the government of Orlov.

SEU, a river of Malaece, which runs into the Chineke sea, N. lat. 6° 45'. E. long. 10° 19'.

SEVAJEE, in Biography, a distinguished person in the history of Hindoostan, the founder of the modern Mahatta empire, was the son of Shawjee, who, from an humble situation, had raised himself by his talents to be guardian to a minor of the house of Nizam Shah. On a Mogul invasion of the country, being clothed pursu by the troops of his father-in-law, Jadoor Row, with whom he was in enmity, Shawjee escaped with an infant son, and left his pregnant wife to fall into the hands of her father. She was kindly received, and was delivered of her second son, Sevajee, the subject of this article, in the month of May 1626, and finally separated from her husband.

Sevajee, at the age of 17, placed himself at the head of a body of bandits, who pillaged all the neighbouring districts, which so affected the person who had been entrained with the care of his education, that he put an end to his life. Upon this, Sevajee took possession of the property accumulated from his father's estate, and increased the number of his followers, so as to become a most formidable free-booter. His exploits soon rendered him dangerous to the government of Vitiapour, which sent a powerful army against him, and brought him to submission. Sevajee asked pardon for his offences, and, by the humility of his deportment, threw the general, sent against him, off his guard, till he found an opportunity to stab him to the heart with a concealed dagger: in consequence of which the army disperled. Shawjee, the father of this desperate young man, was now high in office at Vitiapour, and though he pretended entirely to have renounced his son, a correspondence between them was suspected, and a plan was formed for seizing his person, and putting him to death. He was, however, saved by the intercession of a patron, and at length released to office. But he was resolved to have ample revenge for the affront, and caused Sevajee to murder the chief who had feized him, and his whole family. After this Shawjee paid a visit to his son at Poona in great state, and manifested much affection and respect for him.

Sevajee now proceeded in a career of successful predatory war, and in 1664 pillaged the rich city of Surat. Having, in 1672, laid the king of Golconda under a heavy contribution, he afterwards entered into an alliance with a potentate against the Mogul and the king of Vitiapour, the object of which was the expulsion of all the Mahometan powers from the Deccan; and marching with a great army, in 1677, towards Golconda, he took possession of many fortresses,
fortresses, and pillaged the whole country. His half-brother, Eccojce, was now king of Tanjore; and the different branches of the family were possessed of a large portion of the south of India.

The principal dominions of Sevaje were in the tract called Concan, extending from the south of Surat to the south of Goa, which rendered him completely master of the western Gatts; from which he was, at all times, able to inflame and ravage the plain country, while it was impof- sible to force him from his fastnesses; hence he was denounced by Aurungzebe the mountain rat. Sevaje continued this course of action till his death in 1680, when he was succeeded in his conquests by his son Sambajee.

SEVANI, in Geography, a town of Persia. Armenia, on a lake; 40 miles E. of Erivan.

SEVASTOPOL, a sea-port town of Russia, in the province of Tauris, on the coast of the Black sea, with an excellent harbour for men of war; 80 miles S. of Perektop, N. lat. 44° 45'. E. long. 33° 24'.

SEUOBELSROD, a town of Germany, in the principality of Culmbach; 6 miles N. of Culmbach.

SEUBITZ, a town of Germany, in the principality of Culmbach; 8 miles S.E. of Bayreuth.

SEUCKENDORF, a town of Germany, in the margin-gravate of Anspach; 4 miles E. of Langenzenn.

SEUDRE, a river of France, which runs into the sea, opposite the island of Oleron, N. lat. 45° 49'. W. long. 1° 5'.

SEVE, a town of France, in the department of the Seine and Oise, celebrated for its manufacture of china; 15 miles S.W. of Paris.

SEVEKTON, or SEVEKOTE, a town of France, in the department of the Lys; 10 miles S.W. of Bruges.

SEVEN, a river of Yorkshire, which runs into the Derwent.

SEVEN AYES, rocks in the Caribbean sea, near the S.E. coast of the island of Blanca.

SEVEN BROTHERS, a cluster of small islands near the north coast of Hifpaniola. N. lat. 19° 53'. W. long. 72° 35'.

SEVEN CAPES. See SEBSA REAS.

SEVEN HEADS, a promontory of the county of Cork, Ireland, west of Courtmasherry bay, and 6 miles W.S.W. of the old head of Kinfale. N. lat. 51° 34'. W. long. 8° 41'.

SEVEN, a cluster of small islands in the East Indian sea. S. lat. 5° 9'. E. long. 105° 21'.

SEVEN ISLANDS, a cluster of islands in the north coast of Sumatra, lying off Padang.

SEVEN ISLANDS, a cluster of small islands in the English Channel, near the coast of France. N. lat. 48° 54'. W. long. 3° 23'.

SEVEN ISLANDS, a republic so named, lately formed by the union of the islands of Zanzé, Cephalonia, Corfu, Cé- rigo, Curzola, St. Maura or Leucadia, and Teskii, constituted about the year 1799, acknowledged by the Ottoman Porte, and by the French and Great Britain, at the peace of Amiens, 1802.

SEVEN ISLANDS, small islands of Virginia, in James river. N. lat. 39° 40'. W. long. 75° 32'.

SEVEN ISLANDS, a cluster of small islands near the coast of Canada, in the gulf of St. Lawrence. N. lat. 50° 10'. W. long. 66° 5'.

SEVEN ISLANDS' BAY, a bay of Canada, on the north side of the river St. Lawrence. N. lat. 50° 5'. W. long. 66° 25'.

SEVEN PAGODAS, a town of Hindoostan, in the Carnatic; 30 miles S. of Madras.

SEVEN ROCKS' POINT, a cape in the English Channel, on the coast of Dorsetshire; 3 miles S.W. of Lyme Regis.

SEVENAER, or ZEVENAER, a town of Germany, in the ducy of Cleves; 10 miles N. of Cleves.

SEVENBERGEN, a town of Dutch Brabant; 8 miles N.W. of Breda.

SEVENNES, or SEVENSEN, mountains of France, crowning the department of the Lozere, particularly mem- orable as being the strong hold of the Protestants in the 17th century, and beginning of the 18th.

SEVENOAKS, or SEVENOKE, a market-town, in a parish of the same name, hundred of Codheath, lathe of Sutton at Home, and county of Kent, England, is situated on high ground at the distance of 16 miles W. by N. from Maidstone, and 33 miles S.E. from London. In the Textus Roffensis the name is written Seuanancca, and is said to have been suggested by the circumstance of a cluster of seven large oaks growing on the site of the town, at the time of its foundation. The principal building here is the church, which forms a conspicuous object for several miles round the country. It formerly contained a chantry chapel, founded by Sir Henry Gawdy, who was buried within it. The only monument of note is that of William Lambarde, the celebrated Kentish antiquary, whose family had a seat in this parish. Here are an almshouse and free-school, originally built and endowed by Sir William de Sevonceke, in the beginning of the 15th century. They were subse- quently incorporated under the title of the free grammar-school of queen Elizabeth, and now provides a revenue of nearly 1000l. a-year. The school-house was rebuilt in 1727, at which time the alm-shouse was substantially re- paired. The former has fix exhibitions to either university, and the latter affords an asylum to thirty-two elderly trades-people, who have a weekly allowance in money. This town consists chiefly of two wide streets, in one of which stands the ancient market-house, where the alshouses were frequently held during the reign of queen Elizabeth, and where the petty fellions for the lathe of Sutton at Home are still held. Many of the houses are large and respectable mansions, inhabited by independent families. The market- day here is Saturday, weekly; and there are two annual fairs on the 10th of July and the 22d of October. Seven- oaks town and parih constitute a liberty, governed by a warden or baliiff and four jjaffiliants, who are not, however, empowered to hold any court of record for pleas. Ac- cording to the parliamentary returns of 1811, this liberty contains 638 houses and 3444 inhabitants, of whom about 1500 reside in the town. History and Topographical Survey of Kent, by Edward Hallett, 8vo. 1797, vol. iii. Beauties of England and Wales, vol. viii. by E. W. Bray- ley, 8vo. 1805.

SEVENTH, SEPTIMA, in Mefo, an interval, called by the Greeks heptachordon; of which there are four kinds.

The first, the defective or diminished seventh, consisting of three tones, and three greater semitones, as from H sharp to F flat: its ratio is 128 to 75. The second, called by Zarzini, and the Italians, semiditona con diapente, or settino minor, is composed dionotically of few degrees; and fixes intervals, of which are tones, and the rel. greater semitones, as from de to re; and chromatically of ten semitones, of which are greater, and four les: it takes its form from the ratio quadripartitae quintas, 9 to 5. The third, called by the Italians il ditono con diapente, or set- tima
...is composed diatomically, like the former, of seven degrees, and six intervals, five of which are full tones, and a single one a greater, or diminished, tone; so that only one greater tone is wanting of the octave; as from 3 to \( 7 \) flat, and chromatically of eleven tones, six of which are greater, and five lesser. It takes its origin from the ratio of 15 to 8.

The fourth is the redundant seventh, composed of five tones, a greater tone and a lesser, as from \( 3 \) flat to \( 7 \) flat: so that it only wants a comma of an octave; that is, so much as it wants to render its second femitone a greater. Hence many confound it with the octave itself; maintaining, with good reason, that only the three first sevenths can be of any use.

In thorough bass the seventh, whether double, simple, major, or minor, is marked by a figure of 7; but if it be accidentally flat, or minor, thus, 6, or 7. If sharp, major, thus, \( 2 \) and 7. Again, if it be naturally minor, it be marked with a flat, it must be diminished.

See FUNDAMENTAL.

SEVERAC-le-Châtel, in Geography, a town of France, in the department of Aveyron, and chief place of a canton, in the district of Milhaux; 21 miles E. of Rodès. The place contains 2,113, and the canton 6,651 inhabitants, on a territory of 212 square kilometres, in 7 communes. N. lat. 46° 19'. E. long. 3° 9'.

SEVERAL, in Agriculture, the same as beole. See DOLE.

SEVERAL Tail, or Inheritance, in Law. See Inheritance.

SEVERANCE, Tenancy, Tenurial separatis, a plea, or exception taken to a writ that is laid against two persons as joint tenants, who are severats.

SEVERALTY, Eftates in. He holds lands or tenements in severalty, or is sole tenant of them, is he who holds them in his own right only, without any other person being connected with him in point of interest, during his estate therein.

SEVERALTY Land, in Agriculture, such as is in an open field state, and divided amongst many. It is a bad situation or tenure of land, and ought to be done away as soon as possible.

SEVERANCE, in Law, the suing or severing two or more that join, or are joined, in the same writ or action.

As if two join in a writ, de libertate probanda, and the one be afterwards nonsuit; here severance is permitted, so as, notwithstanding the nonsuit of the one, the other may severally proceed. There is also severance of the tenants in feque; when one, two, or more deferts appear upon the writ, and the other. And severance in debt, where two executors are named plaintiffs, and the one refuses to prosecute. We also meet with severance of summars, severance in attaints, &c.

An estate in joint tenancy may be severed and destroyed by destroying any of its unities. 1. That of time, which respects only the original commencement of the joint estate, cannot indeed (being now past) be affected by any subsequent transfusion. But, 2. The joint-tenant's estate may be destroyed, without any alienation, by merely dissimulating their possession. 3. The jointure may be destroyed, by destroying the unity of title. And 4. By destroying the unity of interest. Blacklt. Comm. book ii.

SEVERANCE of Corn. The cutting and carrying it from the ground; and sometimes the setting out the tyrthen from the tail of the corn, is called severance.

SEVERIA, or SEVERIZ, in Geography, a town of Austrian Poland, in Galitz, capital of a duchy held by the duke of Tetschen to the bishops of Cracow; 4 miles N.W. of Cracow.

SEVERIA, a town of European Turkey, in the Mores; 14 miles N.E. of Mitana.

SEVILLIANS, SEVILLIANS, in Ecclesiastical History. There were two sects of heretics called: the first, those who are as old as the beginning of the third century, were an impure branch of the Gnostics; thus called from their chief, Severus.

The second, by some called Severites, were a sect of Monophysites, or Eutychians; their leader, Severus, was preferred to the see of Antioch in 513, where he did his utmost to fet aside the council of Chalcedon.

SEVERIUS, in Geography, a town of Asiatic Turkey, in the government of Darbikir; 50 miles W. of Darbekir.

SEVERIN, or Sevrini, a town of Walachia, in the Danube, founded by the emperor Severus; 12 miles E. of Orlova.

SEVERINUS, pope, in Biography, a Roman, was elected soon after the death of Honorius, in 638, but was not consecrated till May 640, when the papal see had been vacant nearly two years. This delay was owing to the refusal of the emperor to confirm the election till the clergy of Rome had promised that their bishop should sign the declaration of faith relative to the one will of Christ, drawn up by Sergius, the patriarch of Constantinople, and published by Heraclius. During the vacancy of the see, the Lateran palace was plundered of all its treasures by the exarch of Ravenna. At length the confirmation of the election of Severinus arrived, but he enjoyed his elevation only about two months, which afforded opportunity for no remarkable act, except that he refused to receive the declaration, and even published a decree condemning it.

SEVERINUS, Marcus Aurelius, a distinguished physician, was born at Tarfa, in Calabria, in the year 1580. His early inclination led him to the study of the law; but he subsequently abandoned that pursuit for the profession of medicine, and received the degree of doctor in the university of Naples. He became ultimately one of the most celebrated professors of that school, and taught anatomy and surgery with such reputation, as to attract a crowd of students to the university. His method of treating surgical subjects in his writings was highly commended by Bartholin. He was, however, a harsh practitioner, and censured the inferences of his contemporaries, for neglecting the cautery and the knife, as employed by the ancients, and himself carried the use of the actual cautery to a great extent. He died at Naples, on the 15th of July, 1656, at the age of seventy-five. He was a man of bold and original mind, but often what attached to paradox; and was the author of several publications, of which we have the following catalogue.

1. "Hispaniam Irivans, Obserúatique medicae evivserati\n
nimiis;" 1629.

2. "De recondita aulfeclium natura Libri\n
octo;" 1630, which passed through many editions. "Vipera Pythii, id est, de Viperis natura, venena, et medicina;" 1632.

3. "Zootoca Demercica, id est, Anatomie generalis\n
naturae animalium officina, Lib. v;" 1645, containing\n
the refult of his dissection of a great many animals. "De efficacioribus Medicinae, Libri in," 1646. In this work he extols the advantages of fire and steel in the cure of diseases. "De\n
5. "Lapider fungiferœ, de Lapide fungimappa, Epitole duæ;" 1649.

At the time of his death, Severini was preparing for publication some papers, which he meant to illustrate by engravings; they were published together, and entitled, "Antiperipatias, hoc est, adversus Arifoteles de respirazione plica Diatriba." "Commentarius in Theophrastum de piscibus in focco viventibus." "Phoca anatomice spectatus;" 1661. A sort of extract or abridgment of his writings on surgery was also published in 1661, with the title of "Synopses Chirurgiae Libri vi." See Elac Dict. Hist.

SEVERN, in Geography, the second most important river in England, is foppoed by some antiquaries to derive its name from the British word fabris, fandy, or muddy; but others, with greater probability, consider it as a corruption of the Saxon term seforns, which signifies flowing. This river has its source from a large bog on the top of P.infalmon-hill, in Montgomeryshire, North Wales, whence it enters down with a swift current, and being joined by many leffer torrents, it presently appears considerable; and passing by Llanydros and Newtown, becomes navigable near Welsh-Pool, where the river Vernew joins it with a stream little inferior to its own. From thence proceeding gently to Shrewsbury, which it almost surrouns, it flows on through a rich vale, with many extensive windings, to Benhall Edge; by the way receiving into it the river Tern, which waters all the north of Shropshire. Here the Severn begins to be rapid, being pent up from thence, to Bridgenorth and Bewdley, by high woody banks and rocky cliffs, which afford a variety of beautiful prospects. Afterward it again glides pleasantly on through the fertile plains of Worcestershire, visiting in its course the city of Worcester itself, near which it receives the waters of the Teme. At Tewkebury it forms a junction with the Avon, and thereafter pursues its course to Gloucester, about fifty miles below which city the name of Severn is lost in that of the Bristol channel.

The Severn is a river of great importance, being navigated by vessels of large burthen for more than 160 miles from its mouth, without the assistance of any lock. Upwards of 100,000 tons of coal are annually shipped by the colliers about Madeley and Broseley, for the cities and towns situated on its banks, and thence conveyed into the adjacent counties. Great quantities of grain, pig and bar iron, iron manufactures, and earthen-ware, as also wool, hops, cider and provisions, are likewise sent to Bristol and other places, whence various kinds of goods are brought in return. This traffic is carried on with vessels of two forts, the larger ones being called trows, and the leffer ones barges, or frigates. In May 1597, the number of these vessels navigating from Welsh-Pool, in Montgomeryshire, to Bristol, amounted to 376; but in consequence of the addition of the inland canals from the Trent, the Mersey, and the Thames, into the Stroud navigation, it may be fairly calculated that more than double that number are now employed. This river is peculiarly remarkable for its tide, which rolls in with a head of three or four feet high, foaming and roaring in its course, as if enraged by the opposition it meets with from the strong descending current of fresh water, which seems to contend with it for the superiority. They clash in such a manner as to dash the waters to a considerable height. This conflict is called the hygres, or eagers, as Rudder supposes, from the French eau-guerre, i.e. water-war. Drayton, in his Poly-Albion, describes it in these words.

With whose tumultuous waves,
Shut up in narrow bounds, the Hygry wildly raves,
And frights the flaggard flocks, the neighbouring shore to fly.

As far as from the main it comes with hideous cry,
And on the angry front the hideous foam doth bring.
The billows' gatf the banks when fiercely it doth fling,
Hurles up the flamy oaze, and makes the fealy brood
Leap madding to the land, affrighted from the flood;
O'turns the toiling barge, whose stcreman doth not launch,
And thirls the furrowine beam to her ieful panache.

Rudder, in his "History of Gloucestershire," remarks that the bailiwick of the Severn is vested in the crown; that John Arnold obtained a lease of it in 1669 for 31 years, at 10l. a year, and that the bailiff in 1779 was a Mr. Edward Baylis. From the rapid and boisterous character of this river, its waters are extremely muddy, a circumstance which renders it unfavorable as an abode for fish. It is, however, well furnished with salmon in some of the calmer spots, and is particularly famous for lampreys. For an account of the local circumstances of this river, and the feenery on its banks, see the articles MONTGOMERYSHIRE, SHROPSHIRE, WORCESTERSHIRE, and Gloucestershire, also Welsh-Pool, Shrewsbury, and Worcester. Skrine's History of Rivers, 8vo. Atkyns's Ancient and present State of Gloucestershire, folio, 1768. Rudder's New History of Gloucestershire, fol. 1779. Fulbrooke's Abstracts of Records and Manuscripts respecting the County of Gloucester, 4to. 1807. Naft's History of Worcestshire, fol. 1782. Alfo Tours in Wales by Pennant, Bingley, Hutton, Skrine, Warner, and Wyndham.

SEVERN, a river of America, in Maryland, which runs into the Cheapeak, a little below Annapolis.—Alfo, a river of North America, which runs into Hudfon's bay, with a settlement at its mouth, called "Severn Houfe." N. lat. 50°. W. long. 88°.—Alfo, a river of North America, which runs from lake Simecoe to lake Huron.—Alfo, a river of Virginia, which runs into the Cheapeak bay, N. lat. 37° 23'. W. long. 76° 27'.

SEVERNDROOG, a fea-port town and forfets of Hindooyan, in Concan, taken by the English in 1759; 68 miles S. of Bombay. N. lat. 17° 55'. E. long. 72° 52'.

SEVERUS, Lucius-Septimus, in Biography, a Roman emperor, was born at Leptis, in Africa, in the year 140 of the Christian era. His father, Septimus Geta, was of a Roman equestrian family, and his two paternal uncles were raifed to the confular dignity. Severus was liberally educated, and made a proficiency in rhetorical studies. He came to Rome in the reign of Marcus Aurelius, by whom he was raifed to the offices of advocate of the treasury, and senator. His youth was licentious; he however paid with credit through the offices of quaefitor, tribune of the people, and prætor, in confinement of his active and regular performance of his public duties. After his quaefitorship, he went into Africa, as lieutenant of the proconsul, where he shewed his fent of the dignity of office, and the importance of frieth discipline, by ceaining an old acquaintance of ordinary rank to be fervouring for greeting him familiarly, as he was walking, preceded by lectors. After he had completed the prætorian year, he was fent to Spain with the command of a legion. He paffed some time in retirement at Athens, at the beginning of the reign of Commodus; after this, however, he was raifed.
SEVERUS.

raised to the highest honours, being successively appointed governor of the district of Lyons, and, in 192, commander of the legions posted on the banks of the Danube.

At the death of Commodus, Severus acquiesced in the elevation of Pertinax to the throne; but when, after the murder of that prince, the empire was purchased by Didius Julianus, he procured himfelf to be declared emperor by his Pannonian legions, in the year 193. Suspecting that nothing was so essential to his success as gravity, after preparing his troops, he immediately commenced his march, which he performed on foot, at the head of a fecond body of guards, sharing with the main body all the hardships of his rapid advance. He entered Italy without meeting with any reftistance. Julianus being incapable of any confident and effective measures. On his approach to Rome, his competitor was defeated and put to death, and Severus received the decree of his election to the empire. His firft act of power was to inflict a just punishment on thofe of the pretorian guards who were immediately concerned in the murder of Pertinax, which was the only blood that his elevation hitherto called. Though he spared the lives of the refl of that mutinous and diffolute body, he determined to difband them, and with this view he summoned them on a plain near the city, ordering them to come without arms. He now reproached them for their want of discipline, stripped them of their ornaments, and ordered them, on pain of infall death, to deprefl the distance of one hundred miles from the capital. Severus was not fcorne on his throne, having to contend with two formidable rivals, Pefcennius Niger, governor of Syria, and Clodius Albinus, commander in Britain. Niger being the more powerful, Severus made the firit attack upon him; and in the mean time, to secure himself againft the attacks of Albinus, he flattered his vanity, conferring upon him the title of Cæfar; and in a letter conceived in terms of apparent refpecf and friendship, he requef{tcd him to partake with himfelf the toils of government, which age and infirmity rendered him unable to undergo without an associate. In this manner he difarmed the unsuspecting foldier. Severus now marched out to encounter Niger, whom he defeated in several battles, of which the lafl was at Ifius, in Cilicia. Severus was now freed from further conflft on the death of his rival, who was slain in his flight to the Euphrates, but he ufed his victory with great rigour; he banifhed and afterwards put to death the fons of Niger, feverally fined all the towns which had taken his part, and executed all the fenvors who had been officers in his army. Taking Byzantium after a long fiegfe, he difmantled and reduced it to the condition of a village, confifling all the property of the inhabitants. He remained in Asia fome time after the victory over Niger, and made an expedition into Mefopotamia, where he obliged the Parthians to raise the fiegfe of Nifbis, and gained other advantages over the Barbarians on the fronfeis.

Severus was now too great to think of sharing his power with a partner: he accordingly deprifed Albinus of the prerogatives attaching to the title of Cæfar, while Albinus laid claim to the rank of Augustus. An open rupture ensued, and each prepared to decide the contest. They met at Lyons, each at the head of 150,000 men, equal in valour and discipline. Severus was the conqueror, and his rival defoyed himfelf. This event took place in 197. Severus being now undisputed master of the empire, indulged without reftraint his disposition to cruelty. After putting to death the family of Albinus, and all the prisoners of rank taken in the battle, together with many citizens in the towns of Gaul, which had favoured his rival, he extended his severity to the Roman senate, which had displayed an inclination towards the caufe of Albinus. By way of in/file to that body, he conferred divine honours on the tyrant Commodus, whose memory they had declared to be deteftable and infamous; and when he returned to Rome, he made a reproachful and menacing speech to the assembled senate, followed by the execution, without trial, of twenty-nine, or, as another account lays, of forty-one of the most distinguished men. In a letter of his own accord he pronounced guilty of favouring the enemy. Confident of having thus made himself odious to the superior classes, he endeavoured, by all the means in his power, to gratify himself with the people at large by public exhibitions, and by exemptions from certain duties; and it has been affirmed that, notwithstanding his tyranny, peace and prosperity were generally prevalent throughout the empire during the reign of this emperor. Severus fludiously cultivated the affection of the foldiers, by the augmentation of their pay, and by privileges and indulgences which he granted them, and which have been considered as materially tending to introduce that relaxation of military discipline which in the end put a period to the Roman empire.

He supplied the place of the pretorian guards, whom he had disbanded, by a more numerous body, selected from the legions, and confiding, in great part, of the natives of barbarous nations; and he conferred unusual authority on their commander Plautianus. To his reign is chiefly attributed the introduction of those maxims of imperial prerogative which entirely put an end to all ideas of a republic, and placed the government upon the footing of an absolute and unlimited monarchy. The indolence of the capital did not suit the disposition of Severus. Learning that, while he was engaged with Albinus, the Parthians had made an irruption into Mefopotamia, and threatened Nifbis, he hastened into the East, and not only relieved that city, but took Seleucia and Ctesiphon. He then marched towards Armenia, the king of which country fued for peace, and obtained it. Some fucceflive incursions into Arabia concluded his eafthern expedition, from which he returned in the year 203, after an abfence of five or fix years. He celebrated his victories by many splendid fpefeacles; and in the fame year he married his fon Caracalla, whom he had fome years before created Augustus, to the daughter of Plautianus; his fecd, Geta, had been elevated to the rank of Cæfar, and both thefe princes had received their honours at a very early age. This union, which feemed likely to exalt the favourite minister Plautianus to the summit of fortune, was the caufe of his deftruction, for Caracalla, who had acquired a great afcendancy over his father, scorned his bride, and hated her father, and procuring an accusation againft him of having formed a conspiracy to take away the emperor's life, he caused him to be killed in the presence of Severus. His death drew after it that of many of his relations and adherents, and the cruelty of the emperor increased with his years. The reciprocal hatred between his two fons, and the ferocious character of the eldef, were fources of the utmost difquietude to him in the midst of his external prosperity. He, in vain employed every argument to reconcile them, and at length he placed them on a perfect equality, by raising Geta, as well as his brother, to the rank of Augustus. It was chiefly with a view of removing these princes from the licentiousnefs of the capital, and keeping them under his own eye, that in the year 208 he undertook an expedition to the northern part of Britain, the uncivilized tribes of which had made incursions into the Roman provinces. He took his fon with him, and at the head of a powerful army proceeded beyond the walls of Adrian and Antoninus, and penetrated to the northern extremity of the

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illand. He was harassed by the natives, who did not dare to meet him in the field, and he suffered much from the severity of the climate. At length the Caledonians purchased peace by surrendering all the country south of the Clyde and Forth, which he secured by raising a rampart between those filthy. The attacks against his life by his son Caracalla, joined to age and a declining state of health, so reduced him, that he died at York in the year 209, in the 60th year of his age. In his last moments he recommended concord to his sons, and his sons he recommended to the protection of the army. Gibbon speaks of Severus ending a glorious and successful reign, but other historians have doubted whether Severus ought to be reckoned among the good or the bad emperors; for while his perversity towards his competitors, his cruelty to vanquished enemies, and the general severity of his administration, justify a very unfavourable view of his moral character, it is not denied that he professed in a high degree the virtues of industry and vigour, the love of order, attention to correct abuses, strict and impartial administration of justice, and simple and frugal habits of life. He was a good judge of the characters of men, and the empire was in general well administered and prosperous during his reign.

He is supposed to have been favourable, in the early part of his reign, to Christians, but the rapid increase of their number seems to have alarmed him, and he is reckoned the author of the fifth persecution, which took place in the tenth year of his reign, and which lasted with more or less violence, according to Dodwell, two years, and according to Balfour, six years and upwards. See Lardner's Works, vol. viii. ed. 1790. ch. 23.

SEVERUS, CORNELIUS, a Roman poet, who lived in the reign of Augustus, was author of a poem entitled "Ætna," which has sometimes been attributed to Virgil. He is reported by Quintilian to have given a relation in verse of the Sicilian war, and some lines of his on the death of Cicero are quoted by Secundus the orator. It is to him that Ovid is supposed to have addressed one of his Pontic elegies, in which he is termed "Vates magnumorum maxime regum." An elegant edition of the remains of this writer, was published with notes at Amsterdam in 1709, by Le Clerc: and they are printed in Mattei's "Corpus Postumum."

SEVERUS, SANCTUS, a Christian rhetorician and poet, was a native of Aquitaine, and flourished in the fourth century. He wrote an eclogue, which is still extant, where, in a dialogue between a Pagan and a Christian, he treats of the mortality of cattle. It was first printed in the "Poemata Vetera" of Pithæus, and has been several times republished. Gronovius gave an edition of it, with a preface, under the title "Severi Sancti five Endecasyllaborum Rhetorici de moribus Bonum Carmen, ab Elia Vinetio et Petro Pethæo fervaturum, cum notis John Weitzii et Wolffang. Lug. Bat. 1715." Another edition was published by D. Richter, with a preface, in 1747. SEVESE, in Geography, a town of Italy, in the Milanese; 8 miles N.N.W. of Milan.

SEVIAMALLY, a town of Hindooftan, in the Carnatic; 19 miles W. of Trichinopoly.

SEVIER, a county of Tennessie, Hamilton district, containing 3419 inhabitants, of whom 162 are slaves.

SEVIERVILLE, a poll-town and capital of the above county; 555 miles from Washington.

SEVIGNAC, a town of France, in the department of the Lower Pyrenees; 9 miles N. of Morlaus.

SEVIGNE; MARIE RABUTIN, Marquise de, in Biography, a distinguished lady, was born in 1626. Her father, baron of Chantal and Bourbilly, died while she was very young, leaving her heirs of the house of Buffy Rabutin. Her rank, and the graces of her person and conversation, procured her many admirers, and in 1644 she married the marquis de Sevigne, who in 1651 was killed in a duel. She from this time devoted herself to her children, and to the cultivation of her own mind. She had an extraordinary affection for her daughter, who, in 1669, married the count de Grignan, and accompanied him to his government of Provence, and this separation gave rise to the greater part of the letters which have gained her such a high reputation, though she had many other correspondents. Many of M. de Sevigne's letters are of a domestic nature, but others are enriched with court anecdotes, remarks on men and books, and topics of the period in which they were written, which render them very amusing; and in point of style, they are models of epistolary writing, which, perhaps, have never been surpassed. In her letters to her daughter, the reader sometimes is hurt with the excess of flattery on her talents and beauty, which latter quality appears to have been a principal source of her maternal tenderness, and the preference of it the great object of her anxiety. This lady died in 1696, at the age of 70. Though endowed with much penetration, and, to a certain degree, with a cultivated understanding, she did not rise high above the level of her age and sex in taste and principles. She was attached to rank and splendour, loved admiration, and was apt to be taken with frivolous accomplishments in preference to solid worth. She had a deep taste of religion, but wished to conciliate it with the polite world, the manners and maxims of which, according to the rigid tenets of the Catholics, were entirely at variance with it. She has been centred for want of taste in her infidelity, to the poetical merit of Racine, but this has been imputed to her prepossessions in favour of Corneille. The best editions of her letters are that in 8 vols. 1775; and that in 10 vols. 1801.

SEVIGNY, in Geography, a town of France, in the department of the Ardennes; 12 miles N.W. of Rethel.

SEVIL, in the Marque. The devil of the branches of a bridge is a nail turned round like a ring, with a large head, made fast in the lower part of the branch, called gargouille. See Banquet.

SEUIL, in Geography, a town of France, in the department of the Ardennes, on the Aisne; 12 miles S.E. of Rethel.

SEVILLE, a province of Spain, commonly called the kingdom of Seville, is now exclusively, but improperly, denominated Andalusia, and occupies the western part of ancient Baetica. Its figure is irregular, 58 leagues long from E. to W., and 27 broad from N. to S.; a point of it bending towards the Straits of Gibraltar, 14 leagues from N. to S. and 9 from E. to W. It is bounded to the E. by Cordova; to the E. and S.E. by Granada; to the S. by the Atlantic and the Straits of Gibraltar; to the W. by the kingdom of Algarve, &c.; and to the N. by Extremadura. There are two sea-ports in this province, the one in the Mediterranean at Algeciras, the other on the Atlantic at Cadiz: the latter is spacious and beautiful, the best known, and the most frequented in Spain; its bay is eight leagues round. The principal towns of the kingdom of Seville are its own capital, Seville, an archiepiscopal see; Cadiz, an archiepiscopal see, fortified, and a sea-port; Santa-Maria, a sea-port; Xeres, Ecija, and Oliva, inland towns. Its rivers are, the Saltes, Guadiana, Tinto, Odiel, Chanca, Verde, Barbate, Guadalet, Guadaluquivir, Xenil, Guadianar, Guadayra, Las Freguas, Candon, and San-Pedro. See Seville.
SEVILLE.

Seville, in Spanish Sevilla, and in Latin Hespàlia, the capital of the above kingdom, is a large bulky city, one of the first in Spain, and so ancient, that it is mentioned by Strabo, Pomponius Mela, Pliny, and Ptolemy, as being ancient even in their time. Fabre ascribes its origin to Hercules, Bacchus, to the Hebrews, to the Chaldeans, and to the Phœnicians; but its real founder is unknown. From the Romans it obtained the privilege of a Roman colony, and it was called "Julia Romula," or Little Rome. This town has often changed its sovereignty and its form of government. It was formerly subject to the Gothic kings, who made it their place of residence; and in 582 it took part in the rebellion of Ermengedon, son of king Leudwigid. In 711, it opened its gates to the Moors; and in 1027 it supported the rebellion of the Moor, who was its governor, in favour of the king of Cordova, whom it proclaimed king of Seville. Retired to the empire of the sovereigns of Cordova, it again raised the standard of rebellion in 1144, and chose itself a king, whose descendants united Cordova to their new dominions. Aben-abu, the last of those kings, being assassinated at Almeria, and Ferdinand II., king of Castile and Leon, having seized upon Cordova and Jaen in 1236, it threw off all authority, formed itself into a republic, and was governed by its own laws. In its turn, however, it experienced the power of a conqueror Ferdinand II., assembled his forces before Seville in 1247, and compelled it, after a year's rebellion, to surrender in the 23rd of Nov., 1248. From the period of this memorable siege Seville has always made a part of the dominions of the kings of Castile.

Seville is situated on a beautiful and extensive plain, on the banks of the Guadalquivir. Its shape is circular, and its circumference, as it was left by the Romans, is surrounded by a wall more than a league in circuit, flanked by 176 towers; the number of gates is 12, that of Triana being of Doric architecture, and ornamented with columns and statues. Over one of the gates is the following inscription:

"Conditid Alecides, renovavit Julius Urbem, Reipublice Christifio Fernando Tertius, Heros."

The town is badly planned, the streets being narrow, crooked, and ill-paved; the houses, however, are tolerably well built, and, including those of the suburbs, amount to 11,820 in number. The number of inhabitants is stated by Mr. Townend at 80,268, contained in 30 parishes, 84 convents, and 24 hospitalls. Laborde estimates the present population, since the decline of its commerce, at 65,000. Many of the houses have large courts, surrounded by galleries or columns, with fountains in the middle. In summer the families live in the galleries, or courts, where they spread tents. In Seville there are many squares, the bowl of which are La Lonja, or the Exchange; the Hotel de Ville; the Arsenal, at the entrance of the harbour, with the Custom-houses and the India-house, in which the gold and silver brought from the Indies are deposited; here are also several fine suburbs, and a handsome promenade, called Alameda, having three walks planted with trees, and ornamented with fountains and fountains. This city is the fee of an archbishop; and of the public ecclesiastical edifices, the first that demands attention is the cathedral, chiefly admired for its tower, constructed by Guerrer the Moor; originally, A.D. 1568, 250 feet high, and afterwards raised 100 feet. It is so easy of ascent, and at the same time so spacious, that two horsemen may ride up abreast; and on the top is the Giralda, or brazen image, which, with its palm-branch, weighs near 14 tons, and yet turns with the slightest variation of the wind.

The dimensions of the cathedral are 490 feet, by 273; and the height is 126 feet. It was built A.D. 1492. It receives light by four-square windows with painted glass, the work of Arnau of Flanders, each of which cost 1000 ducats.

The treasures of this church are inestimable: one altar is wholly silver, with all its ornaments, as are the images, large as life, of B. Issidore and S. Leander, and a ciborium or tabernacle for the host more than four yards high, adorned with forty-eight columns; yet these are truing in value, when compared with the gold and precious stones deposited by the piety and zeal of Catholics, during the period in which all the wealth of a newly-discovered world flowed into this city. The profusion of gold, of silver, and of gems, would be more thriving, were not the attention occupied and lost in admiration of innumerable pictures, the works of those Spanish masters who flourished immediately after the revival of the art in Seville. Every chapel prefers some monuments of their superior skill. Of these, the most conspicuous are of Luis de Vargas, and of Fr. Zurbaran, but chiefly of Murillo. By the last is a Nativity in the chapel of the Conception, and, near the baptismal font, S. Anthony of Padua, with the Baptism of Christ. In the principal facroty, are his much admired pictures of S. Isidore with his brother S. Leander; and in another facroty his Holy Family, and an Ecce Homo, by Morales. The chapter-house is wholly devoted to Murillo, and the chapel of S. Peter is given up to Zurbaran. The works of Luis de Vargas are dispersed in various places; but his famous picture called de la Gamba, is in a chapel near the gate of S. Christopher, and merits particular attention.

To the cathedral belongs a library of 20,000 volumes, collected by Hernando, son of Christopher Colon, the first discoverer of America, a man of taste, and much admired in his day for learning. It is to be lamented, that modern publications have not been added to complete what was so well begun by him.

The construction of the organ is peculiar; it contains 5300 pipes, with 110 stops, being, as it is said, 50 more than those of the famous one at Haerlem, yet so ample are the bellows, that when stretched they supply the full organ fifteen minutes. The mode of filling them with air is singular; for instead of working with his hands, a man walks backwards and forwards along an inclined plane of about fifteen feet in length, which is balanced in the middle on its axis; under each end is a pair of bellows of about six feet by three and a half. These communicate with five other pair united by a bar; and the latter are so contrived, that when they are in danger of being overthrown, a valve is lifted up, and gives them relief. Passing ten times along the inclined plane fills all these bellows.

In the cathedral are eighty-two altars, at which are said daily five hundred masses. The annual consumption is fifteen hundred arrobas of wine, eight hundred of oil, and of wax about one thousand.

The wealth belonging to this chapter may be estimated by the numbers that are supported by it.

The archbishop, with a revenue of three hundred thousand ducats; or, in sterling, nearly thirty-three thousand pounds a-year.

Eleven dignitaries, who wear the mitre on high festivals, amply, but not equally, provided for.

Forty canons, of forty thousand reals, or about four hundred pounds each per annum.

Twenty
SEVILLE.

Twenty prebendaries, with an income of thirty thousand reals each.

Twenty-one minor canons, at twenty thousand reals each.

Besides these, they have twenty chanters, called Veinteneiros, with three assistants, called Sochantres, two headles, one master of the ceremonies, with a deputy, three attendants to call the roll and mark the absentees, thirty-six boys for singing and for the service of the altar, with their rector, vice-rector, and music-masters; nineteen chaplains, four curates, four confessors, twenty-three musicians, and four supernumeraries; in all, two hundred and thirty-five.

Many of the convents are remarkable for the beauty of their architecture; but, in Seville, the eye covets only pictures, and amidst the profusion of these, it overlooks works, which in other situations would rivet the attention, and everywhere fixes on the pencil of Murillo. His most famous performances are in the Hospital de la Caridad, and, suited to the institution, express some acts of charity; such as the Miracle of the Loaves and Fishes; the mowing of the Rock in Horeb; the Pool of Bethesda; the Reception of the returning Prodigal; Abraham addressing the three Angels, and presenting them to enter his habitation; the Deliverance of Peter from the Prison; and Charity, in the person of Elizabeth, washing the wounds and curing the diseased of the poor. Besides these, in the same hospital, is the Annunciation of the blessed Virgin; and two little pictures, the one of the infant Jesus, the other of John.

The church of the Capuchins is richly furnished with his works; and although in these the composition is more simple than in the former, yet they may be considered as some of the best of his productions. Eleven of his pictures are to be seen in a chapel called de la Vera Cruz, belonging to the Franciscans. These do much credit to his pencil; and not inferior to them, are many preferred in other convents; such as, an Ecce Homo, and the blessed Virgin, with the infant Jesus, in the church of the Carmelites; the Flight into Egypt, in that of La Merced Calzada; a rich variety of subjects in S. Maria de la Blanca; and S. Augustin writing, with S. Thomas of Villanueva, stripping himself to clothe the poor, in the convent of the Augustin friars, near the gate of Carmona. In the opinion of Mr. Townfend, the most materially of all his works is in the refectory of an hospital designed for the reception of superannuated priests. It represents an angel holding a baluster to the infant Jesus, who, standing on his mother’s lap, takes bread from it to feed three venerable priests. No representation ever approached nearer to real life, nor is it possible to give more expression, than glows upon that canvas. In the parochial church of Santa Cruz are two pictures in a superior style, a Stabat Mater Dolorosa, which excels in grace and softness; and the famous Decent from the Cross, of Pedro de Campana, which Murillo was accustomed daily to admire, and opposite to which, by his own directions, he was buried.

This great painter was born A.D. 1618, and died in 1682.

His name stands high in Europe; but to form an adequate idea of his excellence, every convent should be visited, where he deposited the monuments of his superior skill.

In exactness of imitation he was equalled; in claro obscurum, and in reflected lights, he was surpassed by Velazquez; but not one of all the Spanish artists went beyond him in tendernefs and softnefs.

Of the convents, that which is upon the most extensive scale belongs to the Franciscans. It contains fifteen cloisters, many of which are elegant and spacious, with apartments for two hundred monks; but at present they have only one hundred and forty in their community. Thefe, like all their order, are fed by charity, and are much favoured by the people. Their annual expenditure is more than four hundred thousand reals, or in sterling about four thousand pounds, amounting to twenty-eight pounds eleven shillings and five-pence for each. But then out of this must be deducted the expense of wine, oil, and wax, with the alms distributed daily to the poor, which altogether is considerable.

Among all the hospitals, Mr. Townfend was most pleased with that of La Sangre, designed for the reception of female patients. The front is elegant, and the sculpture is much to be admired, more especially the three figures of Faith, Hope, and Charity. The wards are spacious, and the whole is remarkable for neatnesss.

Our limits will not allow our introducing particular descriptions of other public buildings; such as the Torre del Oro, the Plaza de Toros, the Aqueduc with its four hundred and ten arches, and especially the Exchange. The latter, planned by Herrera (A.D. 1598), and worthy of its great architect, is a quadrangle of two hundred feet, with a corridor or spacious gallery round it, adorned with Ionic columns, and supported by an equal number of Doric.

The university was founded in the year 1502, and soon rose into consideration. The name of Aries Montanus, who lies buried at the convent of S. Jago, is alone sufficient to give celebrity to this seminary. His translation of the holy scriptures will be valued by the learned, as long as the scriptures themselves shall be the objects of veneration to mankind. The number of under-graduates here is about five hundred.

We meet at Seville with the favourite institutions of count Campomanes, his academy for the three noble arts of painting, sculpture, and architecture, and his economic society of the friends of their country. Both these have been attended with success, and have given affiance not only to the arts, but to agriculture, to manufactures, and to commerce. About two hundred pupils attend the former.

The alcazar, or royal palace, built by the Moors, is very spacious. The principal article of manufacture in Seville is snuff; and it furnishes also cigars to a very considerable amount. The filk manufacture was also formerly very flourishing in this place; so that in the year 1248 it employed 16,000 looms, and 150,000 persons; and such was then the population of the city, that the Moors who left it, when it was surrendered to the Christians, were 400,000, besides multitudes who died during a sixteen months’ siege, and many who remained after their fellow-citizens were gone. But in consequence of the accumulation of taxes and other circumstances, the number of looms has been very much diminished; so that A.D. 1740, the looms for wide filks amounted to 462, and for other purposes to 1856.

The country round the city to a considerable distance lies so low, that it is frequently overflowed, and upon some occasions the water has been eight feet high, even in their habitations. The soil is rich, and being at the same time very deep, its fertility is inexhaustible. The produce is corn, leguminous plants, hemp, flax, lemons, oranges and liquorice. The quantity of this exported from Spain is said to be annually not less than four thousand quintals, or nearly two hundred tons, a considerable part of which was made from the silage. The exportation of wine is very considerable; and the cultivation of it is carried on in every part of the country.
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is supposed to be purchased by the porter-brewers in London.

In consequence of vapours and misfurnace, occasioned by flagrant water, and by frequent floods, the inhabitants of Seville and its neighbourhood are subject to tertians, to putrid fevers, and to hysterical disorders. The predisposition to such diseases may be likewise fought for in the quantity of cucumbers and melons consumed by them all the year, in consequence of which they are likewise afflicted with worms, accompanied with epilepsies, especially in the more youthful subjects. Other diseases arise from heat, whenever they have the Sodano wind, that is, whenever the wind blows from Africa, they become liable to pleurisies, and also a very pernicious irritability of nerves. N. lat. 37° 12'. W. long. 6° 8'.

SEVILLA del Oro. See MACAS.

SEVILLA Plantation, a place on the N. coast of Jamaica, W. of Mammee bay, where are the ruins of an ancient town, called “Sevilia Nueva,” founded by Esquivel on the spot where Columbus resided after his shipwreck in the year 1503.

SEVILLETa, a town of New Mexico; 100 miles S. of Santa Fé.

SEVIN, Francis, in Biography, a man of letters, born in the diocese of Sens, was educated at Paris, where he pursued, with great ardour, the study of the learned languages, in company with the abbe Fourmont the elder. He became an associate of the Academy of Belles Lettres in Paris in 1714. He was sent in 1728, by the king's command, with the abbe Fourmont the younger, to Constanti- nople, in search of MSS., of which he brought back a great number, and was, in 1737, prefected with the place of keeper of MSS. in the king's library. His letters, descriptive of this journey, were published in 1801, in one vol. 8vo. These contain several interesting details concerning Turkey, Egypt, &c. Sevin died in 1741. Several of his papers are published in the “Memoires de l'Acad. des Incriptions.”

SEVION, in Geography, a river of North Wales, which runs into the Clyde; 3 miles N.W. of St. Asaph.

SEVIR, among the Romans, an officer who, according to Pitsicus, commanded a whole wing of horse; though others pretend him only the commander of a troop, turmis, a division answering to our regiments.

SEVIRI were also magistrates in the colonies, so called, from their being first in number.

SEURAH, in Geography, a town of Hindooottan, in Bundealand; 18 miles N. of Callinger.

SEVRE, or Sevres Nantos, a river of France, which rises about eight miles W. of Parthenay, passes by Mortagne, Tiffauges, Clisson, &c. and runs into the Loire, opposite to Nantes.

SEVRE Nantos, a river of France, which rises near St. Maixent, passes by Niort, Marance, &c. and runs into the sea; 7 miles W. of Marance.

SEVRES, a town of France, in the department of the Seine and Oise, and chief place of a canton, in the district of Verfailles. The place contains 2643, and the canton 3485 inhabitants, on a territory of 50,000, in eight communes.

SEVRES, TWO, one of the nine departments of the western region of France, formerly Lower Poitou, between Vendée and Vienne, in N. lat. 46° 50', containing 6337 square kilometres, or 2442 square leagues, and 242,068 inhabitants. This department comprehends 4 districts, 30 cantons, and 305 communes. The districts or circles are, Thouars, including 435,443; Parthenay, 53,020; Niort, 84,923; and Melle, 61,167 inhabitants. Its capital is Niort. According to Hallenfritz, the extent is 32 French leagues in length, and 12 in breadth; the number of circles is 6, and of cantons 50, and the population is 259,122. The contributions in the 11th year of the French era amounted to 2,556,115 francs; and the expenses for administration, justice, and public instruction, to 233,694 francs 60 cents. The soil of this department, in general, is fertile, yielding grain, wine, fruits, and pastures. The S.W. district is marly.

SEVRI, a river of Natalia, which runs into the Sakaria, near Sevrishar.

SEVRHISAR, a town of Asiatic Turkey, in Natalia, at the confluence of the Sevri and Sakaria; 60 miles W. of Auburn. N. lat. 36° 53'; E. long. 31° 12'.

SEURRE, a town of France, in the department of the Côte d'Or, and chief place of a canton, in the district of Beaune; 21 miles S. of Dijon. The place contains 2777, and the canton 11,546 inhabitants, on a territory of 280 square kilometres, in 23 communes. N. lat. 46° 58'; E. long. 5° 12'.

SEVSK, a town of Russia, in the government of Orel, on the Sev; 56 miles S.W. of Orel. N. lat. 52° 15'; E. long. 34° 44'.

SEUTZACH, a town of Switzerland, in the canton of Zurich; 17 miles N.N.E. of Zurich.

SEVYNEY, a river of South Wales, which runs into the Clethy, in Pembrokehire.

SEW, in Sea Language, the situation of a ship when the water firr leaves her resting on the ground, or blocks in a dock. Thus, if a ship runs on the side of ebb, or by the reflux of the tide she rests on her blocks; and if it be required to know she has faved, or how much she has faved, the mark the water-line has made on her bottom when afloat is examined, and as much as is the difference above the surface of the water and this mark, so much she is said to have faved.

Sew is also a term applied to a cow, signifying to go dry.

SEWAD, or Sowad, in Geography, a province of Cundahar, situated on the W. side of the Indus, which separates it from Puckholl; 40 codes long and 15 broad. The climate is pleasant, as well as healthy, is very mountainous, and abounds with palls and strong situations; so that their inhabitants have not only held themselves generally independent of the Mogul emperors, but have occasionally made very furious inroads into their territories. The country of the Afflaceni, or Ailacani, answers to Sewad; Ahsenagur being the ancient name of Sewad; or rather Sewad was one of the subdivisions of Ahsenagur. At present Sewad includes the three provinces of Sewad proper, Bijore, and Bener.

SEWAD, the easternmost and largest of the four rivers that unite successively with the river Cabul, before it falls into the Indus; the other three being that which passes by the town of Bijore, the Penjakour river, separating Bijore on the W. from Sewad on the E., and the Chendoul river, which is a branch of the Bijore river.

SEWALICK, or Sewu-Luck, a chain of mountains forming the northern boundary of Hindooottan, and separating the country of Lahore from Thibet.

SEWAN, or Alligunc, a town of Hindooottan, in Bahar; 32 miles N.W. of Chuprah. N. lat. 26° 11'; E. long 84° 32'.

SEWARD, Thomas, in Biography, an English divine of the church of England, was born in 1708. He became rector of Evesham, in Derbyshire, and prebendary of Litchfield, where he died in 1790. He was a man of taste and learning,
ing, and of considerable talents for poetry and polite literature. He published an edition of Beaumont and Fletcher’s works, and was author of a treatise on the “Conformity between Popery and Paganism.” Some of his poems are in Doddley’s collection.

SEWARD, Anna, daughter of the preceding, a poetess of distinguished elegance, was born about the year 1745.

Her infant mind was nourished by her father with the vivid and sublime imagery of Milton, and her early education amidst the wild and alpine scenery of the Peak, enhanced the enthusiasm of feeling to which she was naturally disposed. In her seventh year, her father being appointed canon residuary of Litchfield, she removed with the family to that city, which thenceforth became her residence during the whole of her life. The fruit of her father’s instructions appeared in some early efforts at poetical composition, which, however, met with discouragement from her mother; and Mr. Seward was afterwards induced to withdraw the countenance he had given to her literary pursuits; so that several years of her youth elapsed with only illogical and interrupted attempts to cultivate an art of which she had so strongly imbibed the rudiments. As she advanced in life, she of course followed more freely the bent of her genius, and in 1768 she published an “Elegy on Captain Cook,” a performance of great merit, as well from the harmony of its verification, as the beautiful and appropriate imagery with which it abounds, and the force and delicacy of its sentiments. The contrast between the different moods on this event, queen Obera, and the wife of the great navigator, is peculiarly striking. In the following year she gave the world a “Monody on Major Andre.” With this lamented young officer she was intimately acquainted; she accordingly wrote with peculiar pathos on the occasion, and expressed a glowing, and we scruple not to say, a just indignation against the actors in that tragedy; the laws of what are called civilized war do not and ought not to suppress the feelings of humanity. Miss Seward made herself known as a writer on many other topics: in 1790 she published “Llangollen Vale,” with other poems; and in 1804 she gave the public “Memoirs of the Life of Dr. Darwin.” This is a defunct performance, but it contains much entertaining matter, enriched with some judicious criticism on Dr. Darwin’s poetic character. Miss Seward died in March 1809. A collection of her letters has been published since her decease, in six vols. 12mo. Athenæum. Monthly Mag.

SEWARD, William, was the son of a brewer in London, and born in 1797. He received his education at the Charter House, which he completed at Oxford; this place he left without taking a degree. Having a fortunate health, he devoted his life to literary and antiquarian researches. He is known as an author by five volumes of “Anecdotes of Distinguished Persons,” extracted from curious books, to which he added a supplement, in two volumes, under the title of “Biographiana.” Europ. Mag.

SEWARD, in Geography, a town of Hindoostan; in the circar of Seward, 22 miles E. of Seward. 

SEWEE, a country of Asia, between Persia and Hindoostan, on the W. side of the Indus. 

SEWEE, or Bull’s Harbour, a bay of the Atlantic, on the coast of South Carolina. N. lat. 32° 58’. 

SEWEESTAN, a country of Hindoostan, between Sewee and the Indus, about 110 miles long and 90 broad. 

SEWEL, among Sportsmen, denotes any thing that is set or hung up, to keep a deer out of any place. 

SEWEL, Coroado, a name given by the natives of Ceylon to a species of cinnamon, which, when chewed, is of a mucilaginous nature, like the cajafa: this dries well, and is very firm and hard, and has the appearance of a very fine cinnamon; but it has very little taffe, and a disagreeable smell. The natives take advantage of the handsome appearance of this kind of cinnamon, and are very apt to mix it with the good kind, to the great detriment of the buyer. Phil. Trans. N° 489.

SEWER, formed from the French eaufer, eaufer, gentleman, or officer, in the House, an officer who comes in before the mess of a king, or nobleman, to place and range it on the table. Of these officers there are four in the king’s household, and eight, called feveurs of the great chamber. 

SEWERS, in Building, are shores, conduits, or conveyances, for the fuillage and fifth of a house. 

SEWERS, Clerk of the. See Clerk. 

SEWERS, Commission of. See Commission. 

SEWIN, in Ethnology. See Grey. 

SEWL, in Agriculture, provincially a plough. It is sometimes written sulc. See Plough.

SEWNADY, in Geography, a town of Hindoostan, in the circular of Ruttunpour; 35 miles N. of Ruttunpour. 

SEWNY, a town of Hindoostan, in Goodwoodah; 60 miles N. E. of Nagpore. 

SEX, SEXUS, something in the body, which distinguishes male from female. See Generation. 

The number of seconds, of the two sexes, are exceedingly well balanced; so that every man may have his wife, and every woman her husband. 

Hermaphrodites have the apparent marks of both sexes. It is expressly forbidden by the law of Moses, to disguise the sex. 

SEXAGENERY, SEXAGENARIUS, something relating to the number fixty: more particularly a person arrived at the age of sixty years. 

Seme caufitis difpensare with sexageners for not falling: the Papian law prohibits fexagenarii from marriage; because at that age the blood and humours are frozen. 

SEXAGENARY Arithmetic. See Sexagesimal. 

SEXAGENARY Tables, are tables of proportional parts, shewing the product of two sexageners that are to be multiplied; or the quotient of two to be divided. 

SEXAGESIMA, the second Sunday before Lent, or the next to Shrove Sunday; so called, as being about the fixtieth day before Easter. 

Sexagesima is that which follows Septuagesima, and precedes Quinquagesima. 

SEXAGESIMAL, or Sexagenary Arithmetic, a method of computation, proceeding by fixties. 

Such is that used in the division of a degree into fixty minutes; of the minute, into fixty seconds; of the second, into fixty thirds, &c. See Arithmetic. 

SEXAGESIMALS, or Sexagesimal Fractions, are fractions, whose denominators proceed in a sexagesimal ratio; that is, a prime, or the first minute = 1/60; a second = 1/60²; a third = 1/60³. 

Anciently there were no other than sexagesimal used in astronomical operations, and they are still retained in many cases; though decimal arithmetic is now much used in astronomical calculations. 

In these fractions, which some alfo call afinity fractions, the denominator being always 60, or a multiple of it, is usually omitted, and the numerator only written down: thus, 4², 59', 32°, 50', 16°, is to be read, 4 degrees, 59 minutes, 32 seconds of a degree, or 60th parts of a minute, 50 thirds, 16 fourths, &c. 

SEXANGLE, in Geometry, a figure having fix sides, and consequently fix angles. 

SEXDRAGA,
SEX

SEXDRAGA, in Geography, a town of Sweden, in Weil Godland; 48 miles E. of Gotterborg.

SEXES of Plants, in Vegetable Physiology. See Fernation, and Propagation.

SEX T, in Geography, a town of France, in the department of Mont Blanc; 2 miles S. E. of St. Maurice.

SIXTH PART, Lat. a sixth vocal part in the motetti and madrigals of old masters.

The Romans divided their as, which was a pound of brass, into twelve ounces: the ounce was called unius, from one; and two ounces sextuns, as being the sixth part of a pound. See As.

Sextans was also a measure which contained two ounces of liquor, or two cyath. Hence,

"Sextentes, Calister, duos infundi Palerni."

Sextants, the Sextant, in Astronomy, a constellation of the southern hemisphere, made by Hevelius out of uniform stars. In Hevelius's catalogue it contains 11, but in the British catalogue 41 stars. See Constellation.

Sextant, in Mathematics, denotes the sixth part of a circle, or an arc comprehending sixty degrees.

Sextant is more particularly used for an astronomical instrument, made like a quadrant; excepting that its limb only comprehends sixty degrees.

The use and application of the sextant is the same with that of the quadrant.

In the observatories of Greenwich and Pekin, there are very large and fine sextants.

Sextarius, an ancient Roman measure, containing two cotyle, or two hemina. See Cotyla.

Sectery-Lands, are lands given to a church, &c. for maintenance of the sexton.

Sextile, Sextiles, the position or aspect of two planets, when at sixty degrees distance; or at the distance of two figures from one another. It is marked thus (•). See Aspect.

Sextillis, in Chronology. See August.

Sexton, a church-officer, thus called by corruption of the Latin sacerdos, or Saxon seofen, which denotes the name. His office is to take care of the vessels, vestments, &c. belonging to the church; and to attend the minster, churchwarden, &c. at church. He is appointed by the minister or others, and receives his salary according to the custom of each parish.

Sixtons, as well as parish clerks, are regarded by the common law as persons who have freedom in their offices; and, therefore, though they may be punished, yet they cannot be deprived, by ecclesiastical censures.

The office of sexton in the pope's chapel, is appropriated to the order of the hermits of St. Augustine. He is generally a bishop, though sometimes the pope only gives a bishopric, in particular, to him on whom he confers the pall. He takes the title of prefex of the pope's sacerdos, and has the keeping the vessels of gold and silver, the relics, &c.

When the pope fays mass, the sexton always tafes the bread and wine first. If it be in private he fays mass, his obnifs, of two wafers, gives him one to eat; and, if in public, the cardinal, who affifts the pope in quality of dean, of three wafers, gives him two to eat. When the pope is desperately fick, he adminifers to him the sacrament of extreme unction, &c. and enters the conclave, in quality of first conclavift.

Sexton's River, in Geography, a river of America, in Vermont, which runs into the Connecticut, N. lat. 43°, W. long. 72° 25'. Vol. XXXII.

SEXTULA, a word used by some pharmacutic writers to express the sixth part of an ounce, that is, four scruples, or one dram and one scruple.

SEXTULIA, Ital. Sestuple, Fr. and Eng. in Measure, implies a compound time of triplets mixed with binary time. Sextuple time is never properly used but in the second, confiding of six even erotchets, or quavers, expressed by ″; albeit triplets are out of the question. All other combinations of compound measure, or, as formerly called, time, are at present the following: 8, 8, 8, 8, 8, 8, all which measures consist of triplets.

Old authors mention five different species of sextuple time: as,

Sextuple of the Semibreve, by the French called triple of 6 for 1, as being denoted by those two numbers; or because here are required six semibreves to a measure, in lieu of one, viz. three rising, and three falling.

Sextuple of the Minim, called by the French triple of 6 for 2, as being denoted by ″; which shew, that six minim are here required to a measure, instead of two.

Sextuple of the Grotchet, called by the French triple of 6 for 4, because denoted by C 5, or ″; which shew, that there must be six erotchets to a measure, in lieu of four.

Sextuple of the Chrona, by the French called triple of 6 for 8, as being denoted by ″; which shew, that six quavers here make the measure, or semibreve, instead of eight.

Sextuple of the Semichrona, or triple of 6 for 16, to called, because denoted by ″; which shew, that six quavers are here required to a measure, instead of sixteen.

Sextus, Sixth, in the Canon Law, denotes a collection of decreals, made by pope Boniface VIII. usually thus called from the title, which is "Liber Sextus;" as if it were a sixth book added to the five books of decreals, collected by Gregory IX.

The Sextus is a collection of papal constitutions, published after the collections of Gregory IX, containing those of the same Gregory, Innocent IV., Alexander IV., Urban IV., Clement IV., Gregory X., Nicholas III., and Boniface VIII., by whose order the compilation was made. The persons employed in making of it were Will. de Mandegot, archbishop of Ambrun; and Bereuger, bishop of Bezierc; and Richard of Sienna. See CANON LAW.

Sextus, in Biography, an ancient philosopher of the flo-ecial sect, was a native of Chersonia, and the nephew of Plutarch. He is celebrated as the preceptor of the emperors Lucius Verus and Marcus Aurelius.

Sextus, Empircus, in Medical History, a Roman physician, of the empiric sect, who followed Herac-we and others in the adoption of that typhem which Serapion and Philinus begun. He is said to have been the pupil of Herodetus, the physician, and the preceptor of Saturninus. There are two works extant, with the name of Sextus attached to them; but Le Clerc believes, that they are not both the production of this physician, who only composed that which is entitled "Sixti Placiti;" and that the other work, which contains six books, treating of the doctrines of Pyrrhonism, and ten books relative to all the sciences, was the production of another Sextus, of Chersonia, who was of the Platonic school, a nephew of Plutarch, and preceptor of the emperor Marcus Aurelius. See Le Clerc, Hist. de la Méd. p. n. chap. 8.

Sextus Oculi, in Anatomy, a name given by Fallopis to one of the muscles of the eye, called by Albinus, and others, the obliquus oculi inferior, and by fome, the obliquus oculi brevis.

Sextus Thracicus, a name given by Fallopis, and others, to
to a muscle, now generally known by the name of the tri-
angularis femini.

SEXUAL SYSTEM, in Botany, denotes that sytem,
which is founded on a discovery, that there is in vegetables,
as well as in animals, a distinction of the sexes; or that plants
propagate themselves by means of male and female organs,
either growing upon the fruit tree, or upon different trees
of the same species. This system is flaggelated and confirmed
by the analogy observable between the eggs of animals and
the fruits of plants, both serving equally to the same end,
viz. that of propagating a similar race; and by the remarks
which have been made, that when the seed of the female plant
is not impregnated with the profligate powder of the male, it
bears no fruit; inasmuch that as often as the communication
between the sexual parts of plants has been interrupted, which
is the cause of their fecundity, they have always proved barren.
The authors of this system, after exactly anatomizing all the
parts of the plant, affign to each a name, founded on its use
and analogy to the parts of an animal. Thus, as to the
male organs, the filaments are the spermatic vessels, the an-
tere the tealticles, and the duct of the antherze correspond
to the sperm and seminal animalcles; and as to the female,
the stigma is the external part of the female organ, which
receives the dust; the style anfwers to the vagina; the germ
to the ovary; and the pericarpium, or fecundated ovary,
to the womb. See Vegetation.

The sexual system was not wholly unknown to the an-
cients, though their knowledge of it was very imperfect.
Accordingly we find in the account given by Herodotus
(lib. i.) of the country about Babylon, where palm-trees
abounded, that it was a custom with the natives, in their
culture of these plants, to affift the operations of nature, by
gathering the flowers of the male trees, and carrying them
to the female. By this means they fecured the ripening of
the fruit; which might else, on account of unfavourable
seasons, or the want of a proper intermixture of the trees of
each sex, have been precocious, or at least not to have been
expected in equal quantities. The ancients had also similar
notions concerning the fig. Theophrastus (Hift. Plant.
lib. iii. cap. 9.) observes, that the characteristic and universal
difference among trees is that of their gender, whether male
or female. And Arittote (De Plantis, lib. i. cap. 2.) says,
that we ought not to fancy, that the intermingling of sexes
in plants is the fame as among animals. However, there
seems to have been a difference of opinion among the an-
cients as to the manner in which plants should be allowed
to have a difference of sex. Some apprehended that the two
sexes existed separately; and others thought that they were
united in the same individual. Empedocles thought, that
plants were androgynous or hermaphroditical, or that they
were a composition of both sexes. Aristotle expresses his
doubt upon this head. Empedocles (vide Arif. de Generat.
Anim. lib. i. c. 23.) called plants oviparous; for the need or
egg, according to his account, is the fruit of the generative
faculty, one part of which serves to form the plant, and
the other to nourish the germ and root; and in animals of
different sexes, we fee that nature, when they would pro-
create, impels them to unite, and like plants to become one;
that from this combination of two, there may spring up
another animal.

As to the manner in which fruits were impregnated, the
ancients were not ignorant that it was by means of the pro-
fligate dust contained in the flower of the male; and they
remarked, that the fruits of trees never come to maturity till
they had been cherifhed with that dust. Upon this subject
Aristotle says (De Plant, lib. i. cap. 6.) that if one shakes
the dust of a branch of the male palm-tree over the female,
her fruits will quickly ripen; and that when the wind flieis
this dust of the male upon the female, her fruits ripened apce,
just as if a branch of the male had been flupended over
her. And Theophrastus (Hift. Plant. lib. ii. cap. 9.) ob-
serves, that they bring the male to the female palm, in order
to make her produce fruit. The manner in which they pro-
ceed, says he, is this: when the male is in flower, they
select a branch abounding with that downy dust which re-
fides in the flower, and shake this over the fruit of the fe-
male. This operation prevents the fruit from becoming
abortive, and brings it to perfect maturity. Pliny also
inform us (Nat. Hift. tom. i. lib. xii. c. 7.) that naturalists
admit the distinction of sexes only in trees, but in herbs,
and in all plants. Yet this is no where more observable,
be adds, than in palms, the females of which never pro-
pagate, but when they are fecundated by the dust of the
male. He calls the female palms, deprived of male altfance,
bare-widows. He compares the conjunction of these
plants to that of animals; and says, that to generate fruit,
the female needs only the afperation of the dust or down
of the flowers of the male.

Zuluzanifki seems to have been the first among the mo-
derns who clearly distinguished from one another the male,
the female, and the hermaphroditical plants. About a
hundred years after him, sir Thomas Millington, and Dr.
Grew, communicated to the Royal Society their observa-
tions on the impregnating dust of the ifamna. Grew's Anfamy
of Plants, published in 1682.

Camerarius, towards the end of the last century, observed,
that upon plucking off the ifamna of some male plants,
the buds that ought to have produced fruit came not to
maturity. Malpighi, Geoffroy, and Vaillant, have also
carefully considered the fecundating dust; the latter of whom
seems to have been the first eye-witness of this secret of
nature, the admirable operation that piles in the flowers of
plants, between the organs of different sexes. Many authors
afterwards applied themselves to improve this ifynam;
the principal of whom were Morland, Logan, Van Royen,
Bradley, Ludvig, Blair, Wolfius, &c. But Linneus had
the honour of applying this ifynam to practice, by reducing
all trees and plants to particular classes, distinguished by the
number of their ifamna, or male organs. See Dutens' Inquiry
into the Origin of the Difcoveries attributed to the Moderns,
1769, chap. vii. Phil. Tranf. vol. xlvi. art. 25.

The sexual hypothesif, on its first appearance, was re-
ceived with all that caution which becomes an enlightened
age; and nature was traced experimentally through all her
variations, before it was universally affented to. Taurne-
fort refused to give it a place in his ifynam; and Pontedera,
though he had carefully examined it, treated it as chimerical.
The learned Dr. Alfton, professor of botany in the university
of Edinburgh, violently oppofed it; but the proofs which
Linneaus has given amongst the aphorifms of his "Fundamenta
Botanica," and farther illustrated in his "Philofophia Botan-
ica," are fo clear, that the mind does not heflate a moment in
pronouncing animal and vegetable conception to be the fame;
but with this difference, that in animals fruition is voluntary,
but in vegetables neccifary and mechanical. The impregna-
tion of the female palm by the farina of the male, related by
Mylius, in his letter to Dr. Watfon (Phil. Tranf. vol. xlvii.
art. 25.) eflablishes the fact attested by the ancients con-
cerning the palm-tree; and as the fruitification in other
vegetables, though it may differ in particular circumstances,
has nevertheless a general conformity to that of the palm-tree,
with refpect to the parts fupposed to be the organs of gen-
eration, which are discoverable either on the fame or in a
separate flower, we may, from this fingle experiment, deduce
an
argued an analogy by analogy for the confirmation of the whole

theoretical hypothesis. Indeed, a very striking proof of the

analogies between plants and animals — be drawn from ob-

servations made in their native states, at which early age

and then they are nourished and protected in a similar man-

ner. Those who desire further reflection, may see the

several demonstrations collected, and portedly connected, in

the "Spandauer Praktikum," of J. Gudewitz Waldstein,

published in the "Annalen der Akademie," at Leyden in

1759. See Botany, Classication, I. in Nature,

Plan, a., &c.

SEY.

SEXUALIS,

Botanical Authors See Bot-

Dany, I. Classification, and Sexual Synonymy.

SEXUX, in Physiog., the weight of its ounce, or half a pound Troy.

SEYBO, or SEYVO in Geography, a settlement in the

Joat in the line of Hпус. lat. 70 miles N.E. of St. Donsbore.

SEYDORSFORD, a town of Prussia, in the province of

Oberland; 6 miles N. of Luckbit.

SEYCHELLES, an island in the Indian ocean, N.E. of

Madagascar; high and mountainous, and estimated at 72 miles

in circumference. The soil appears to be rich and good; and

the island is covered with trees, many of which were left

for masts and yards for ships, as they are large and straight.

among the trees are great quantities of rose-wood, and coco-

anut trees. Wild goats, land-tortoises, and Gemina-lion,

are found in plenty; and in the harbour abundance of good

fish. The harbour is well sheltered from the south-wind.

When the winds are from the north and west-north, it is

rather an open road, but the ground forms to hold well.

The tide rises about six feet, and lets about S.S.W. High

water full and change, thirty minutes past five. S. lat.

4° 34'. E. long. 55° 35'.

SEYDA, or SEDAL, a town of Saxony; 10 miles E.

of Wittemberg. N. lat. 51° 55'. E. long. 12° 59'.

SEYDE. See SAIDE.

SEYDEWITZ, a river of Saxony, which runs into the

Elbe, near Pirna, to the margravate of Meissen.

SEYER. See Pulo Seyer.

SEYER OR, an island of Denmark, in the Cattegat,

about eight miles long, and hardly one broad; about five

miles from the coast of Zealand. N. lat. 55° 53'. E. long.

11° 11'.

SEYFFERSDORF, a town of Silesia, in the prin-

cipality of Grotkau; 3 miles N.E. of Grotkau.

SEYFORTESVOLT, a town of Prussia, in the

province of Ermeland; 9 miles S. of Heilberg.

SEYGAR, in the Materia Medica, a name used by some

authors for the natmeg.

SEYGERWALD in Geography, a town of Prussia, in the

province of Oberland; 4 miles N.E. of Saffeld.

SEYLONE, a town of Hindoostan, in Oude, rested on

a river which runs into the Gouty; 15 miles S.E. of

Bareilly.

SEYMAN, an island in the Red sea. N. lat. 15° 26'.

E. long. 57° 20'.

SEYMOUR, EDWARD, in Biography, brother of lady

Jane Seymour, wife of Henry VIII. (see his article), and

e uncle to Edward VI., was created viscount Beauchamp, earl

of Hertford, and duke of Somerset. On the accession of

his nephew to the throne he became his guardian, and pro-

tector of the kingdom. Not thinking that the vote of the

executors of Henry VIII. was a sufficient foundation for

the high authority which he partly ascribed to the influence

which his relationship to the king gave him, he procured a

patent from Edward, by which he overfet the meaning and

intent of the late king's will. In this patent he named him-

self protector, with full regal power, and appointed himself

entirely at the pleasure of one whom he thought he could trust.

The protector became the warm friend of the reformers,

and endeavored to make the means of preserving the

object he had at heart. He appointed a general visitation

to be made throughout England, the visitor consisting of a

certain number of the clergy and laity, and they had

done different sects among them. The chief part of

their instructions was, besides correcting the moral

vices and irregularities of the clergy, to abolish, but with a very

severe hand, ancient superstitions, and to bring discipline

and worship somewhat nearer the practice of the ancient

churches. Somerset made war upon Scotland, and upon his

return in Nov. 1547, he called a parliament, and being elated

with the successes which he obtained over the Scots, he pro-

cured from the young prince a patent, appointing him to sit

on the throne, upon a half at the right hand of the king,

and to enjoy the same honours and privileges that had

usually been possessed by any prince of the blood, or uncle of

the kings of England. In this patent the king employed

his dispensing power, by setting aside the statute of pre-

cedency enacted during the reign of his father. If, however,

the protector gave offence by affuming too much state, he

served high praise on account of the laws which were

passed during this session, by which the rigour of former

statutes was much mitigated, and some security given to those

principles of freedom which seem to make a part of the con-

stitution. All laws were repealed which extended the crime

to treason beyond the statute of the twenty-fifth of Edward III.;

all crimes enacted during the late reign extending the crime

of felony. All the former laws against hereby, together with

the statute of the four articles, None, in future, were to be

accused for words, but within a month after they were spoken.

"By these repeals," says Hume, "fervor of the most rigorous

laws that were ever passed in England were annulled, and

some, both of civil and religious liberty, began to appear

to the people."

About this time, many violent differences subsided

between the protector and his brother, Thomas Seymour, admiral of

England. The ambition of the latter was insatiable: he was

besides arrogant, affuming, and intractable; and though

enfeemed of superior capacity to the protector, he did not

possess the same degree of confidence and regard of the people.

By his flattery and address, he had so far inflamed himself

into the favour of the queen-dowager, that the married him

almost immediately upon the demise of the king. The credit

of this alliance supported the ambition of the admiral, and
gave great offence to the duchesses of Somerset, who, uneasy

that the younger brother's wife should have the precedence,

employed all the credit the had with her husband, first to

create, and then to widen the breach between the two

brothers. Matters, at length, were carried so far, that the

admiral was attained of high treason, and executed by a

warrant, which was signed by the hand of his brother, whose

own disgrace was as at great dilanee.

After the duke of Somerset had obtained the patent,

inviting him, as it were, with full regal authority, he thought

every one was in duty bound to yield to his sentiments.

Besides his general hauteur, he gave great offence to the higher

ranks of society, by the attention with which he evidently

courted the applause of the people at large. For the relief

of the people who had erected a court of requests in his own

house, and he interposed with the judges in their behalf, a

circumstance that could not but be deemed illegal. Though

the protector had thus courted the people, to the displeasure

and disgust of the nobles, whom Hume represents as "the

sured.
fureft support of monarchical authority," the interest which he had formed with them was in no degree answerable to his expectations. The Catholic party, who retained influence with the lower ranks, as might be expected, were his declared enemies, and took advantage of every opportunity to decry his conduct. The attender and execution of his brother bore an odious aspect: the introduction of foreign troops into the kingdom was represented in invidious colours: the great estate which he had suddenly acquired at the expense of the church, and of the crown, rendered him obnoxious; and the palace which he was building in the Strand served, by its magnificence, and still more by other circumstances attending it, to expose him to the cenfure of the public. The parish church of St. Mary, with three bishops' houses, were pulled down, in order to furnish ground and materials for this structure. Not content even with this, which, at that period, was regarded as great sacrilege, an attempt was made to demolish St. Margaret's church, Westminster, and to employ the flones for the same purpose, but the parishioners rofe in a tumult, and chafed away the protector's trade-men. He then laid his hands on a chapel in St. Paul's church-yard, with a cloifter and charnel-house belonging to it, and these edifices, together with the church called the St. John of Jerufalem, were made ufe of to raife his palace. All these impiuities were remarked by Somerset's enemies, who refolved, when an opportunity offered, to take advantage of them to his ruin. A conspiracy was foon formed againft him, and he resigned his office, hoping that with this confeffion his foes might be fatisfied, but he was mistaken, they determined to profe him even to the scaffold. He was committed to the Tower, with fome of his adherents, and articles of inducement were exhibited againft him, of which the chief was his ufurpation of the government, and his taking into his own hands the whole administration of affairs. The clause of his patent, which invested him with absolute power, unlimitted by any law, was never objeeted to him, because, fays Mr. Hume, "according to the sentiments of thofe times, that power was, in fome degree, involved in the very idea of regal authority." Somerset was prevailed upon to confeff on his knees, before the council, all the articles laid to his charge, and he imputed thofe misdeemors to his own rheafins and indefcretion, not to any malignity of intention. He even fubfcribed a paper which contained a full confeffion of his guilt; he was accordingly fined two fhousand pounds a-year in land, and deprived of all his offices, and here the matter for the prefeft ended; the fine was remitted, and he recovered his liberty. After this, he was re-admitted into the council, and foon obtained a confiderable portion of popularity, which rendered him an object of jealousy to the duke of Northumberland, who planned his dilfutation. Under pretence of an intended inflammation, he had him feized, with his friends, and committed to the Tower. He was now brought to trial before a jury of twenty-feven peers, none of whom were his avowed enemies, and was of course found guilty, and condemned to death. Care was taken to propofe the young king againft his uncle, and let he fhould relent, no access was allowed to the duke of Somerset's friends, and the prince was, by a continued feries of occupations and anfumements, kept from refleétion. The prisoner was executed on Tower-hill, much to the regret of the great body of people, who entertained the hopes of pardon to the laft. A vast multitude of thofe friendly to him were the witnefles of his death. Many of them dipped their handkerchiefs in his blood, which they preferred as a precious relic; and fome of them, when Northumberland, his great enemy and one of his jurors, met with a like doom, upbraided him with this act of his cruelty, and displayed to him thofe symbols of his crime. "Somerfet, indeed," fays Hume, "though many actions of his life wereexceptionable, feems in general to have merited a better fate, and the faults which he committed were owing to weaknesses, not to any bad intention. His virtues were better calculated for private than for public life; and by his want of penetration and firmness, he was ill-fitted to extricate himself from thofe cabals and violations to which that age was fo much addicted."

Somerfet left three daughters, Anne, Margaret, and Jane, who were distinguished for their poetical talents. They composèd Latin dittics on the death of Margaret de Valois, queen of France, which were tranflated into the French, Greek, and Itahan languages, and printed in Paris in 1551. Anne, the eldeft of thofe ladies, married firft the earl of Warwick, the fon of the duke of Northumberland, already mentioned, and afterwards fir Edward Hunton. The other two died single. Jane was maid of honour to queen Elizabeth.

SEYMOUR, Arabella, better known in history by the name of the lady Arabella, was daughter of Charles Stuart, earl of Lennox, youngest brother of Henry Darley, husband to Mary queen of Scots. Her mother was daughter of fir William Cavendish of Chatsworth, in Derbyshire. Her affinity to the crown was the caufe of her misfortunes. SeveraJ projects were formed for placing her on the English throne, fo that he was kept under confinement in the reign of queen Elizabeth. At the beginning of that of James, a conspiracy, or rather a project of a conspiracy, was formed to raife her to the crown. She was firft couin to the king, being the daughter of a younger brother, which flew how rath the project was, supposing it to have been real; because James did not ascend the throne of England by the right of his father but that of his mother, consequently Arabella, though of the Stuart family, stood in a very remote degree of relation to the late queen Mary, had no claim to the crown of England, and the more so, as James had three children. The authors of this conspiracy were lords Grey, Cobham, fir Walter Raleigh, and others, who were tried, convicted, and condemned, but none were executed at the time, except a brother of lord Cobham, and two priests. The others were remanded to the Tower. (See Raleigh.) Arabella died in the year 1615, in prison, to which place she had been committed some time before, for having contracted marriage, without the knowledge of the crown, with William Seymour, grandson to the earl of Hertford. Hume. Acta Regia.

SEYMOUR'S Canal, in Geography, an inlet on the S.E. coast of Admiralty Island, extending from Point Hugh, about 28 miles N.N.W. of the entrance between Point Hugh and Point Gambier.

SEYMS, among Farriers. See SEAMS.

SEYNE, in Geography, a town of France, in the department of the Lower Alps, and chief place of a canton, in the district of Digne; 15 miles N. of Digne. The place contains 2557, and the canton 5227 inhabitants, on a territory of 3073 square kilometres, in 8 communes.

SEYNEY, a town of Lithuania; 38 miles N.N.W. of Grodno.

SEYPUR, a town of Hindoostan, in Oude; 40 miles N.E. of Fyzabad.

SEYSSÉL, Claude de, in Biography, an historical and political writer, who flourished in the beginning of the sixteenth century, was brought up to the law, which he practised with great applause at Turin. He obtained the places of master of requests and counsellor under Lewis XII. of France. He attended in the name of that prince at the council
council of Lateran, and was promoted to the bishopric of Marseille in 1512, and to the archbishopric of Turin in 1517. He died in 1520, leaving behind him a great number of works, on theological, juridical, and historical subjects. He also translated into the French language Deuben's Eclesiasticall History, Thevenudes, Appian, Duadurus, Xenophon, Justin, and Strabo. He is said to have been the first who alleged the Salic law as influencing the succession to the crown of France. His "Grand Monarque de France," published in 1519, and translated by Sklidan into the Latin language, maintains that the French constitution is a mixed monarchy, and that the king is dependent on the parliament. In his "Histoire de Louis XII. Pere du Peuple," he is the perpetual panegyrist of that prince, but gives some curious facts respecting the reign of Louis XI., whose vices are exposed by way of contrast.

SEYSEL, in Geography, a town of France, in the department of the Am., and chief place of 3 canton, in the diocese of Belley, seated on the Rhone, which here becomes navigable, and divides it into two parts; 13 miles N. of Belley. The place contains 2,246, and the canton 6,902 inhabitants, on a territory of 1,292 square kilometres, in 5 communes.

SEZANE, or Cézane, a town of France, in the department of the Po, on the Dora; 7 miles E. of Briançon.

SEZANNES, a town of France, in the department of the Marne, and chief place of a canton, in the district of Épernay; 45 miles W. of Vité le Français. The place contains 4,149, and the canton 12,203 inhabitants, on a territory of 500 square kilometres, in 27 communes. N. lat. 48° 34'. E. long. 4° 48'.

SEZANIK, a town of Hungary; 4 miles W. of Kapdorff.

SEZENEA, a town of Ruffia, in the province of Vatka; 16 miles N.E. of Glazov.

SEZULFE, a town of Portugal, in the province of Tras los Montes; 7 miles N.E. of Miranda.

SEZZA, a town of the Campagna di Roma; 35 miles S.E. of Rome.—Alfo, a town of Naples, in Lavora, the see of a bishop, suffragan of Capua; 29 miles N.W. of Naples. N. lat. 41° 16'. E. long. 13° 34'.

SFACCIA, a town of European Turkey, in Albania; 8 miles N. of Dulejino.

SFACHIA. See SPACHIA.

SFALASSA, a river of Naples, which runs into the sea; 4 miles E. of Cape Sciagho.

SFASACA, a town of Japan, on the S.W. coast of Nippon; 18 miles E. of Amanguehi.

SFAX, or El Stacke, a town of Africa, in the kingdom of Tunis, surrounded with walls. The trade of the inhabitants in oil and cloth is considerable; 45 miles S.E. of Cairoon. N. lat. 34° 49'. E. long. 10° 56'.

SFORZA, GIACOMUZZO, in Biography, named also Attendolo, founder of the illustrious house of Sforza, was born in 1369 at Cottignola, in Romagna. He is said to have been originally a peasant, and, according to a traditionary report, being one day at work, he was solicited to enlist for a soldier, when throwing his spade on the tree, he said he would enter if the spade did not fall down again, which proving to be the case, he immediately engaged in that military life which rendered him famous. He first served under general Alberico de Barbiano, and had for his comrade in arms the celebrated Braccio. Thence, in the early part of their career, were as intimate as brothers, but as they advanced in the profession, jealously intervened, and they became at length such determined enemies, that when one engaged in the service of a prince or state, it was a sufficient motive for the other to engage on the opposite side. Sforza was soon distinguished for his bravery, and for a disposition to seize by force whatever booty fell in his way. Braccio and he perfectly agreed in selling their services as dearly as possible, and in considering war as a trade which was to be kept up for their benefit. From the command of 100 men he rose to that of 7,000; he obtained the office of podestà in the latter, and by the end of John XXIII. he was created count of Cognola, as his honour that was given by way of payment of a sum of money due to him. He commanded in the kingdom of Naples against Alphonso of Aragon, and was made constable of the kingdom. In marching to the relief of Aquila, he was drowned in the passage of the river Aterno or Pisarsa, in the year 1424. He is represented to have been rebuilt in body, and when elevated to his highest rank, that he preferred the peacock's disfigurement of luxury, and frankness of manners.

SFORZA, FRANCESCO, first duke of Milan of that family, natural son of the preceding, was born in 1401. In 1421 he was vicerey to Louis, duke of Anjou, whom he had adopted by queen Joan II. of Naples, and in 1424 he defeated the troops of Braccio; but his father, as we have seen, being drowned, he could make no advantage of his successes. Although an illegitimate son, Joan conferred upon him all his father's estates, and he served successively against the Aragonese commanders. He afterwards entered into the service of the duke of Milan, and defeated a fleet of the Venetians in the Po, in 1431. After the death of the queen, in 1435, he attached himself to her heir, René, duke of Anjou, and made himself master of several places in the Marche of Ancona. He even feigned some of the pope's professions, which brought on him an excommunication from Eugenius IV., whom he had formerly served. He had long wished to marry Bianca, the natural daughter of Philip-Maria Visconti, duke of Milan, and being in the Venetian service against that prince, he gained such advantages as induced Philip, who had often deceived him, to enter into a treaty in 1441, by which prince he made peace with the Venetians, and gave his daughter to Sforza, with Cremona and its territory for her portion.

The father and fon-in-law did not long continue united, and Sforza commanded, as general, the troops of the pope, Venetians, and Florentines, in a war against Philip. He was, however, at length, induced to go over to the party of the duke of Milan, who, in 1447, died without legitimate issue. Sforza was now ambitious of succeeding him, and took a commission, as general of the troops of Milan, against the Venetians. But he soon made a treaty with the latter, and then led an allied army to the gates of Milan, to which he laid siege. The ditto of the city occasioned a popular commotion, the leaders of which proposed the electing of Sforza for their duke. The majority concurred in the proposal, and in February 1450 he was received with great acclamations in that quality. Sforza remained in possession of the dukedom, and in 1464 made himself master of Genoa, Lewis XI. of France having made over to him all the right of France to that city. Sforza died in 1466, and transmitted the sovereignty to his son. He had three himself a brave and skilful commander; but with several traits of grandeur in his character, he was not a man of principles, and was ready to change sides as suited his interest. Mod. Univ. Hist.

SFORZA, CATHERINE, an heroine of the same family, the natural daughter of Galeazzo Sforza, duke of Milan, who was affianced in 1476. She married Jerome Rarío, lord of Forli and of Imola, which was her own dowry; but she was left a widow at the age of twenty-two, with several children. In 1500 Forli was besieged by the duke of Valentinois, son of pope Alexander VI. but the defended
the fortress with the greatest bravery, though the besiegers threatened to put her children to death, who were in their hands. At length the place was taken, and Catherine sent prisoner to Rome; but she soon recovered her liberty, and was married to John de Medicis, to whose family the rendered very eminent services.

Sforza, Isabella, an ingenious lady of the same family in the sixteenth century. Her letters were printed at Venice in 1549, by Hortensio Lando.

Sfrondatti, Francis, a senator of Milan, and counsellor of state to the emperor Charles V. On the death of his wife he entered into orders, and was elevated to the cardinalship. He died in 1550, aged 56. A poem of his, on the "Rape of Helen," was printed at Venice in 1559. His son Nicholas became pope by the name of Gregory XIV; there was another cardinal of this name and family, who wrote several works against the liberties of the Gallican church. He died in 1696.

Sfuggito, Ital. in Music, to shun, avoid, go out at the common way: as antente sfruggita, a disappointed eadence. This happens when the base feems preparing for a full close, instead of falling a 5th or rising a 4th. It riles only one tone or femitone, or falls a 3d; or in other words, when all the parts avoid their natural and expected conclusion.

Sfumberg, in Geography, a town of Bohemia, in the circle of Chrudim; 5 miles S.S.E. of Chrudim.

Sigigata, Sigzgata, or Stora, a town of Africa, in the country of Algiers, ancienly called Ruseda; situated near the coast of the Mediterranean. A few citlerns are the only remains of its ancient splendour; 30 miles W. of Bona. N. lat. 36° 48'. E. long. 6° 40'.

Sigigatchee, or Shigigatchee Jeung, a town of Thibet, situated in a narrow valley, on a ridge of rock, so as to command the road near the river Painom-tcheni; 130 miles W.S.W. of Lafta. N. lat. 29° 51'. E. long. 88° 52'.

Sgraftt, Sgraaffita, in Painting. See Scratchwork.

Shaab al Tadayn, in Geography, a dry shelf in the Red sea, extending from N.E. by E., deriving its name from its supposed resemblance to two arms wide open with their hands, fitted at the end of a great bay, far out to sea. There is a secure harbour on the side towards the land.

Shaal Stone, in Mineralogy. See Tabular spar.

Shab, or Shée, in Geography, a town of Africa, in the county of Nubia; 400 miles S.S.W. of Cairo. N. lat. 23° 35'. E. long. 30° 30'.

Shabadpouër, a town of Hindoostaan, in Oude: 50 miles W. of Kairabad.

Shabala, a name of a wonderful boon-granting cow, often spoken of in Hindoo romance; but more commonly under the name of Surakhli; which fee.

Shabaleg, in Geography, a mountain of Turkistan; 70 miles N.N.E. of Toncata.

Shabamoushwan Lake, a lake of Canada; 210 miles N.N.W. of Quebec. N. lat. 49° 10'. W. long. 75°.

Shabat, a town of the kingdom of Charafin; 95 miles S.S.E. of Urguenez.

Shabaygan, a river of Canada, which runs into lake Michigan, N. lat. 48° 30'. W. long. 86° 45'.

Shabazpouër, a town of Hindoostaan, in Allhabad; 16 miles S.E. of Cooch.

Shabran, a town of Persia, in the province of Schirvan; 40 miles N.E. of Schamachie.

Shabur, a town of Persia, in the province of Irak; 6 miles S.W. of Calbin.—Also, a town of Egypt, on the west branch of the Nile, thought to be the ancient Andropolis; 50 miles N.N.W. of Cairo. N. lat. 30° 47'. E. long. 31°.

Shack, in Ancient Cylomis, a liberty of winter-pasturage. In the counties of Norfolk and Suffolk, the lord of the manor has shack, i.e. a liberty of feeding his sheep at pleasure, in his tenants' lands, during the six winter months.

In Norfolk, shack also extends to the common for hogs, in all men's grounds, from the end of harvest till feeding-time. Whence to go a shack, is to feed at large.

Shack, in Agriculture, provisionally to find as grain at harvest. See Harvesting Grain.

Shack, or Shack-corn, a provincial term applied to the waite corn left in the fields at harvest; also the stock turned upon the stubble after harvest, and likewise to such grounds as lie open to common fields. Pigs are the flock usually employed in gathering this, and in some parts flock of geese and turkeys. Where pigs are cloven through the summer, they are filled with the shackles and the acorns; but some farmers are lo improvident, as neither to feed their clovers in that advantageous way, nor even keep pigs enough to pick up the waite corn, which is sometimes absolutely suffered to rot in the fields. Young pigs answer well in this use, as they thrive greatly, especially when bred upon the farm.

Shack-Fork, provisionally a wooden fork for shaking straw off the barn-floor, made of forked willow, &c.

Shackleford, in Geography, a post-town of America, in Virginia; 143 miles W.S.W. of Washington.

Shackles, in Ship-Building, the small ring-bolts driven through the ports, or scuttles, and through which the laffings or an iron hook paffes when the ports are barred in. There are also shackles put upon billow-bolts, for confining feamen, &c. who have deferved corporal punishment.

Shacora, in Geography, a town of Egypt, on the coast of the Red sea; 65 miles S. of El Cofer.

Shad, Alausa, in Ichthyology, the name of a sea-fish, called also the mother of herrings, and by some authors elpeus and trutta, by the ancients tricus, or trichias, and the clupeus albo of Linnaeus. See Clupea.

It very much resembles the herring in its general form, but it is flatter and broader, and grows to a cubit long, and four inches broad. The head drops down considerably from the back, which at the beginning is very convex, and rather sharp; the body from thence grows gradually less towards the tail; the under jaw is rather longer than the upper; the teeth very minute; the dorfin fin is placed very near the centre, is small, and the middle rays are the longest; the pectoral and ventral fins are small; the tail very forked; the belly extremely sharp, and strongly serrated; the back is of a dull blue; above the gills begins a line of dark spots, which mark the upper part of the back on each side; the number of these spots is different in different fish, from four to ten.

It is very common in many seas, and in some of our large rivers which lie near the sea. They run up these in great numbers, and are then very fat; they afterwards become lean, and then go down to the sea again. They usually swim in large flocks together.

In Great Britain the Severn affords the flad in higher perfection than any other river; where it first appears in May, but in very warm seasons in April, and continues about
About two months. The fish at its first appearance, especially near Gloucester, is esteemed a very delicate fish, and sells dearer than salmon. The London fishmongers distinguish it from that of the Thames, by the French name of sole.

Whether they spawn in the Severn or Wye is not determined, as their fry has not yet been ascertained. The old fish come from the sea in full force. The fishermen erroneously imagine that the bleak, which appears in multitudes near Gloucester in July and August, are the fry of the shad. Many of these are taken in those months only, but none of the emaciated shads are ever caught in their return. The Thames shad does not frequent that river till the month of July, and is esteemed a very stupid coarse fish. About the same time, the twaite, a variety of the shad, makes its appearance near Gloucester, and is taken in great numbers in the Severn, but held in as great disfavour as the shad of the Thames. The true shad weighs sometimes eight pounds, but their general size is from four to five. The twaite, on the contrary, weighs from half a pound to two pounds, which it never exceeds. The twaite differs from a small shad only in having one or more round black spots on the sides; if only one, it is always near the gill, but commonly there are three or four, placed one under the other.

Pennant.

No fish is to be taken in the Thames or Medway, except from May 10 to June 30. 39 Geo. II. cap. 21.

SHADDOCK, in Botany. See Citrus.

SHADE, in Agriculture, any fort of protection employed for preventing the heat, cold, and rain, from affecting and injuring any kind of stock, whether of the nature of building or plantation, of the woody kind, &c. See Screen-Plantation, and Shelter.

Shade, in Gardening, anything that intervenes to obscure or protect plants from the rays of the sun. It is effected in various ways by the gardener; as by mats, covers, &c.

Shade, provincially a shed for fuel, or house for sheltering live-stock, &c; it also signifies to shed as grain, as used in some places.

Shade Mountain, in Geography, a mountain of Pennsylvania, N.E. of Lewistown.

SHADENDORFF, a town of Austria; 4 miles N.E. of Brugg.

SHADING of Plants, in Gardening, the art of protecting plants of young and tender growths in seed-beds, &c. from the sun. It is necessary work on many occasions, in warm, dry, sunny weather in spring and summer, &c. in protecting various sorts of small young plants from seed-beds, into nursery-beds, pots, &c. as well as small cuttings, slips, above-ground offsets, pipings, &c. as hedges, occasionally in transplanting any kind of more advanced plants, flowers, &c. into beds, or pots, in a hot, dry season; and sometimes to seed-beds of particular sorts of small or curious seeds, in hot sunny days; also to plants in hot-beds, under frames and glasses, both of young and more advanced growths. It is the most commodiously and effectually performed by garden mats in a sort of awning over the beds, to plants in the full ground, or to those in pots placed close together, or sometimes to seed-beds, either in that way, or by being spread on the surface; in the latter method, being occasionally watered over the mats; or sometimes, in hot dry weather, by some loose straw litter, or straw over seed-beds, which by screening the surface from the parching sun, and preferring the moisture in the earth, promotes a more quick, regular, and free germination in the seed; and when the plants are come up, the covering is soon drawn off slightly with a wooden or other rake. To plants under glasses in frames, &c. the occasional shading is effected either by mats spread thinly over the glasses, or sometimes by a little Ile, long litter, shaken lightly over them, just during the fierce heat of the sun. In all cases the shade should not be made too thick, so as to darken the plants too much.

Also in the business of occasional shading, it is in general only to be continued in the warmed time of funny days, generally longer to plants, cuttings, &c. which have not struck root, than those that are in a growing state; and in common with all plants in the full ground, or others designed for placing in the open air, whose occasional shading is necessary. It should be of continued on evenings, mornings, and nights, that they may enjoy the benefit of the full fresh air at these times; as also the tender sorts, striking or advancing in growth under glasses, having occasional shading when the sun is powerful, in the warmer part of the day, should remain unhaded before and after that time, that they may receive the necessary beneficial influence of light and air in a proper degree. But in plants, cuttings, slips, &c. that have had occasional shading till they have struck good root, and begin to advance a little in a renewed growth, the shading should be most discontinued gradually, especially for those in beds, pots, &c. in the open ground or others designed for transplantation, or for placing in pots, in the full air for the summer, according to their kinds; but in some small tender plants of slender growth, the occasional shading may probably be necessary in longer continuation, as till they acquire more strength; and to plants remaining all summer in hot-beds, or under frames and glasses, the continuance of occasional moderate shading in hot sunny days will be proper; but in small young plants, cuttings, &c. potted out or planted as above, and designed for the full ground or open air, not continued under glasses, the having the benefit of occasional shade till well struck is all they require.

The shading of plants which require this kind of management are very numerous; but it is constantly mentioned in their culture where necessary.

SHADMAN, in Geography, a town of Grand Bucharia; 36 miles N.E. of Termed.

SHADOW, Shade, in Optics, a certain space deprived of light, or where the light is weakened by the interposition of some opaque body before the luminary.

The doctrine of shades makes a considerable article in optics, astronomy, and geography; and is the general foundation of dulling.

As nothing is seen but by light, a mere shadow is invisible; when, therefore, we say, we see a shadow, we mean partly, that we see bodies placed in the shadow, and illuminated by light reflected from collateral bodies; and partly, that we see the contours of the light.

If the opaque body, that projects the shadow, be perpendicular to the horizon, and the plane it is projected on be horizontal, the shadow is called a right shadow. Such are the shadows of men, trees, buildings, mountains, &c. If the opaque body be placed parallel to the horizon, the shadow is called a vertical shadow; as the arms of a man stretched out, &c.

Such a shadow is an opaque Body, in a ray of the Projection of.

1. Every opaque body projects a shadow in the same direction with the rays of light; that is, towards the part opposite to the light. Hence, as either the luminary or the body changes place, the shadow likewise changes its place.

2. Every opaque body projects as many shadows, as there are luminaries to enlighten it.

3. As the light of the luminary is more intense, the shadow

4. As the

Illuminated.
SHADOW.

dow is the deeper. Hence, the intensity of the shadow is measured by the degrees of light that space is deprived of. In reality, the shadow itself is not deeper, but it appears so, because the surrounding bodies are more intensely illuminated.

4. If a luminous sphere be equal to an opaque one, which it illumines, the shadow this latter projects will be a cylinder; and, of consequence, will be propagated still equal to itself, at whatever distance it extends; so that, if it be cut in any place, the plane of the section will be a circle equal to a great circle of the opaque sphere.

5. If the luminous sphere be greater than the opaque one, the shadow will be conical. If, therefore, the shadow be cut by a plane parallel to the base, the plane of the section will be a circle; and that so much the less as it is at a greater distance from the base.

6. If the luminous sphere be less than the opaque one, the shadow will be a truncated cone; consequently it grows still wider and wider; and therefore, if cut by a plane parallel to its base, that plane will be a circle so much the greater as it is farther from the base.

7. To find the length of the shadow, or the axis of the shady cone, projected by a lens opaque sphere, illumined by a light of the semidiameters of the two, as G C and I M, (Plate XX, Optics, fig. 1.) and the distances between their centres G M, being given:

Draw F M parallel to C H; then will I M = C F; and therefore F G will be the difference of the semidiameters G C and I M. Consequently, as F G, the difference of the semidiameters, is to G M, the distance of the centres; so is C F, or I M, the diameter of the opaque sphere, to M H, the distance of the vertex of the shady cone, from the centre of the opaque sphere. If then, the ratio of P M to M H be very small, so that M H and P H do not differ very considerably, H M may be taken for the axis of the shadowy cone: otherwise the part P M must be substracted from it, to find which, seek the arc L K, which is the measure of the angle L M K, or M H I, and this angle is one of the angles of the right-angled triangle M H I, the sides of which, M I and M H, are known; for this, substracted from a quadrant, leaves the arc I Q, which is the measure of the angle I M P. Since then, in the triangle M I P, which is right-angled at P, besides the angle I M Q, we have the side I M; the side M P is easily found by plain trigonometry.

E. 2. If the semidiameter of the earth be M I = 1; the semidiameter of the sun will be = 117; and therefore G F = 111; and of consequence M H = 217; since then M P is found by calculation to bear a very small ratio to M H, for the angle M I P = K M L, may be taken equal to the apparent semidiameter of the sun, because of the sun’s great distance, and its considerable magnitude, in proportion to the globe M; and therefore, M P = M I : line of 10° : radius, i.e. = 217 : 1, nearly; and as M H is about 217 times M I, M P may be neglected, and P H may be taken to be 217 semidiameters of the earth. See Eclipse of the Moon.

Hence, as the ratio of the distance of the opaque body, from the luminous body G M, to the length of the shadow M H, is constant; if the distance be diminished, the length of the shadow must be diminished likewise. Consequently, the shadow continually decreases as the opaque body approaches the luminary.

8. To find the length of the shadow projected by an opaque body T S (fig. 2.) ; the altitude of the luminary, e. gr. of the sun above the horizon, viz. the angle S V T, and that of the body, being given. Since, in the rectangled triangle S T V, which is rectangular at T, we have given the angle V, and the side T S; the length of the shadow T V is had by trigonometry.

Thus, suppose the altitude of the sun 37° 45’, and the altitude of a tower 178 feet; T V will be found 230 feet nearly.

9. The length of the shadow T V, and the height of the opaque body T S, being given; to find the altitude of the sun above the horizon.

Since, in the rectangled triangle S T V, rectangular at T, the sides T V and T S are given; the angle V is found thus: as the length of the shadow T V, is to the altitude of the opaque body T S, so is the whole line to the tangent of the sun’s altitude above the horizon. Thus, if T S be 30 feet, and T V 45’, T V S will be found 41° 49’.

10. If the altitude of the luminary, e. gr., the sun above the horizon T V S, be 45’, the length of the shadow T V is equal to the height of the opaque body, the triangle in this case being isosceles.

11. The length of the shadows T Z and T V of the same opaque body T S, in different altitudes of the luminary, are as the co-tangents of these altitudes.

Hence, as the co-tangent of a greater angle is less than that of a lefs angle; as the luminary rises, higher, the shadow decreases; whence it is, that the meridian shadows are longer in winter than in summer.

12. To measure the altitude of any object, e. gr., a tower A B (fig. 3.) by means of its shadow projected on an horizontal plane.

At the extremity of the shadow of the tower C, fix a flick, and measure the length of the shadow A C; fix another flick in the ground of a known altitude D E, and measure the length of the shadow thereof E F. Then as E F is to A C, so is D E to A B. If, therefore, A C be 45 yards, E D 5 yards, and E F 7 yards; A B will be 32½ yards.

13. The right shadow is to the height of the opaque body, as the cofine of the height of the luminary to the finite.

14. The altitude of the luminary being the same in both cases, the opaque body A C (fig. 4.) will be to the vered shadow A D, as the right shadow E B to its opaque body D B. Hence, 1. The opaque body is to its vered shadow, as the cofine of the altitude of the luminary to its finite; consequently the vered shadow A D is to its opaque body A C, as the finite of the altitude of the luminary to its cofine.

2. If D B = A C; then will D B be a mean proportional between E B and A D; that is, the length of the opaque body is a mean proportional between its right shadow and vered shadow, under the same altitude of the luminary.

3. When the angle C is 45°, the finite and cofine are equal; and, therefore, the vered shadow is equal to the length of the opaque body.

15. A right line is to a vered line of the same opaque body, under the same altitude of the luminary, in a duplicate ratio of the cofine to the finite of the altitude of the luminary.

Right and vered shadows are of considerable use in measuring: as by their means we can commodiously enough measure altitudes, both accessible and inaccessible, and that too when the body does not project any shadow. The right shadows we use, when the shadow does not exceed the altitude; and the vered shadows, when the shadow is greater than the altitude. On this footing is made an instrument called the quadrat, or line of shadow; by means of which the ratios of the right and vered shadow of any object, at any altitude, are determined. This instrument is usually
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Let the scheme, N 1. (Plate 1. Shadows, fig. 1.) represent the vanishing plane, and N 2. the plane of the picture.

In the vanishing plane, N 1, draw M 1, the vanishing line, e the point of light or place of the rays. A B the intersection of the original vertical plane, as in the picture in the angle A. Let M 1 be the line, as given in position, to the horizon. Make the angle D A F equal to the inclination of the line to the plane of the horizon. Draw D F perpendicular to A D, and D B perpendicular to A B; produce D B to K; and make K E equal to D F, and join A K, which is the beat of the line on the vertical plane. Draw e parallel to A B, and draw the perpendicular to v, i.e. v, and make the angle 1 v m equal to v, and make the angle 1 m h equal to BAK, and h will be the vanishing point of the beat of the line. Draw v parallel to D A, and v perpendicular to v; make v in the vanishing line, equal to v; make the angle v n equal to the angle D A F, which the original line makes with the plane of the horizon. Draw e perpendicular to v, meeting v in O.

In the plane of the picture N 2, let V L be the vanishing line answering to v, N 2 : in V L make choice of any convenient point, O, for the centre of the picture; make O L equal to O, N 1, and O V equal to v. N 1 : draw I, H and V L perpendicular to V L, then H is the vanishing point of the feet of the line itself.

The points and I will be on the same side of the vanishing line of the horizontal planes.

This problem is the same when the feet and altitude of a ray of the sun are given, and the inclination of a vertical plane to the plane of the picture; to find the vanishing point of a ray of light, and the vanishing point of the beat of the sun's rays.

When the sun is on the same side of the picture with the spectator, the vanishing point of the beat of the rays, and the vanishing point of the rays, will be below the vanishing line V L; but when on the other side of the picture, the vanishing point of the rays and the vanishing point of their beat will be above V L.

The following problem united to finding the vanishing points of the feet of a line, and the vanishing point of the line itself, with the vanishing point of the beat of the sun's rays and the vanishing point of the rays, as relating to the plane given.

Given the inclination of a plane to the plane of the picture, both being perpendicular to the original plane, the feet and inclination of a straight line, and the feet and inclination of the sun's rays, both to the plane of the horizon; to determine the vanishing point of the feet of the sun's rays, the vanishing point of the feet of the line on the vertical plane, as also the vanishing point of the sun's rays and vanishing point of the line itself.

It is evident, that the vanishing point of the beat of the sun's rays, and the vanishing point of the foot of the line, are both in the vanishing plane of the plane, which is a straight line perpendicular to the vanishing line of the horizon; since the original of the beat of a ray, and the original of the feet of the line, are both in the original plane; and if the line be parallel to the original plane, the vanishing point of the feet of the line will be in the intersection of the vanishing line of the vertical plane and that of the horizon.

Join V S, (fig. 2.) and let it meet A B in i; draw i, and a S, cutting each other in c, and c is the shadow of the line required.

For the vanishing point of the line that projects the shadow and the vanishing point of the sun's rays, are in the plane of the sun's rays.
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vanishing line of the plane of shade; and because the plane of shade is supposed to cut the original plane, the intersec-
tion, which is the shadow, will be a line in the original plane, and therefore the vanishing point of the shadow will be in the vanishing line of the original plane; and as it has been shown that it is also in the plane of shade, it will therefore be in the intersection of the plane of shade, and the vanishing line of the plane on which the shadow is thrown.

This problem is general for planes and lines in all situations, but in the following examples the context and distance of the picture are supposed to be given, and the position of the picture is that of being perpendicular to the primary plane or first original plane: the objects themselves are solids, whose edges or planes are supposed to be perpendicular to the plane on which they stand. As oblique positions very seldom occur in practice, we shall suppose the vanishing line of the original plane, on which the object is placed, to be given.

To find the shadow of a prism placed on the primary plane.

Let A B (fig. 3, 4, and 5) be the vanishing line of the plane of the base, and since the picture is supposed to be perpendicular to the primary plane, the vanishing line of the plane of shade, occasioned by the vertical lines which form the concourse of the sides of the object, will be perpendicular to the vanishing line A B. Let S I, therefore, be the vanishing line of a plane of shade, occasioned by any line of concourse, S being the vanishing point of the fun's rays, and I the intersection of the vanishing line of the plane of shade, with that of the plane on which the shadow is to be thrown.

Let g d, h a, m n, be the edges of the solid; join h a and a S, cutting each other in e; and b c is the shadow, occasioned by the edge or line of concourse h a. Draw e B and d S, cutting each other in e; or, if necessary, produce them to cut in e, and e c is shadow, occasioned by the edge a d, parallel to the plane of the original plane; also draw e A and S f, cutting each other in i; or, if necessary, produce them to cut each other in i, then e i will be the shadow of the edge d f. Lastly, draw i j, which will complete the shadow of the prism, as required.

Fig. 3 shows the shadows of the object when the fun is before the picture; fig. 4, shows the shadow when the fun is behind the picture; and fig. 5, when the fun is in the plane of the picture.

To find the shadow of a building with a break. Let V L (fig. 6) be the vanishing line of the horizon, V the vanishing point of the horizontal lines, represented by a c and b d, that form the end of the building, also of e f, g h, which represent the horizontal lines forming the sides of the break. Let the fun be supposed to be in the plane of the picture, or its rays parallel thereto, and let the planes a b d e and e g b f be in shade, and the plane e g b f will throw a shadow upon the plane a b l k, and the plane a b d e upon the horizon. As the fun's rays are parallel to the picture, they will have no vanishing point, but still the rule will hold in this case also. Through the vanishing point L, draw L M perpendicular to V L, then L M is the vanishing line of the plane a b l k, on which the shadow is to be thrown; through V draw V M parallel to the fun's rays, or make the angle L V M equal to the angle which the fun's rays make with the plane of the horizon. Thus M is the vanishing point of the shadow of all lines vanishing in V, upon the plane a b l k: therefore, to find the shadow of the line h g, join M h, and produce it to m; and draw g m parallel to M V, then m will be the shadow of the point g, and h m of h g. Draw m n parallel to g s, and m n will be the shadow of g s; therefore h m n f will be the whole shadow of the plane b g e f, upon the plane a b l k.

To find the shadow of the end a b c d upon the plane of the horizon: draw a o parallel to L V, and be parallel to M V; then a o is the shadow of the vertical line A B; join o V, and draw f p parallel to M V, and o p is the shadow of b d; join p L, and draw r q parallel to M V, and p q will be the shadow of the line d r, not seen: join q o, or draw it parallel to L V, then a o p q r will be the shadow of the building upon the plane of the horizon.

Many examples of shadows might be given, but if the principles here shewn are understood, the artifl will not be at a loss to find the shadow of any right-lined object whatever: for to find the shadow of an object constituted by planes, and consequently terminated by straight lines, is no more than to find the shadow of these lines. If a circle be given, the circumference may be divided by parallel lines into parts, and the shadows of the points of division may be found by finding the shadows of the intercepted lines, and drawing a curve round the extremities.

If we were required to find the shadows upon several planes, first find the shadow in the plane on which the object stands, and observe where the shadow meets the next plane; then having the vanishing line of this second plane, observe where the vanishing line of the plane of shade cuts the vanishing line of this second plane, then the point of interception is the vanishing point of the shadow on the second plane.

The principles shewn under the article Projection, will apply equally to the representation of objects in perspective, particularly where the planes which throw the shadow intersect the plane upon which the shadow is to be thrown; for by continuing the line that throws the shadow, and the inter-
section of the plane to meet each other, you have the point where the shadow terminates; and therefore, if a point be given in the shadow, the direction of the shadow will be known. Thus in the last example, suppose the line a o obtained; and since the point o is the beginning of the shadow of the line b d, produce a e and b d to meet in V; join o V, and draw the ray of the fun d p, then o p is the shadow of b d: produce d r and e s to meet in L, and join p l, draw the ray r p from r, then p r is the shadow of d r, not seen.

To find the vanishing line of a pole upon several planes.

Let A B C D E F G H I K, (Plate II. Shadows, fig. 1.) be the outline of a building, with a lean-to or pent-housethefun's rays, and also of the gable D M Q C of the pent-housethe fun's rays, of all the horizontal lines in the parallel fronts B F G L and D E N M; and as all vertical planes have vertical vanishing lines, V R is the vanishing line of the parallel gables A B L I K and C D M Q; L U is the vanishing line of the fronts B F G L and D E N M; and L G H I is the representation of the roof of the main building, and M N P Q of the pent-housethe sun's rays, or point of the sun's rays, S; draw S L, which will be the vanishing line of the inclined plane L G H I, for S and L are the vanishing points of two lines in that plane: produce M Q to meet V R in T, and draw T L; then T L is the vanishing line of the inclined plane M N P Q of the roof of the pent-housethe sun's rays, of the line that throws the shadow: therefore by drawing O R, or R will be the vanishing line of the plane of shade, which let cut V I, the vanishing line of the horizon, in Y; and L U,
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LUX, the vanishing line of the vertical plane BFG I and D E M N of the walls, in U; VR, the vanishing line of the gables, in R; SL, the vanishing line of the main roof, in Z; and TL, the vanishing line of the pent-houses, in Z'. We are now prepared for drawing the shadow of the pole WX upon the horizontal plane and upon the building.

Produce AB to meet WX in X, then X will be the point where the pole rests upon the ground or horizontal plane; draw XY, cutting DE in M, draw Ua, cutting DM in b; draw AR, cutting MN in V; draw ZJ, cutting PQ in d; draw Ua, cutting G T at I; and draw ZE, cutting the ridge 1 H at j; then X a b c d e f will be the shadow of the pole.

Now, since the shadow first begins at the foot of the pole or line in the plane of the horizon, and since the intersection of the vanishing line of a plane on which the shadow is to be thrown, and the intersection of the vanishing line of the plane of shade, gives the vanishing line of the shadow upon that plane; now Y is the intersection of the vanishing line of the plane of shade with the vanishing line of the horizon; therefore Y is the vanishing point of the shadow of the line WX upon the plane of the horizon. The next plane on which the shadow is thrown is DENM; now LU is the vanishing line of the plane DENM, and U is the point where the vanishing line of the plane of shade cuts L U; therefore U is the vanishing point of the shadow upon the plane DENM. The next plane on which the shadow is projected is the plane CDMQ; now VR is the vanishing line of the plane CDMQ, and it intersects the vanishing line of the plane of shade in R; therefore R is the vanishing point of the shadow upon the plane CDMQ. The next surface on which the shadow is projected is the plane MNPQ, of the roof of the pent-house; now Z is the intersection of the vanishing line of the plane of shade with the vanishing line of the plane MNPQ; therefore Z is the vanishing point of the shadow on the plane MNPQ. The next surface on which the shadow is projected is the plane BFG I of the wall, but U has already been shown to be the vanishing point of the shadow. The plane of the roof is the last surface on which the shadow is projected: now SL is its vanishing line, and it meets the vanishing line of the plane of shade in Z, therefore Z is the vanishing point of the shadow upon the roof.

In carrying the shadow of a line across several planes, it will not be surprising if some little inaccuracy takes place from the obliquity of intersections: it might be a great chance, that when the part of the shadow d I, which falls upon the plane BFG L, is drawn from the vanishing point U, through the point d, that it will meet the pole at I, as it ought to do. To remedy this, begin with the shadow I d, and proceed in the reverse order, until it meets the line WX at X, which it must in principle, and will not be liable to vary much in practice.

The points which direct the shadows upon the several planes might also be found by the methods shown in the article Projection.

The following observations will be useful in the practice of shadows.

When a straight line that throws a shadow is parallel to the picture, it is then represented parallel to the original. In this case it has no vanishing point; or, in other words, the vanishing point of the line may be laid to be at an infinite distance; and, therefore, instead of the vanishing point of the line being joined to the vanishing point of the sun's rays, draw a straight line from the vanishing point of the sun's rays parallel to the projection of the line which throws the shadow, which will be the vanishing line of the plane of shade, and therefore the intersection of the vanishing plane of the plane of shade with the vanishing line of the plane on which the shadow is to be thrown, will give the vanishing point of the shadow on that plane, after the same analogy as lines which are incline to the picture. This case is similar to that of the sun's rays being parallel to the picture: for here also the vanishing plane of the rays is at an infinite distance; but as the plane of shade will be a vanishing line, this will be found by drawing a straight line through the vanishing point of the line that throws the shadow parallel to the sun's rays, as already shown in a former example.

But, if a straight line be drawn from the luminous point to the plane, and its feet upon any plane, also the representation of any point in space, and its representation upon that plane, the shadow of the point will be found by drawing a straight line from the luminous point through the point in space, and by drawing another straight line from the feet of the luminous point through the feet of the point in space; and the intersection of the two lines thus drawn will represent the shadow of the point upon the plane. But when the relation of several planes represented in a picture, the representation of the light with its feet, and the representation of a point in space with its feet, are given, to project the shadow of the point on the other planes, other considerations become necessary.

For this purpose, let ABCD (fig. 2.) be the inside of a room, confining internally of the vertical planes, AH, E I, FK, GC, and of the horizontal planes A E F G B and D H I K C: also, let L be the luminous point, and M its seat in the plane A E F G B. In order to form an idea of the point L, in respect of the other planes, it is necessary to have the intersection of a line drawn through L, in a given position with one of the planes. Thus, if it is known that the straight line LA, parallel to the picture, cuts the plane of the wall BK, in the point a; the position of the point L, to any of the other planes may be easily determinded, as follows.

Through a draw ab parallel to the vanishing line NO, of the plane BK, cutting BG, the intersection of the planes BK and AG, in b; through b draw bM parallel to PQ, the vanishing line of the floor, cutting AE, the intersection of the planes AG and AH, in c: also FE, the intersection of the planes AG and AH, in d. Draw ce parallel to NO, the vanishing line of the plane AH; and df parallel to KS, the vanishing line of the plane EI. Then, because the intersecting and vanishing lines of any plane are parallel to each other, and because a line drawn parallel to the intersecting line is parallel to the picture; therefore the representations of all the lines, ab, bc, or bd, ce, and ef, are all parallel to the picture, and in a plane passing through the luminous point L.

Given the representation of any straight line TU, and the points V and W, where the lines TV and UW, drawn parallel to the picture and to each other, meet the plane AG, whose vanishing line, PQ, is given, to find the vanishing point, X, of the line TU.

Draw WV, cutting PQ, the vanishing line of the plane AG, in Y; and draw XY parallel to TV or UW, meeting the line UT, produced in X, the vanishing point required.

To make this appear, it is evident that the vanishing line of a plane passing through W and V, must also pass through Y; and likewise the vanishing line of a plane passing through UW, must be parallel to it: wherefore XY is the vanishing line of the plane, which passes through UW.

Now
Now let $WY$ cut the plane $AX$ in $Z$; and in this example the vanishing line, $YX$, is parallel to the vanishing line of the plane $EI$: therefore the planes, represented by $EI$ and $XUWY$, intersect each other in a line parallel to the picture; and, therefore, the representation of such an intersection is parallel to $XY$, or to $RS$, the vanishing line of the plane $EI$.

Given the vanishing lines, $AB$, $CD$, $EF$, (fig. 3.) of three planes, $GHIK$, $LMNO$, and $MNQR$, the common intersection, $NO$, of the planes $GHIK$ and $LMNO$; also the intersections, $NI$ and $MN$, of the planes $GHIK$ and $LMNO$, with the plane $MNQR$; the representation, $ab$, of a line in the plane $LMNO$; the point of light, $c$; $cd$, a line parallel to the picture; and $d$, the point where it intersects the plane $MNQR$: to find the shadow of the line on the plane $GHIK$.

First, find the representation of a ray of light parallel to the picture, thus: draw $de$ parallel to $AB$, cutting $MN$ at $e$; draw $ef$ parallel to $EF$: then if $ab$ be not parallel to $ef$, produce $ba$ to $f$, and join $fe$, which is the ray required. Secondly, find the vanishing line of a plane of shade paffing through the line $ab$, and the ray $fe$, thus: produce $e$ to meet $CD$ in $D$, which is the vanishing point of $ab$; through $D$ draw $DF$ parallel to $fe$, and $DF$ will be the vanishing line of the plane required. And, lastly, find the shadow of $AB$ upon the plane $GHIK$, thus: produce $ON$ and $ab$ to meet in $g$; from $F$, through $g$, draw the line $FGi$; and from the point of light, $c$, draw $eh$ and $ca$; then $hi$ will be the shadow of the line, as required.

For $de$ being parallel to $AB$, the vanishing line of the plane $MNQR$, $de$ will be parallel to the picture; and since $ef$ is drawn parallel to $EF$, the vanishing line of the plane $LMNO$, $ef$ will be parallel to the picture; and because $ba$ meets $ef$ in $f$, $fe$ is a ray of light parallel to the picture, meeting the line $ab$; and because $CD$ is the vanishing line of the plane $LMNO$, and $ab$ is in the plane $LMNO$, therefore the vanishing point of $ab$ is in $CD$, and consequently at $D$, where $ab$ produced meets $CD$; and because $D$ is the vanishing point of $ab$, the vanishing line of the plane of shade will pass through $D$ parallel to $fe$: but $F$ is the intersection of the vanishing line of the plane of shade, with the vanishing line $EF$ of the plane $GHIK$, on which the shadow is projected, therefore $F$ is the vanishing point of the shadow on the plane $GHIK$; and because $g$ is the intersection of $ab$ with the plane $GHIK$, the shadow will commence at $g$, and consequently drawing $Fg$ $bi$ gives the direction of the shadow; and lastly, because $c$ is the luminous point, the rays $ca$ and $eh$ will terminate the shadow.

As $D$ would be the vanishing point of all lines parallel to the original of $ab$ in the plane represented by $LMNO$; and as different representations could not meet the line $ef$ in the same point, the ray $ef$ will have different positions, and consequently $DF$, which is drawn parallel thereto; and as the point $D$ is stationary, the point $F$ will be variable.

Given the representation of three rectangular planes, forming a solid angle, the representation of a point of light or candle, and the seat of the light on one of the planes; to find the seat of the light on the other two planes.

Let the three planes be $ABCD$, $ABFG$, $AFED$, (fig. 4.) it is evident that every two adjoining planes have three edges parallel to each other, one common to both, which is their line of concourse; these edges will therefore vanish in a point or be parallel to each other, according as the original planes are oblique or parallel to the picture; let the original planes be obliquely situated; therefore produce the sides $CD$, $BA$, $GF$, of the two adjoining planes $ABCD$, $ABFG$, and they will all meet in $V$, their vanishing point; also produce the sides $DE$, $AF$, $BG$, of the two adjoining planes $DAFE$, $FABG$, and they will meet in $W$, their vanishing point; likewise produce the sides $CB$, $DA$, $EF$, and they will meet in $X$, their vanishing point.

Let $L$ be a luminous point, and $S$ its seat in the plane $ABCD$; draw $SX$, cutting $AB$ in $a$; draw $aW$, and draw $LX$, cutting $aW$ in $S'$; then $S'$ is the foot of the luminous point in the plane $ABGF$: draw $SV$, cutting $AD$ in $b$; draw $bW$, and $LV$, cutting each other in $S''$, then $S''$ is the foot of the luminous point in the plane $ADEF$.

Because the plane $ABCD$ represents a rectangle, and $V$ is the vanishing point of the one side, and $X$ that of the other; all the lines drawn to $X$ will represent right angles with the lines which vanish at $V$, and therefore $S$ and $A$ represent a right angle in the plane $ABCD$. For the same reason, $aS$ represents a right angle in the plane $ABGF$, and since the planes $ABGF$ and $ABCD$ are at right angles, the angle $Sas$ will represent a right angle; and because $aS$ represents a perpendicular to $AB$, $aS'$ and $SL$ will represent parallel lines; and since $LS'$ and $aS$ have the same vanishing point $X$, the original of $LS'$ is parallel to the original of $Sa$; but $Sa$ represents a perpendicular to the plane $ABGF$, therefore $LS'$ also represents a perpendicular to the plane $ABGF$; and because the point $S'$ is in the plane $ABGF$, $S'$ is the foot of the luminous point $L$, in the plane $ABGF$. In the same manner it may be shown that $S''$ is the foot of the luminous point in the plane $ADEF$.

Given the representation $cd$ of a line perpendicular to the original of the plane $ABCD$, and the vanishing point $W$ of the line, and the point $d$, where the line meets the plane $ABCD$, a luminous point $L$, with its seat $S$, also upon the plane $ABCD$; to find the shadow of the line $CD$ upon the said plane.

Draw $Sd$ and $Le$ to meet each other in $e$, then $de$ will be the shadow of the line $cd$, as required. In the same manner, if $fg$ represent a line perpendicular to the plane $ABGF$, and $g$ the point where it meets the plane $ABGF$, $gb$ will be the shadow of the line, by drawing $Lf$ and $Sg$ to meet in $b$.

This method is general for any position of the original planes, with respect to the picture; and this position of the planes, in respect of each other, is that which most frequently occurs in practice.

Let $ABCD$ (fig. 5.) be the inside of a room, shewing five sides, one, $FGH$, being parallel to the picture, and the other four perpendicular to it; $C'$ is the centre of the picture.

Let $L$ be the light of a candle, $S$ its seat upon the floor; then to find the seat of the light on all the other four sides. Through $S$ draw $ab$ parallel to $VL'$, the vanishing line of the horizon, cutting $BF$ at $a$; and $CG$ at $b$; draw $aS'$ and $bS''$ parallel to $YZ$, the vanishing line of the two vertical planes; through $L$, the point of light, draw $S's'S''$, then $S'$ is the foot of the light in the plane $ABFE$, and $S''$ the foot of the light in the plane $CDHG$. Produce $CS$ to meet $BC$ in $e$; draw $ed$ parallel to $ZY$, and join $dC'$; draw $S''S$ parallel to $YZ$; then $S''$ is the foot of the light in the plane $AEHD$; let $CS'$ cut the line $FG$ in $e'$; draw $e'S'$ parallel to $ZY$, cutting $LC'$ in $S''$, then $S''$ will be the foot of the light on the plane $EFGH$. Then to project a prism standing perpendicular to any of these planes, suppose that
that which stands on the floor. From the seat S draw S; meeting C G in a ; draw s r parallel to Z Y, and draw the ray L m. r w will be the shadow of the points ; also draw S b, cutting C G m p, draw p a parallel to Z Y, and draw L m, cutting p a t n; then n is the shadow of the point a; also draw S g, meeting C G in q; draw q r parallel to Z Y, and draw L n, meeting q s t n; then n is the shadow of the point f; join r e and r t, which complete the whole shadow of the prism upon the floor, and on the wall.

The principle of finding the shadows of the prisms on the other sides is the same, and will be obvious to inspection.

The truth of the method has already been shown.

Shadow, in Geography. The inhabitants of the globe are divided, with respect to their shadows, into Alti, Amphitex, Heteroselii, and Perniss.

Shadow, in Painting, denotes a imitation of a real shadow, effected by gradually heightening and darkening the colours of such figures as by their disposition cannot receive any direct rays from the luminary suppos'd to enlighten the piece. The management of the shadows and lights makes what painters call the chiar-oiature: the laws of which see under the article CLAIR-OBSCURE.

Shadows, Genus of Curves by. See Curve.

Shadows, Blue. See Blue-

SHADUAN, in Geography, a small island in the Red Sea. N. lat. 27° 28'. E. long. 33° 58'.

SHADWELL, Thomas, in Biography, a dramatic writer, and poet-laureat to King William III., was descended of an ancient family in Staffordshire, and was born about the year 1640, at Lauton-hall, in Norfolk, a seat belonging to his father, who was bred to the law, but having an ample fortune did not practice, choosing rather to serve his country as a magistrate. He was in the commission for three counties, viz. Middlesex, Norfolk, and Suffolk, and discharged the duties of the office with distinguished ability, and the most perfect integrity. In the civil wars he had been a considerable sufferer for the royal cause, so that having a numerous family, he was reduced to the necessity of selling and spending a considerable part of his estate to support it. In these circumstances he resolv'd to educate his son to his own profession. He was sent for preparatory studies to Caius college, Cambridge, and was afterwards entered at the Temple, but becoming acquainted with some of the wits of that time, he deserted his profession and devoted himself to literature. It is not long before he became eminent in dramatic poetry, and he appeared before the public as the writer of a comedy entitled "The Filled Lovers," or "The Impertinent," which was acted in the duke of York's theatre, and in 1668 it was printed. The success of this piece encouraged the author to proceed, and he from this period rapidly brought out plays, chiefly of the comic kind, till he had reached the number of seventeen. His model was Ben Jonson, whom he imitated in drawing humorous characters, rather from his own conceptions than from nature; and though his name has not been transmitted to posterity with much encomium, and his works have long since disappeared from the stage, yet some of his delineations are said to display much real humour. Lord Rochester has given him a respectable place among his contemporaries; he says,

"None seem to touch upon true comedy,
But hasty Shadwell, and slow Wycherly."

As every one in those days was of necessity a party man, Shadwell ranked himself among the Whigs, and in consequence of this he was set up as a rival to Dryden. Hence there grew a mutual dislike between them, and upon the appearance of Dryden's tragedy, entitled the "Duke of Guise," in 1683, Shadwell was charged with having the principal hand in writing a piece, entitled "Some Reflections on the pretended Parallel in the Play called the Duke of Guise, in a Letter to a Friend," which was printed the same year. Dryden wrote a vindication of the Poet, and a considerable storm was raised both against Shadwell and his friend Hunt, who assisted him in it, and who on the occasion was forced to fly to Holland. Dryden, by way of revenge upon Shadwell, wrote the bitterest satire upon him that ever was penned; this was the celebrated Mac-Flecknow.

In 1688 Shadwell was appointed to succeed his rival Dryden in the laureateship, an honour which he did not enjoy many years. He died suddenly in the year 1692, in the fifty-second year of his age, at Chelsea, and was interred in the church there. Dr. Nicholas Brady preached his funeral sermon, in which he affirms us, "that the subject of his discourse was a man of great honesty and integrity, and had a real love of truth and sincerity; an inviolable fidelity and strictness to his word; an unalterable friendship wherever he professed it; and a much deeper love of religion, than many others have who pretend to it more openly." The titles of Shadwell's plays are given in the Biographia Dramatica. An edition of his works, consisting of those plays and miscellaneous poems, was printed in 1720, in four vol. 8vo. The Earl of Rocheller, in speaking of Shadwell, says, "If he had burnt all he had written, and printed all he spoke, he would have had more wit and humour than any other poet."

Shadwell, in Geography, a parish in the Tower division of the hundred of Ophullon, and county of Middlesex, England, is situated about two miles and a half E. by S. from St. Paul's cathedral. It was formerly called Chadwell, as it was supposed from a spring dedicated to St. Chad, and constituted a hamlet in the parish of Stepney, till separated from it, and made parochial, in 1669. The extent of this parish is very small, being only 410 yards in length, and 760 in breadth, and is wholly covered with houses, except a few acres, called Sun Tavern fields, which are appropriated as rope-walks. That portion of it which abuts a river, and is called Lower Chadwell, is chiefly inhabited by tradesmen, and manufacturers connected with the shipping, such as ship-chandlers, bungo-bakers, Invoice-bakers, mill-makers, sail-makers, anchor-smiths, cooperers, &c. A market which had been formerly held at Shadwell under the authority of a charter of king Charles II., but which was long discontinued, has been revived within the last few years. The church, dedicated to St. Paul, is a modern structure of brick. The living is a rectory in the deanery of the diocese of St. Paul's. In Shakespeare's walk is a meeting-house for Presbyterian dissenters, opened only on Sunday evenings, when sermons are delivered by dissenting ministers of different denominations, for the support of a charity-school, in which 50 boys and 20 girls are clothed and educated. Here are also a Calvinist meeting-house, and a chapel for Wesleyan Methodists, who have a Sunday-school attended by above 150 children. A third charity-school, founded in 1712, and partly endowed by queen Anne, provides clothes and education for 50 boys and girls.

The Shadwell water-works, which were established in 1609, and served a district containing 8000 houses, have been lately discontinued; the premises having been purchased by the East London Water-works' company, by whom this parish and its neighbourhood are now supplied with water. In Sun Tavern fields is a mineral spring, called the Shadwell Spa, which long fulminated a high character for its medicinal qualities,
H and drawn (haft original alfo poles as truth, years.

SHAFEITES, in the History of Mahometanism, the followers of Mohammed Ebn Edris al Shafei, the author of the third orthodox sect, who were formerly spread into Mawara^naih, and other parts eafward, but are now chiefly of Arabia. Al Shafei was born either at Gaza or Alcalon, in Palantine, in the year of the Hegira 150, on the fame day in which, as fame fay, Abu Hanifa, the founder of the Hanefites, the first of the four orthodox fects, died; and was carried to Mecca at two years of age, where he was educated. He died in 204, in Egypt, whither he went about five years before, though Abulfeda fays he lived 58 years. This doctor was very highly efeemed for his excellence in all parts of learning, inomuch that his contemporary, Ebn Henbel, used to fay that he was as the fun to the world, and as health to the body. Al Shafei is faid to have been the first who difcourfed of jurisprudence, and methodized that fience; and accordingly it was wiftly faid of him, that the relations of the traditions of Mahomet were alleept, till Al Shafei came and awoke them. He was a great enemy to the feholatic divines. It is faid of him, that he used to divide the night into three parts; one for study, another for prayer, and the third for fleep. It is alfo related of him, that he never fo much as once swore by God, either to confirm a truth, or to affert a falehood; and that being once afked his opinion, he remained filent for some time; and when the meaning of his filence was demanded, he anfwered, "I am confidering firft whether it be better to fpeak or to hold my tongue." The following faying is alfo recorded of him, "Whoever pretends to love the world and its creator at the fame time is a liar." Sale's Koran, Int.

SHAFERS, in Geography, a town of Pennsylvania; 48 miles N.E. of Eafon.

SHAFT, in Building. The fhaft of a column is the body of it; thus called from its ftraightness; but by ar- chitects more frequently the fhaft. See the dimensions under Column.

SHAFT is alfo used for the fpire of a church-feepe; and for the f ank or tunnel of a chimney.

SHAFT, or Tunnel-Pit, is the well through which the fhaft, excavated from a tunnel, is drawn up to the surface.

SHAFT of a Mine, is the hollow entrance or paffage into a mine, funk or dug to come at the ore.

In the tin-mines, after this is funk about a fathom, they leave a little, long, square place, which is called a pabble.

Shafts are funk fome ten, fome twenty fathoms deep into the earth, more or les. Of thefe shafts, there is the landing or working-fhaft, where they bring up the work or ore to the furface; but if it be worked by a horfe engine or whim, it is called a whim-fhaft; and where the water is drawn out of the mine, it is indifferently named an engine-fhaft, or the rod-fhaft. See Mine and Quarry.

SHAFT, in Agriculture, a name provincially applied to a handle of a tool, as a fpade, fork, &c.

Shafts of Carts and Wagons, the parts or poles be- twen which the thigh-horses draw. The manner in which the fore-horses are attached to these shafts, when there are more than the thigh-horses in the teams, is a matter of great confequence; as the weight or prejudice on them is more or les, according to its nature, and the way in which it is performed. See THILL-HORSES and WAGGON.

SHAFT-Drain, that fort which is efected by carrying a fort of shaft or pit down to the porous ftratum below, and which is in ufe where a superficial defect cannot be had for the collected waters, and an open ftratum lies beneath the fubfioil, ready to receive it. A communication between them becomes here of high advantage, as the colt and at- tendence of raising the water by machinery may thereby be avoided. In cafes of this kind, Mr. Marshall advises the drainer to afeertain the lowest point of the fite to be improved; and there, lays he, sink a shaft down, and into, the receiving ftratum, and fill it up to within a few feet of the surface, with rough foines, the roots of trees, or other open materials; and, on the top of thofe, form a filter, with heath and gravel, or other fubfiances, that will pre- vent earthly matter, or water in a foul flate, from entering the shaft; and to this filter lead the collected waters. And that where the water is collected by the means of covered drains, and where the filter alfo has a covering placed over it, the entire procefs will be free from external injury; and a work of this kind may remain unimpaired for ages. But even if the waters were collected by open drains, and the filter were fuffered to remain in a flate of neglect, until the shaft, in procefs of time, fhould become defective, the re- medy would be efay. Embrace, fays he, a dry feaon to re-open the shaft, and to cleanfe it, and the materials with which it may be filled, from their impurities; and thus refolve it, at a small expence, to its original flate of per- fection. It is further 3lated allfo, that if the fite of im- provement be liable to any other surface-water, than what falls on its own area, fuch water ought to be conducted away from it superficially, by cutting it off at fuch a height as will gain a fufficient fall. And that where the quantity of water, which depends into it subterraneously, (or would defcend, if a free paffage were opened for it,) fhould be found to be too copious to be readily difcharged by a fhaft-drain, in the manner here propofed, proper efforts fhould be used to cut off the fupply, or as much of it as may be, by a perforated trench or otherwife, at a fufficient height to be able to convey it away superficially; and with a fufficient fall, to prevent its entering the area to be im- proved; which will thus have only its own superficial waters to defcharge by the fhaft. He is defirous to clear the way which leads to this valuable improvement, as he is convinced that there are many instances in which it might be applied with great profit. Many of the low, flat-lying, moory vallies of Norfolk, from whole bafes superficial drains would be difficult to make, have for their subtructures, it is probable, he fays, inatable depths of land; and that, in every district of the ifland, fuch objects as are proper for this practice may be found.

SHAFTESBURY, Earl of, in Biography. See Cooper.

SHAFTSBURY, or Shaftesbury, in Geography, a borough and market-town in the hundred of Upwimborne, Shafton division of the county of Dorset, England, is situated at the distance of 28 miles N.N.E. from Dor- chefter, and 101 miles W.S.W. from London. Concern- ing the origin of this town much difference of opinion prevails. While some authors ascribe its foundation to Cicuber, Lud, or Cafliblan, supposed kings of the Brit- tons, many years previous to the birth of Chrift; others limit its antiquity to the reign of Alfred. This last opinion
England, and among its contents are the famous suicides of the abbey, including the monks, and the name of that fact, which it retained till the dissolution.

The abbey was among the number of those who held a whole barony in capite, and was in consequence liable to serve in parliament, though excused on account of her sex. She had writs, however, directed to her, to fend her quota of men into the field, according to the knight's fees. On the translation of the body of Edward the Martyr, bishop, from Wareham, this monastery attained the name of that same, which it retained till the dissolution. Many miracles are said to have been wrought at its shrine, which was visited by an immense concourse of pilgrims, among whom was the illusrious Canute, who died here. After the Conquest, this convent was for some time neglected; but the patronage of succeeding monks soon restored it to celebrity, and conferred upon it such extensive donations in land, that it became proverbial to say, "that if the abbot of Glastonbury should marry the abbess of Shaftesbury, their heir would have more land than the king of England." At the dissolution, the nuns amounted to fifty-four in number, and enjoyed a revenue valued by Speed at £329/11.3d. The last abbess was Elizabeth Zouche, who had an yearly pension assigned to her of £133/6.

Shaftesbury is a very ancient borough by prescription, being mentioned as such in Domesday Book. It was not, however, incorporated by regular charter till the reign of queen Elizabeth, who confirmed all the privileges it enjoyed by charter, and vested the government in a corporation, consisting of a mayor, recorder, twelve aldermen, a bailiff, and common council-men. That charter has since been confirmed by kings James I. and Charles II., with little variation. Henry VIII. made this town the seat of a suffragan bishop, but it did not retain its episcopal dignity above a few years. Shaftesbury has sent two members to parliament since the 27th year of Edward I. They are elected by the inhabitants paying 6d. and 1d. who are estimated at about 400 in number, and are returned by the mayor. Shaftesbury has a weekly market on Saturday, and an annual fair; and according to the parliamentary returns of 1811, contains 515 houses, and a population of 2850 persons.

The town of Shaftesbury is most pleasantly situated, being built on a very hilly eminence, which commands an extensive prospect over the three adjoining counties of Dorset, Somerset, and Wiltshire. From the irregularity and narrowness of most of the streets and the mean character of the buildings, however, it presents but an indifferent appearance. In ancient times it was more flourishing and important than at present; containing besides the abbey church, twelve others, several charities and fraternities, and a hospital of St. John the Baptist. Of its public structures only four churches remain, respectively dedicated to St. Peter, the Holy Trinity, St. James, and St. Ursula. The principal of these is Peter's, which is a building of considerable antiquity, and date from the 12th century; its architectural proportions are correct, but the eastern part of it is defaced by modern alterations. Of the abbey church scarcely a vestige exists, the whole having been destroyed soon after the dissolution, except the high embattled wall supported by buttresses, which formerly enclosed the park, and is still in part that long the site of the chapel of the abbey.

The other principal buildings of Shaftesbury are the town hall, a free-school, two almshouse institutions, and three meeting-houses, for Presbyterians, Methodists, and Quakers.

The manor of Shaftesbury appears from Domesday Book to have been very anciently divided into two manors, one of which belonged to the crown, and the other to the abbey. The abbey manor was surrendered in the 12th year of Henry VIII., whose successor granted it to Thomas Wrothley, earl of Southampton, together with the town, borough, feite, and precincts of the monastery. From him it passed to Sir Thomas Arundel, and afterwards to the earls of Pembroke, by one of whom, Philip, the royalty of the manor, and borough manor, were held to Anthony Ashley Cooper, earl of Shaftesbury, in whose family they still continue.

Well is a town of an eminence called Castle Green, which is supposed to have received that appellation from its having been the scene of an ancient castle, though history is silent respecting any such structure belonging to Shaftesbury. On the brink of this hill is a small mount, surrounded by a hollow valley, which may have belonged to it, but it is commonly regarded as a Roman intrenched. Tradition reports that the old town stood here, and it is certain that it occupied somewhat different ground from the site of the present buildings. The immediate vicinage of Shaftesbury is noted as the birth-place of the Rev. James Granger, author of the celebrated Biographical History of England. The beautiful woodlands, gravel walks, and vale of Painshill, near the town, have been incorporated by the earl of Pembroke, and form a delightful view.

The woods are so extensive that they have been called "the woods of Pembroke" by many; and the country about is rich in ancient antiquities, including the remains of the old town, and the ruins of the abbey.

SHAG ISLAND, an island near the entrance into the river of the same name, and containing 1733 inhabitants.

SHAGGE, or Shag, in Ornithology, a name by which we call a water-bird common on the northern coasts, and called by Mr. Ray cuculus aquaticus minor, or the lesser cormorant, being properly a bird of the cormorant kind, or the pelicanus graculus of Linnaeus.

It is somewhat larger than the common duck, and weighs about four pounds; its beak is straight and slender, and is not flattened, but roundish; it is four inches long, and is hooked at the end; its mouth opens very wide, and its eyes small; the head is adorned with a crest, two eyes long, pointing backward; the whole plumage of the upper part of this bird is of a fine and very shining green; the edges of the feathers are purplish-black; but the lower part of the back, head, and neck, wholly green; the tail dusky, and the legs black. It builds its nest in the common cormorant, swims with the head erect, and is very difficult to be
shot; because, when it sees the flash of a gun, it pops under water, and does not rise but at a considerable distance.

SHAGR, in Geography, a town of Syria, in the pacchali of Aleppo; 40 miles W. of Aleppo. N. lat. 35° 45'. E. long. 36° 25'.

SHAGREEN, or CHAGREEN, derived from the Tartar Shagyr, a kind of grained leather, prepared in Astrakan, chiefly by Tartars and Armenians, and molly used in the covers of cases, books, &c. It is very close and solid, and covered over with little roundish grains, or papilla. It is brought from Constantinople, Tunis, Tripoli, Algiers, and some parts of Poland.

There has been a dispute among authors, what the animal is from which the chagreen is prepared? Rauwolf affires us it is the onger, which, according to him and Bellonius, is a kind of wild ass. Vide Ray, Synop. An. Quad. p. 63.

It is added, that it is only the hard part of the skin which is used for this purpose. Or, it is that part of the skin that grows about the rump: that of horses is laid to be equally good. There are large manufactures of it at Astrakan, and in all Periss. Borel says, it is the skin of a serval; others, of a kind of fish, called by the Turks shagrain, whose skin is covered with grains; and thofe go hard, that they will rap and polish wood.

There is also a sort of chagreen, which was formerly made of the skin of the fquatlina; in English, the monk or angel-fish, but now of that of the greater dog-fish. Vide Wil- lughby fcelth. p. 80.

SHAGREEN, Manner of preparing. The proceeds for making chagreen is as follows: of horse-hides and ass-hides the hinder back-piece, cut off immediately above the tail in nearly a semi-circular form about an arithme and a half upon the crupper, and rather lefs than an arithme along the back, is felected as the only part that is useful, and the rest is thrown away. The back pieces thus cut out are laid in a vat filled with clean water, and left in it several days successively, till they are thoroughly foaked, and the hair comes freely off. Then the hides are taken one by one out of the vat, spread again against a board fettling against the wall, one corner of it reaching over the edge of the board where it is fetten; and in this position the hair is fcrapped off with a blunt fcraper, urak, and with the hair the upper pellicle; and the cleaned skin is laid again in clean water to fofthen. This done, they take it a second time out, fpread one piece after another in the manner before described, ferape now the fheelid with the fame fcraping-iron, and the whole skin cleaned again on the hair-fide with great care, so that nothing now remains of the fotteden skin but the clean finewy web which serves for parchement, confifting of thick fhefculi of mellow fibres, reftembling a hog's bladder fotteden in water. After this preparation they immediately take in hand certain frames, palzzi, compofed of a straight piece and a femi-circular bow, forming therefore nearly the shape of the skin, which is fretched in it with frings as even and uniform as poifible; and during this operation is sprinkled between whites with fair water, that no part of it can dry and occafion an unequal extension. In like manner they finally wet them when the whole floc of skins is fretched, and carry all the thoroughly wetted skins into the worke-room. There the frames are one by one laid flat on the floor, fo that the fheelid of the fretched skins is turned undermoft. The other fide of it is then thick frewed over with the black, very frough, and hard feds of a species of the herb gooffe-foot, or the greater orach (chenopodium album), which the Tartars call alabunda, and which grows in great abundance, and almost to man's height, about the southern Volga in farmyards and gardens; and that these may make a strong imprefion on the skin, a fett is spread over them, and the feds trod in with the feet, by which means they are impreffed deeply into the very yielding fkins. Then, without faking off these feds, the frames are carried again into the open air, and let sponges or rags against a fwall to dry, in fuch manner that the feds covered with the feeds face the wall and cannot be done on by the fun. In this imputation the fretched fkins must dry for several days successively in the sun, till no trace of moifure is perceptible in them, and they may be taken out of the frames. Then, when the impreffed feds are beaten off from the hair-fide, it appears full of little pits and roughneffes, and has got that impreffion which the grain of the shagreen ought to produce when the true polifh has been given to the skin by art, and the lay now to be mentioned has been used previous to the flaining.

The polifh is done on a stretching-bench, or a board on trellefs, furnifhed with a small iron hook, and covered with some thick felts or voilocks of sheep's wool, on which the dried shagreen-skin may lie foft. This is hung in the middle, by a hole which has been occafioned by the string in the ftrechting, to the hook, and faffned at the end by a ftring with a weight or a stone, by means of which the skin is allowed to move to and fro, but cannot easily be flowned out of its proper imputation. This done, the polifhing or fraping is performed by two feveral instruments; the frill is called by the Tartars tokar, being an iron, crooked at one end like a hook and fhardened. With this the face of the shagreen is fraped prefently happily, in order to remove the moft prominent roguouflage, which from the horne hardneffes of the dried skin is no other matter, and in which great care must be taken not to have away too deeply the impreffions of the alabuta-feeds, of which there is imminent danger if the iron be kept too sharp. As the blade of this iron is very narrow, it will make the shagreen rather uneven, and therefore after it, must be ufed the other fperaf, or urak, by which the whole face acquires a perfect equality, and only a flight impreffion remains of the feeds, exaftly as it ought to be. After all these operations the shagreen is laid again in water, partly for rendering it fpufle and partly to make the elevated grain appear; for the feeds having caufed pits in the face of the skin, the interfiles of these pits have loft their prominent subfance by the polifhing or fHAVING, and now the points that were preffed down, have loft nothing of their subfance, springing up above the flaved places, and thus form the grain of the chagreen. To this end the pieces of shagreen are left to foftten twice 24 hours in water, and are floated several times afterwards in a strong and hot ley, which is obtained by boiling an alkalecent faltne earth, fehora, found about Astrakan. From this ley the skins are bundled warm one on another, and thus fuffered to lie some hours, by which they flwell up and are foftened in an extraordinary manner. Again, they are left to lie 24 hours in a moderately strong brine of common falt, by which they are rendered fine and white, and excellently adapted to receive any agreeable colour, which the work- man has left to give them as soon as they are come out of the brine. The colour most commonly communicated to the fine chagreen is the fcarlet, as the moft beautifiil. But the expert chagreen-makers have the art of making alfo black, red, blue, and even white chagreen.

For the green dye, nothing more is necessary than fine copper-filings and fa-t ammoniac. As much of the latter is melted in hot water as the water will admit. With this fa-t ammoniac water the chagreen skins, fiill moift from the brine, are bruised over on the ungrained fheel-fide, and when they are thoroughly wetted, a thick layer of copper-filings
rubbed A Kairabad, them yet peeling boiled ’ when 1 pound B this not whence. The may a I I irfiKr ii... kettle "Ut twciiity-lour In,;; much Fur rarely'«• not blunt but nnnii Geography, worle i:i When then and pastie river rtr<rw^ in iiorrjhlc mrr.tiinrd till Ai
common finely to prelfed then promote fufficient furplus tion, dyers, cleaned, and was entirely renewed, in a broken bottle. But the old cup could not be obtained to such perfection with that preparation. But the flaxen intended to be boiled red must not be brought out of the requisite, bitter leaf into the brine, but must be made white, in the manner above detailed, and afterwards supplied with the brine, in which it may lie for twenty-four hours, or less, from time to time. The dye is made with cow's milk or milk, as the Tatars call it. — The operation is begun by boiling for a full hour about a pound of the dried herbitchag, which grows plentifully on the salt plains about Afshar, and is a sort of kalk, in a kettle large enough to contain about four common vessels of water, by which the water acquires a greenish colour. The herb is then taken out, and about half a pound of grated cotton is put into the kettle, with which the above described must boil another full hour, diligently stirring it on the fire, that the kettle may not boil over. Lastly, to this are added fifteen or twenty grains of the material which the dyers call litter (perhaps orpiment), let the dye boil a little more, and then take the fire from under the kettle. Then the skins taken out of the brine are laid separately in trays, pouring the dye upon them four times, rubbing it in with the hands, that it may be equally spread and imbied, preffing it out every time, which done, they are ready for drying and ornamenting, and fell much dearer than the others.

The bell flaxen is that brought from Constantinople, of a brownish colour; the white is the worst. It is extremely hard; yet, when steeped in water, it becomes very soft and pliable; whence it is of great use among cafe-makers. It takes any colour that is given it, red, green, yellow, or black. It is frequently counterfeited by morocco, formed like flaxen; but this last is distinguished by its peeling off which the first does not.

SHAHUM, in Geography, a river of America, which runs into lake Erie, N. lat. 41° 49'. W. long. 84° 21'.

SHAH, the Persian title corresponding to king, and equivalent to khan. (See Citam.) Nevertheless, the most absolute Persian monarchs, who have never assumed any other title than that of shah, have permitted the governors of provinces in their empire to take that of khan, which is its equivalent, and which they have ever affected. Even in our time, the governors of the provinces of Ghilan, Mazanderan, &c. who have no more authority in Persia, than the pachas in Turkey, take the title of khan, the reason of which it is not easy to assign.

SHAHABAD, in Geography, a town of the kingdom of Candahar; 40 miles S.W. of Cabul. — Alfo, a town of Hindooollan, in the circur of Sirhídd; 42 miles E.S.E. of Sirhund. — Alfo, a town of Hindooollan, in Oude; 45 miles W. of Kairabad. N. lat. 27° 40'. E. long. 80° 20'. —Alfo, a town of Hindooollan, in Oude; 25 miles S.W. of Mahomody.

SHAHAMA, a name given to a colossal statue, cut in a mountain in the neighbourhood of the ancient city of Bamiyan, in the East Indies. This city, (which is described in our article Bamian,) is eight days' journey north-wellerly from Cabul, and is rarely visited by Europeans, though highly deserving of examination. The statue in question is accompanied by another, called Salifala. Native travellers
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differ as to their height: from fifty cubits to eighty ells. Their origin, age, and sex, are also variously related. The few Hindoos who live in the neighbourhood, say, they are the statues of one of their heroes named Bhim, and his consort. Bhim is one of the five famous Pandus. (See Pandu.) The followers of Buddha call them by the names first mentioned. The Mahomedans say, they are of Adam and Eve; and a third statue, half a mile distant, about twenty feet high, they say is of Seth, their son. The author of a celebrated Persian dictionary, entitled "Farhang Jehrangi," says they existed in the time of Noah; but gives them other names. There can be little doubt but these statues, and the wonderful excavations of the city of Bamban, scooped, like Thebes, out of a mountain, were executed by the fame indefatigable race of workmen, who in the more southern parts of India constructed the gigantic statues in the similar caverns at Kenera, on the island of Sajette, near Bombay, in the province of Kanara, and at Karly; all believed to be of Jaina or Budhah origin. See Jaina, Karly, and Kenera.

SHAHBUNDER, in Geography, a town of Hindostan, in the province of Tatta; 45 miles S.S.W. of Tatta.

SHAHDURAS, a town of Hindostan, in the circle of Sirhind; 10 miles N. of Tannafar.

SHAHG, a town of Hindostan, in Myloire; 18 miles S. of Venchatigery.

SHAHJEBHAN, a town of Hindostan, in Bahar; 18 miles N.W. of Bahar.—Allo, a town of Hindostan, in Rohulceund; 45 miles S. of Pillibeat.

SHAHHJEHPOUR, a town of Hindostan, in Malwa; 20 miles N.E. of Oueine. N. lat. 23° 26'. E. long. 76° 18'.—Allo, a town of Hindostan, in Oude; 30 miles S.E. of Fuzabad. N. lat. 26° 26'. E. long. 82° 40'.—Allo, a town of Hindostan, in Mewat; 20 miles W. of Alwar.—Allo, a town of Hindostan, in Bahar; 14 miles S.S.E. of Patna. N. lat. 25° 24'. E. long. 85° 30'.

SHAHIGIAN, a town of Peru, in the province of Khorasan, near Maruz, which since is called Marur Shaghigian. SHAHJOLE, a circar of Bengal, bounded on the north by Raujefhy, on the east by Mahommed, on the south by Jedore, and on the west by Kifhenagur; about 30 miles long, and from 5 to 10 broad.

SHAHISABI, a town of Peru, in the province of Khorasan, on the borders of Bucharia; 80 miles N. of Maruz.

SHALI-SHAK, a town of Peru, in the province of Khorasan, on the borders of Bucharia; 5 miles N. of Maruz.

SHAHPOUR, a town of Hindostan, in Lahore; 30 miles W. of Nagoreote.—Allo, a town of Hindostan, in Lahore; 27 miles E. of Sealcot.

SHAHR and VAN, the ancient Apollonia, a town of the pachal of Bagdad, 27 miles from Bocouba, which is nine furlongs from Bagdad, peopled by about 4000 Turks and Kirds, and is, upon the whole, a handsome little town, watered by two canals drawn from the Dula. At the distance of 18 miles is Kuzil Roobat, not so large as the former, situated in a handy plain, about one mile from the river Dula. Khankan is also a handsome little town, built on that branch of the Dula, which has its source in the mountains of Kurzand, 18 miles from Kuzil Roobat; it occupies both banks of the river, over which is a handsome bridge, and is surrounded by numerous gardens and plantations. Mendeli, about the same size as Solymania, is situated in one of the roads leading to Kermanhaw; and four furlongs on the Bagdad side is a fountain of naphtha. Thirteen leagues from Mendeli, and four from the foot of the mountains, is Bedri, the frontier town, in this quarter of the Turkish empire.

SHAIGI, a town of Nubia, on an island in the Nile; 130 miles E. of Dongola. N. lat. 20° 20'. E. long. 30° 45'.

SHAIGOL, a town of Peru, in the province of Khorasan; 10 miles S.W. of Maruz.

SHAIMA, a town of Peru, in the province of Me- ran, on the sea-coast; 200 miles W.S.W. of Kidge.

SHAIINT, or HOLY, ISLES, three small islands of the Hebrides, or Western isles, are situated in the channel between the iles of Lewis and Skye, in the parish of Lochs and district of Lewis. These isles are well known to mariners, and are remarkable for their fine sheep fatture. One of them, called St. Mary's island, has a small chapel upon it, dedicated to the Virgin, and bears marks of having been formerly better inhabited than at present. Sinclair's Statistical Account of Scotland, vol. xix. 8vo.

SHAINYMALY, a town of Hindostan, in Coimbo- tore; 12 miles S. of Erroad.

SHAIIZAR, a town of Syria, in the pachal of Da- mfeus, on the Orontes; 20 miles N. of Hamah.

SHAK, a town of Peru, in the provence of Schirvan; 20 miles N.W. of Schamachie.

SHAK, in Maha, is a grace, an embellishment of melody, of which the indication is a $,$ or sometimes only $t$, the initial of the Italian term trillo, which implies the same thing. There are two kinds of shakes, the continued, and the transient. The continued shake, upon a long note, must be practiced at first by incipents, flow, and accelerated by degrees. The effect of a shake is a rapid motion of two adjoining notes: as de, be, &c.

In our didactic and elementary articles, we should not wish to confine ourselves to mere dry definitions of terms of art; but, having had some little experience, we would gladly assist students, by pointing out the means of acquiring the practical use of what we describe.

With regard to a vocal shake, we can do young fingers no greater kindness, than in referring them to the 3d chap. of Toff's "Observations on florid Song" as admirably translated by Galliard, and illustrated with the notes of that able and experienced master.

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Tofî, after informing the student of the importance of the shake to fingers, says, "Let the latter strive to enable his scholar to attain a shake that is equal, distinctly marked, easy, and moderately quick, which are its most beautiful requisites."

This excellent author describes the different kinds of shakes, and their preparation, that are worth cultivating, as well as those that are to be avoided. The free and open shake on the cobbles tone and the fémale, are certainly the principal.

The
The two tones or semitones that constitute the shake, or an or more, should be equally loud and distinct, but above all, perfectly in time with the rates of the vocal scale and particularly in that which the performer uses. The Italians call a bad shake, or no shake at all, but a quivering upon the same note. To give a good shake, most of the members are called upon the end of a round-board. At the first, the shake is reduced to the tone of a mere appoggiatura. See Quakers.

SHAKER-PIGEON, in Ornithology, a kind of pigeons, of which there are two sorts, the broad-tailed, and the narrow-tailed. The first is the finest, and most valued. It has a beautiful long thin neck, which bends like the neck of a swan, leaning towards the back. It has a full breast, a very short back, and a tail consisting of a great number of feathers, seldom less than four and twenty, which it spreads in an elegant manner, like the tail of a turkey-cock, and bends it up so, that it meets the head. It is commonly all white, but sometimes is red, yellow, or blue-pied. The longer the neck of this bird is, the more it is valued.

The second, or narrow-tailed shaker, has a shorter and thicker neck and a longer back. It is esteemed by many a different species, but seems only a mixed breed with some other pigeon. They are called shakers, from a tremulous motion which they have with their necks when courting.

SHAKERS, in Ecclesiastical History, a sect which originated in Lancashire, with some dissenters from the society of Quakers, or Friends, about the year 1747, and which continued for some time unconnected with every denomination of Christians. During this period, their testimony, derived, as they fancied and pretended, from what they saw by vision and revelation from God, was, “that the sect, appearing of Christ was at hand, and that the church was rising in her full and transcendant glory, which would effect the final downfall of Antichrist.” From the shaking of their bodies in religious exercises, they were denominated Shakers and by some persons they were called Shaking Quakers. The sect seems to have made no great progress until the year 1774, when the testimony originally announced was fully opened, according to the special gift and revelation of God through Ann Lee, who was born of obscure parentage; at Manchester, about the year 1736; and who, having joined the society in 1738, became afterwards a distinguished leader among them. Her exercises, both of body and of mind, were singularly trying and severe for about the term of nine years; but she was thus prepared for receiving the testimony of God, against the whole corruption of man, in its root and every branch. Accordingly, her testimony was in the power of God, attended with the word of prophecy, and such energy of the Spirit, as penetrated into the secrets of the heart, and was irresistible, especially in those with whom she was united.

And from the light and power of God which attended her ministry, and the certain power of salvation transmitted to those who received her testimony, she was received and acknowledged as the first Mother, or spiritual parent in the line of the female, and the second heir in the covenant of life, according to the present display of the gospel. Hence among believers, she had been distinguished by no other name or title than that of Mother, from that period to the present day. To such as addressed her with the customary titles used by the world, she would reply, “I am Ann the Word;” signifying that in her dwelt the Word.

In 1774, Ann Lee, with some of her followers, having been thought mad, and falsely persected, settled their temporal affairs in England, and set sail from Liverpool for New York. James Wardley and his wife remaining behind, were removed into an almshouse, and there died. The others, we are told, being without lead or protection, left their power, and fell into the common course and practice of the world!” Ann Lee and the brethren reached New York, after working a sort of miracle, for the ship springing a leak on the voyage, and it is more than hinted, that had it not been for their exertions at the pump, the vessel would have gone down to the bottom of the ocean! She, however, left New York, and fixed her residence up the Hudson river, eight miles from the city of Albany. In this retired spot, her followers greatly multiplied, but she was not without bitter reproaches and manifold persecutions. She and the elders would delight in missionary journeys, being out for two or three years, and returning with wonderful accounts of their success.
After Mother and the elders were released from prison, they again collected together at Water-Vilet, where they were visited by great numbers from distant parts of the state of New York, Massachusetts, Connecticut, New Hampshire, and the district of Maine, who received faith; and through the power and gifts of God, which were abundantly manifested for the destruction of sin, and the salvation of souls, many were filled with joy unspeakable and full of glory, and increased in their understanding of the way and work of God.

Ann Lee died on the eighth day of the ninth month 1784. From the year 1780 to 1787 the credit of this faith revived in America, and the number of its adherents considerably increased.

The creed of the Shakers is very obscurely and mythically expressed. They seem to be believers neither of the Trinity nor of the Satisfaction. They deny also the imputation of Adam’s sin to his posterity, as well as the eternity of future punishment. The tenets on which they most dwell are those of human depravity, and of the miraculous effusion of the Holy Ghost! Their leading practical tenet is the abolition of marriage, or indeed the total separation of the sexes. This circumstance of course attracts great attention, and they pride themselves on their superior purity. The essence of their argument is, that the resurrection spoken of in the New Testament means nothing more than conversion; our Saviour declares that in the resurrection they neither marry nor are given in marriage, therefore, on conversion or the resurrection of the individual, marriage ceases. To speak more plainly, the single must continue single, and the married must separate. Every passage in the gospel and in the epistles is interpreted according to this strange and unnatural hypothesis.

The fyltem of the Shakers is thus pretty plainly described. In the fulness of time, according to the unchangeable purpose of God, that same Spirit and Word of power, which created man at the beginning—which spake by all the prophets—which dwelt in the man Jesus—which was given to the apostles and true witnesses as the Holy Spirit and Word of promise, which groaned in them waiting for the day of redemption—and which was spoken of in the language of prophecy as a woman travelling with child, and parted to be delivered, was revealed in a woman.

And that woman, in whom was manifested that Spirit and Word of power, who was anointed and chosen of God, to reveal the mystery of iniquity, to stand as the first in her order, to accomplish the purpose of God, in the restoration of that which was lost by the transgression of the first woman, and to finish the work of man’s final redemption, was Ann Lee.

As a chosen vessel, appointed by divine Wisdom, she, by her faithful obedience to that same anointing, became the temple of the Holy Ghost, and the second heir with Jesus, her lord and head, in the covenant and promise of eternal life. And by her sufferings and travail for a lost world, and her union and subjection to Christ Jesus, her lord and head, she became the first born of many fathers, and the true mother of all living in the new creation.

Thus the perfection of the revelation of God in this latter day, excels, particularly, in that which respects the most glorious part in the creation of man, namely, the woman. And herein is the most condescending goodness and mercy of God displayed, not only in redeeming that most amiable part of the creation from the curse, and all the forrows of the fall, but also in condescending to the lowest estate of the lost of mankind.

So that by the first and second appearing of Christ, the foundation of God is laid and completed, for the full restoration of both the man and the woman in Christ, according to the order of the new covenant, which God hath established in them for his own glory, and the mutual good and happiness of each other.

And in this covenant, both male and female, as brethren and sisters in the family of Christ, jointly united by the bond of love, find each their correspondent relation to the first cause of their existence, through the joint parentage of their redemption.

Then the man who was called Jesus, and the woman who was called Ann, are verily the two first foundation pillars of the church of Christ—the two anointed ones—the two first heirs of promise, between whom the covenant of eternal life is established—the first father and mother of all the children of regeneration—the two first visible parents in the work of redemption—and the invisible joint parentage in the new creation, for the increase of that seed through which all the families of the earth shall be blessed.

The Shakers record several cales which they pretend to be miraculous, but it is needless to enlarge on a fyltem that is wholly founded in delusion.

SHAKERTOWN, in Geography, a town of Kentucky, in Mercer county, containing 208 inhabitants.

SHAKES, in Ship-Building, a name given to the cracks or rents in a plank, &e., occasioned by the sun or weather.

SHAKING, a disease in sheep, consisting of a weakens in their hind quarters, so that they cannot rise up when they are down. There has not hitherto been found any remedy for this disease. It is probably of the nature of palsy, and to be removed by strong nervous stimulant remedies.

SHAKLES, on board Ship. See Shackles.

SHAKRA, in Geography, a town of Arabia, in the province of Nedsjed; 120 miles N.E. of Faid.

SHAKSPEARE, William, in Biography, an English dramatic poet, is justly esteemed the most eminent and most interesting author of the ancient or modern world. His writings have progressively rifen in popular estimation in proportion as they have been studied and analyzed. Some of his dramas are continually acted on the London and provincial stages; many critics and commentators, both English and foreign, have employed their pens, and exerted their faculties, in dissertations on the merits and defects of his productions. From the most trying and falsidious ordeal of investigation he has risen in glory and greatness; and may, at the present time, be justly pronounced pre-eminent and unrivaled as a dramatic poet.

To Englishmen his writings are singularly estimable; for they have conferred on the country a literary immortality, which nothing less than the dilution of ‘the great globe itself’ can annihilate. Nor is he exclusively endeared and valuable to the man of letters; but all classes of artists, and even many artisans, have derived both fame and emolument through the medium of his works. It has been often remarked, that the prophet is never honored in his own country, or appreciated by his contemporaries. Although this maxim is now more readily considered as figurative, and the age of, and confidence in, prophecy is past, yet it may be fully and strictly applied to the meritorious author. After decease, his whole merits are gradually unfolded; his talents and genius command admiration, and each reader and commentator seem eager to discover new beauties, and to point out hidden excellencies. Among the literary ‘worthies’ of the world, from the days of Homer to Milton, no one has attained equal celebrity with Shakspeare. He now shines as the sun of the intellectual hemisphere, and every other poet seems to derive a reflected light from him, or moves in a less circumscribed orbit. Like divine nature, which was at once his
his guide and goddefi, his writings excite admiration and delight, the more intently they are studied. Prompted by inspiration, and impregnated with profound knowledge, with the keen and acute "poet's eye," he commanded every region of the terrestrial globe, presented the hitherto thoughts of man, gave to "airy nothing a local habitation and a name," and alligned to every passion and sentiment "its true form and feature."

This wonderful
That an invisible instinct should frame him
To poetry unlearned; honours unattaght;
Civility not seen in other; knowledge
That wildly grew in him, yet yielded crops
As though it had been flown: for he could find
"Tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing."

Do not smile at me that I boast him off,
For ye shall find he will outstrip all prais,
And make it halt behind him.

DOYANSTON.

Heaven has him now: let our idolatrous fancy therefore sanctify his relics. Decease to be his equal, lift up your point by his precepts; seek to acquire in your widoms, imitate his gentleness, talents, and honour. Confound the comparative trufiines of our own faculties, let us warm our hearts by his celestial fire, and kindle our souls at his unex-tinguishable flame! If enthusiasm be justifiable on any subject, the writer of the present article hopes to stand excused in giving this tribute to his feelings and expectations. He has to regret, with thousands of others, that the subject of this memoir is only known in his writings, and that his personal history is as obscure as that of Homer or Archimedes. Indeed, before we proceed further, it is necessary to premise, that a singular and unaccountable mystery is attached to Shakspeare's private life; and, by some strange fatality, almost every document concerning him has either been destroyed, or still remains in obscurity. The first published memoir of him was drawn up by Nicholas Rowe, in 1709, nearly 100 years after the decease of the poet; and the materials for this were furnished by Betterton, a player. It should be remembered, that the age in which he lived was not the age of minute inquiry. From Rowe's account, and from other evidence, it is clear that our poet was not ambitious of posthumous fame; that he disregarded the estimation of after ages; that he was unconscious of the high merit of his own writings; and that, though he was much in the public world, and died in comparative affluence, his private life and character were scarcely noticed by the biographer or critic. To the man of taste and refined felicity, he has, however, bequeathed an inexhaustible treasure in his dramatic productions, and as these constitute an essential part of the well-stored library, it is equally essential to record every fact, and investigate every problematic statement, relating to the inimitable author.

He was born at Stratford-upon-Avon, in Warwickshire, on the 23d of April 1564, is well ascertained; and that he was baptized on the 26th of the same month, appears by the parish register. He is there described as the son of John Shakspeare, who, according to Rowe, and most subsequent biographers, was "a considerable dealer in wool," and whose "family were of good figure and fashion." Opposed to this statement is that of John Aubrey, who entered himself as a student in the university of Oxford, 1642, only 26 years after our poet's death, who derived his information from "some of the neighbours" of Shakspeare, and who appears to have made a practice of writing down every fact and tradition that he heard relating to public characters. His account is entitled not only to recital, but to cautious credit.

"Mr. William Shakspeare was born at Stratford-upon-Avon, in the county of Warwick; his father was a butcher; and I have been told by some of the elders, that when he was a boy he excelled his father's trade; but when he killed a calf, he would do it in a high style, and make a speech. There was at that time a mother hankering for him in the town that was held out at all inferior to him for a natural wit, her son, and another, but a dyed young. This Wm., and not naturally to poetry and acting came to London, I believe about 1588, and not an actor at one of the play-houses; and I could exactly tell you. Now B. Jonson was never a dramatist, but an excellent instructor. He grew to be a keen player at dramatic poetry, which at that time was very rare, and his players took it well. He was a strong man, well-read man, very good company, and of a very readiness and pleasant fancy."

"Ten in the hundred the devil allows
But Combes will have twelve, how cares and voices:"
If any one asks who has in this tomb,
'Ho!' quoth the devil, 'tis my John o'Combe.'

"He was wont to goe to his native country once a yeare.
I think I have been told that he left 2 or 300,000, per annum, and there-about to a sister. I have heard sir Wm. Davenant and Mr. Thomas Shadwell (who is counted the best comedian we have now) say, that he had a most prodigious wit, and did admire his natural parts beyond all other dramatic writers. He was wont to say that he never blotted out a line in his life; sayd Ben Jonson 'I wish he had blotted out a thousand.' His comedies will remain wit as long as the English tongue is understood, for that he handles more hominum; now our present writers reflect so much upon particular persons and circumstances, that twenty yeares hence they will not be understood.

"Though, as Ben Jonson sayes of him, that he had but little Latine and little Greek, he understood Latine pretty well, for he had been in his younger yeares a schoolmister in the country."

The latter fact was communicated by Mr. Beelton.

In another memorandum Aubrey states, that
"Mr. William Shakespeare was wont to goe into Warwickshire once a yeare, and did commonly in his journey lie at this house in Oxon," (i.e. the Crown tavern, kept by the father of sir William Davenant,) "where he was exceedingly respected."

Now sir Wm. would sometime, when he was pleasant over a bottle of wine with his most intimate friends,—e.g. Sam. Butler, (author of Hudibras) &c. say, that it pleased him to hear him with the very spirit that Shakespeare, and seemed contented enough to be thought his son."

These anecdotes are now published in "Letters written by eminent Persons in the Seventeenth and Eighteenth Centuries," three vols. N. Y. 1813.

This account is truly curious and interesting; and in spite
spite of the scepticism of Dr. Farmer, in his "Effay on the Learning of Shakspeare," and of some other writers, the impartial reader must admit that it affumees the air of probability, candour, and truth. Aubrey might have erred in some points; particularly in saying, Shakspeare visited London at the age of eighteen, when the registry of his own baptism, and that of his twin-children, shew that he must have remained at home till the age of twenty. Again, it is very probable that he met with a confidant at Grendon, or Long-Crendon, in Buckinghamshire, where character he dramatized, not in "A Midsummer Night's Dream," but in "Much ado about Nothing," or in "Love's Labour's Lost." The extemporaneous epigraph on John o'Combe is represented by Rowe, who gives it different to the above, as having been made during the life-time, and in the presence of the person commemorated, who is also said never to have forgiven the poet. In Aubrey's relation there is nothing improbable, nor unreasonal, in a poet producing such lines fortuitively over his cups, and among convivial friends: it is a smart epigram on an ufnious character.

Instead of leaving 300. per annum to a sister, he bequeathed as much to his daughter, as will be thrown in the lagoon. If there be any lurking prejudice against the profession of a butcher, let it be remembered, that the proud and ostentatious cardinal Wolsey was the son of a butcher; and that the parentage of a Homer, a Milton, and a Shakspeare, cannot be honoured or degraded by their ancestors.

"Honour and fame from no condition rise; Aet well your part, there all the honour lies."

The house in which our poet was born has been occupied by a succession of butchers from time immemorial. Besides, it is not at all improbable that the butcher and the woolf-hapler were united in one person. Admitting this, we shall find Rowe and Aubrey in harmony, and one great difficulty removed.

The early education of Shakspeare, as well as his parentage, is not ascertained; on this topic all the biographers and commentators have supplied us with conjectures and opinions. Chalmers, in his "Apology," is at once ingenuous, intelligent, and learned on this subject. Rowe observes, and most of his followers repeat the fame, that he "was bred for some time at a free school, where it is probable he acquired what Latin he was master of; They proceed to remark, that "on leaving school, he seems to have given entirely into that way of living which his father proposed to him." About the age of eighteen he married Anne Hathaway, daughter of a substantial yeoman, then residing at Shottery, a hamlet at Stratford. In the parish register we find that "Susanna, daughter of William Shakspeare, was baptised May 26, 1555." By the same record we learn that his wife produced him twins in 1584: 5; as on the 2d of February in that year, the names of Judith and Hamnet are entered in the register. It must have been soon after this event that our poet visited the metropolis; but the cause of leaving his native place, as well as his object, connection, and prospects in London, are alike unknown. Rowe relates, and others have adopted the opinion, with some variation as to sentiment and inference, that "falling ill company," he was induced, "more than once," to affift his associates in stealing deer from a park belonging "to sir Thomas Lucy, of Charlecote, near Stratford. For this he was prosecuted by that gentleman so severely," that he was first impelled to write a fatirical ballad on him, and afterwards fly from his home to avoid arrest and imprisonment. This story, however, is not entitled to full credence; for though our young poet might have associated with some idle youths, and have accompanied them to the neighbouring park, either for the sake of catching deer, or for some less difficult and less hazardous enterprise, yet the circumstance seems improbable, and comes in such a questionable shape," that before he be admitted as historical evidence against an amiable man and super-eminent author, it should be supported by "confirmations strong as proofs of holy writ." Without reflection on this circumstance, or crediting another his history, story, of his holding horfes at the door of a theatre for his livelihood, we shall find a rational motive for his visiting London, and retorting to the theatre, by knowing that he had a relative and townswoman already established there, and in some estimation. This was Thomas Green, "a celebrated comedian."

We now come to that era in the life of Shakspeare, when he began to write his immortal dramas, and to develop those powers which have rendered him the delight and wonder of succssive ages. At the time of his becoming, in some degree, a public character, we naturally expected to find many anecdotes recorded of his literary history: but, strange to say, the fame defirition of authentic incidents marks every flage of his life. Even the date at which his first play appeared is unknown; and the greatest uncertainty prevails with respect to the chronological order in which the whole series were written, exhibited, or published. As this subject was justly considered by Malone to be both curious and interesting, he has appropriated to its examination a long and laborious effay. Chalmers, however, in his "Supplemental Apology," and in a recent pamphlet, 1815, endeavours to controvert some of Malone's dates, and assigns them to other eras; as specified in the second column, below. Malone says, the "First Part of King Henry VI." published in 1589, and commonly attributed to Shakspeare, was not written by him, though it might receive some corrections from his pen at a subsequent period, in order to fit it for representation. The "Second Part of King Henry VI." this writer contends, ought therefore to be considered as Shakspeare's first dramatic piece; and he thinks that it might have been composed about the year 1591, but certainly not earlier than 1590. The other dramas are placed in the following order of time by him and by Mr. George Chalmers.

---|---
The Third Part of Henry VI. | 1591 | 1595
A Midsummer Night's Dream | 1592 | 1598
Comedy of Errors | 1593 | 1591
Taming of the Shrew | 1594 | 1598
Love's Labour's Lost | 1594 | 1592
Two Gentlemen of Verona | 1595 | 1595
Romeo and Juliet | 1595 | 1592
Hamlet | 1596 | 1597
King John | 1596 | 1598
King Richard II. | 1597 | 1596
King Richard III. | 1597 | 1595
First Part of Henry IV. | 1597 | 1596
Second Part of Henry IV. | 1598 | 1597
Merchant of Venice | 1598 | 1597
All's Well that ends Well | 1599 | 1599
King Henry V. | 1599 | 1597
Much ado about Nothing | 1600 | 1599
As you Like it | 1600 | 1599
Merry Wives of Windsor | 1601 | 1596
King Henry VIII. | 1601 | 1595
Troilus
SHAKESPEARE.

Besides the above thirty-five plays, Shakspere wrote some poetical pieces, which were at first published separately, e. g., "Venus and Adonis," printed in 1593; "The Rape of Lucrece," 1594; "The Passionate Pilgrim," printed in 1594; "A Lover's Complaint," not dated; and a Collection of Sonnets, printed in 1609. The first and second of these poems were dedicated, as "the first heir of my invention," to Henry Wriothesley, earl of Southampton; who, according to Sir William d'Avenant's statement, presented the poet with the sum of 100l. to make some purchase. If this be a fact, it is honourable to the liberality and good taste of the nobleman, and flews that the "poor Warwickshire lad" met with a munificent patron in an early stage of his literary career. Other circumstances tend to prove that his merits were known, and admired by some illustrious personages. Queen Elizabeth, whose ear was perpetually allayed by foulsome panegyrick, and who encouraged all sorts of silly shows, May-games, and buffoonsery, was not insensible of Shakspere's talents; for the command several of his plays to be acted before her; and having been much delighted with the character of Falstaff, as delineated in the first and second parts of "Henry the Fourth," recommended, or perhaps commanded, the bard to portray the fat knight in love. Hence originated "The Merry Wives of Windsor;" some incidents in which may have pleased the daughter of Henry VIII., although they are jocund repulsive to modern taste and delicacy. King James I. also attended the representation of many of our author's plays. Sir William d'Avenant told Sheffield, duke of Buckingham, that the monarch wrote the poet "an amicable letter" with his own hand; probably to thank him for the compliment contained in the play of Macbeth.

Shakspere, as already hinted, was an actor, as well as author of plays, and performed some of the characters in his own dramas. As late as the year 1603, only 13 years before his death, his name appears among the players of Ben Jonson's tragedy of Sejanus. Thus it is evident that he continued to perform many years; but of his histrionic merits we have no satisfactory evidence. Hence on this point there is much diversity of opinion; some contending that he was an excellent actor, and others that he was only equal to the perfonification of his own character of the ghost in Hamlet. Some paffage in his own writings prove that he was well qualified to appreciate and to describe the essentials of good action. See Hamlet's admirable advice to the players; the scene between Hamlet and his mother; and also the description of a tragedian in "King Richard III.;" Aubrey states that Shakspere visited his native town periodically; but we do not learn when he finally returned home. From a document in the possession of Mr. R. B. Wheler, the historian of Stratford, it appears that he was in London in November, 1614. At that time Mr. Thomas Green, a professional gentleman of that town, and a relative of Shakspere's, visited the metropolis, to which he had set out on purpose, or to settle some business relating to the purchase of an open field, in which our poet was a party concerned. His memorial writes:

"Rec. 12, Nov. 1614, at 4 o'clock Mr. Tom. a man from Mr. Basy & Mr. Alderman, [the bailiff and chief alderman of Stratford upon Avon] dined 12, No. 1614, touching the inclosure business. Dines 17, No. 1614, may Mr. Shakspere coming yesterday to town, I went to see him how he did. He told me that they [the parties willing to mediate] "afford him they went to mediate no further than to deliver both, & to umpire (leaving out pt. of the wrongs in the field) to the gate in Clapton hedg & take in Salisbury's piece; & that they meant in a week to try the land & then to give satisfaction & not before; & he & Mr. Hall [Shakspere's son-in-law, probably present] "say they think yr. [there] will be nothing done at all." It appears that Mr. Green, after his return to Stratford, made the following entry, which is partly illegible, "23 Dec. 1614, 4 Hall, Lives written, one to Mr. Manyngs—another to Mr. Shakspere, with almost all the company's hands to either. I also weave my copy to my own fr. [fellow] Shakspere, the coppies of all our . . . . . . . . the other diversities woulby. by the medilce." Another part of the memorandum states, that the town of Stratford was then "lying in the ashes of defolation."

We find that Shakspere had purchased a house, called "New-place," at Stratford, about three years before his death, where he resided in the style and character of a private gentleman. Here he died on the anniversary of his birth-day, April 23, 1616, and was interred on the second day after his death, in the chancel of Stratford church, where a monument still remains to his memory. It is constructed partly of marble and partly of stone, and consists of a half-length bust of the deceased, with a cushion before him, placed under an ornamental canopy, between two columns of the Corinthian order, supporting an entablature. Attached to the latter is the Shakspere arms and crest, sculptured in bold relief. Beneath the bust are the following lines:

Judicio Pylivm, genio Sacratem, arte Maronem, Terra tegit, popvlvs mæret, olympus habet.

Stay, pellenger, why goest thou by so fast, Read, if thou canst, whom curious death hath platt Within this monument, Shakspere: with whom Quicke naturè dide; whose name doth deck ye tombe Far more than coffe; both all ye hath wrought Leaves living art, but page to erase his wit.


On a flat stone, covering the grave, is this curious inscription:

Good friend for Iesu' sake forbear, To digg the dvtl enclosed heare; Blest be ye man yt spares these bones, And evr'th be ye yt moves my bones.

The common tradition is, that the four last lines were written by Shakspere himself; but this notion has perhaps originated solely from the use of the word "my," in the last line. The imprecation, says Mr. Malone, was probably suggested by an apprehension that our author's remains might share the same fate with those of the rest of his countrymen, and be added to the immense pile of human bones deposited in the charnel-house at Stratford."
heere Judith, and alfo Stratford, one, and but to which an forth, Hart, gentleman to fifty three gilt within Michael pounds above daughter, no Lam
the who but with Cundell, Sufanna, To Nov. Vbera, is of Clavfa; all years appurtenances, the her right in a copyhold tenement and appurtenances, parcel of the manor of Rowington. To the said Judith he also bequeathed 150l more, if she, or any of her issue, were living three years from the date of his will; but in the contrary event, then he directed that 100l of the sum should be paid to his niece, Elizabeth Hall, and the proceeds of the fifty to his fitter, Joan, or Jone Hart, for life, with residue to her children. He further gave to the said Judith a broad silver gilt bowl.

To his fitter Joan, besides the contingent bequest above-mentioned, he gave twenty pounds and all his wearing apparel; also the house in Stratford, in which he was to reside for her natural life, under the yearly rent of twelve pence. To her three sons, William Hart, — Hart, and Michael Hart, he gave five pounds a-piece; to be paid within one year after his decease. To his grand-daughter, Elizabeth Hall, he bequeathed all his plate, the silver bowl above excepted.

To the poor of Stratford he bequeathed ten pounds; to Mr. Thomas Combe, his sword; to Thomas Ruffel five pounds; to Francis Collins, elq. thirteen pounds six shillings and eight-pence; to Hamlet (Hamnet) Sadler twenty-six shillings and eight-pence, to buy a ring; and a like sum, for the same purpose, to William Reynolds, gent., Anthony Nath, gent., John Hemyng, Richard Burbage, and Henry Cundell, his "fellows;" also twenty shillings in gold to his godson, William Walker.

To his daughter, Sufanna Hall, he bequeathed New-place, with its appurtenances; two meffriages or tenements, with their appurtenances, situated in Henley-street; also all his "barns, stables, orchards, gardens, lands, tenements, and hereditaments whatsoever, situate, lying, and being, or to be had, received, perceived, or taken within the towns, hamlets, villages, fields, and grounds of Stratford-upon-Avon, Old Stratford, Bishopton, and Welcombe, or in any of them, in the said county of Warwick; and also all that meffUAGE or tenement, with the appurtenances, wherein one John Robinson dwelteth, situated, lying, and being in the Blackfriars, London, near the Wardrobe; and all my other lands, tenements, and hereditaments whatsoever: to have and to hold all and singular the said premises, with their appurtenances, unto the said Sufanna Hall, for and during the term of her natural life; and after her decease, to the first son of her body lawfully issuing, and to the heirs male of the body of the said first son, lawfully issuing; and for default of such issue, to the second son of her body lawfully issuing, and to the heirs male of the body of the said second son lawfully issuing; and for default of such issue, to the third, fourth, fifth, and seventh sons of her body, and their heirs male: and for default of such issue, the said premises to be and remain to my said niece Hall, and the heirs male of her body lawfully issuing; and for default of such issue, to my daughter Judith, and the heirs male of her body lawfully issuing; and for default of such issue, to the right heirs of me the said William Shakespeare.

To the said Sufanna Hall and her husband, whom he appointed executors of his will, under the direction of Francis Collins and Thomas Ruffel, esqrs. he further bequeathed all the rest of his "goods, chattels, leaves, plate, jewels, and household stuff whatsoever," after the payment of his debts, legacies, and funeral expenses; with the exception of his "second bed with the furniture," which constituted the only bequest he made to his wife, and that by infirnition after the will was written out.

Among the mysteries connected with our poet's private life and actions is one, which has hitherto escaped the in- veteate researches and countless opinions of his biographers and commentators. We have already seen, that his wife bore him three children in less than two years after marriage. In the Stratford register is an entry of "Thomas Greene, alias Shakfpear," in 1589-90, which excites some suspicion respecting the fidelity of our bard's wife; and it may be inferred from his will, that his lady could not have enjoyed much of his affection, to have been put off with only the bequest of a "second bed bed;" besides, we do not hear of any other children by the poet.

The first collection of Shakespeare's plays was published in 1623, with the following title: "Mr. William Shakspere's Comedies, Histories, and Tragedies. Published according to the true original copies. London, printed by Isaac Jaggard and Ed. Blount, 1623, folio." This volume was edited by John Hemyng and Henry Condell, and was dedicated to "the most noble and incomparable pair of brethren," William, earl of Pembroke, and Philip, earl of Montgomery. In the title page is a portrait, said to be a likeness of the author, with the engraver's name, "Martin Droeshout, sculptor, London;" and on the opposite page are these lines by Ben Jonson, addressed to the reader:

"This figure that thou here seest put, It was for gentle Shakespeare cut, Wherein the graver had a firfe With nature to outdo the life: O, could he but have drawne his wit As well in braffe, as he hath hit His face; the print would then surpasse All that was ever writ in braffe. But, since he cannot, Reader, looke Not on his picture, but his Booke." B. I.
The above volume was carefully reprinted, in close imitation of the original, a few years back, by J. Wright, for Vernor and Hood, London. A facsimile edition of Shakspere's plays was also published, in 4to, in 1814, a second in 1817, and a third in 1821, and a fourth in 1831. These several impressions are usually denominated "ceptive editions," because published within the first century after the death of the poet, and before any comments or elucidations were employed to expound the original text. Some of his dramas were published in facsimile, during his own life.

Of these editions, which are distinguished by the title "modern," the earliest was published by Nicholas Rowe, in 1709, in 7 vols. 8vo. This was followed by an edition in 9 vols. 12mo. by the same author, in 1714; and in both were prefixed a biographical memoir of the illustrious bard. In 1725, Pope, who first introduced critical and emendatory notes, published his edition in 6 vols. 4to. with a preface, which Johnson characterizes as valuable alike for composition and judicious of remark. A second edition by the same editor was published in 10 vols. 12mo., with additional notes and corrections, in 1728. The successor of Pope was Theobald, who produced a very elaborate edition in 7 vols. 8vo. in 1733; and a second, with corrections and additions, in 8 vols. 12mo. in 1740. Sir Thomas Hamner next turned his attention to the illustration of Shakspere, and in 1744 gave the world an edition of his plays in 6 vols. 4to. Warburton published his edition in 8 vols. 8vo. in 1747; from which time no critic attempted the task till the year 1765, when Dr. Johnson's first edition made its appearance in 8 vols. 8vo. It was preceded by an able and ingenious preface, in which the character of Shakspere's writings are commented on in a powerful style of eloquence, but with a severity far removed from accuracy and justice. Indeed Johnson did not fully understand the varied merits of his author. In 1766, Steevens published the twenty "Old Plays," in 4 vols. 8vo. This was followed, in 1768, by an edition in 10 vols. crown 8vo. by Mr. Capell. Next came out, in 1771, a second and improved edition in 6 vols. 4to. by Sir Thomas Hamner, which was succeeded by an edition in 10 vols. 8vo. in 1773, by Johnson and Steevens, conjointly. Of this last, a second edition was published in 1778; a third, revised and corrected by Reed, in 1785. In the year following was produced the first volume of the dramatic works of Shakspere, with notes by Joseph Rann, A.M. which work was completed in 6 vols. 8vo. in 1794. In 1784 was published, in 1 vol. royal 8vo, an edition by Stockdale, with a very copious index of palliates, by the Rev. Mr. Aylcough. Bell's edition appeared in 1788, in 20 vols. 18mo.; and in 1790 Malone's was ushered into the world in 10 vols. crown 8vo. In 1793, a fourth edition, "revived and augmented," in 15 vols. 8vo. was produced by Mr. Steevens. A fifth edition, in 21 vols. 8vo. was published in 1823, from the text and with the notes of Johnson, Steevens, and Reed; and a revised edition of 21 vols. with corrections, &c. appeared in 1837.

Many other impressions of our author's plays have been published by different booksellers, in different sizes, and of various degrees of typographic merit. Most of them, however, are unauthenticated reprints: but many have the popular attraction of embellishments. The most splendid of this class was published by Boydell, in 9 vols. folio, embellished with 100 engravings, executed by and from artists of the first eminence. The same work was also printed in 4to. In 1805 was published an edition of Shakspere's plays in 10 vols. 8vo., with a preface by Alexander Chalmers, F.S.A. and a print to each play from a design by Henry Fuseli, esq. R.A. The last edition of this kind has just appeared in 7 vols. 18mo., with 250 engravings on wood, from the beautiful press of Whittingham.

Steevens estimated, at the time he published his notes on Shakspere, that "not less than 25,000 copies of one author's works have been thus defaced; and it may now be confidently said, that nearly 100,000 of them have been printed and sold."

From what has been already stated, it is evident that the writings of Shakspere have progressively acquired considerable publicity; and that they now rank as chief, or in the first rank, of British classics. This high celebrity is to be attributed to various secondary causes, as well as to their own intrinsic merits. To players, critics, biographers, and artists, a large portion of this popularity is to be ascribed: for had the plays been represented by Garrick, Kemble, &c. as originally published by Conolly and Hemyng, or reprinted verbatim from that text, the spectators to the one, and readers of the other, would have been comparatively limited. It is talent only that can properly represent and appreciate talent. The birth and productions of one man of brilliant genius, will stimulate the emulation, and call into action the full powers of a correlative mind. Hence the British theatrical hemisphere has been repeatedly illuminated by the corruptions of Garrick, Helderfon, Pritchard, Kemble, Siddons, Cooke, Young, and Kean, and these performances have derived no small portion of their justly acquired fame from the exquisite and powerful writings of the bard of Avon. While the one may be considered as the creator of thought and inventor of character, the others have performed and given "local habitation" and exultation to the poetical vision. The painter has also been usefully and honourably employed in delineating incidents, and portraying characters from the poet: while the engraver has translated these designs into a new language, and given them extensive circulation and permanent record.

The consummate acting of Garrick tended, in a great degree, not only to revive the fame of Shakspere, but to augment and extend it. The peculiar powers of Betterton, and of his other dramatic predecessors, have not been sufficiently defined to enable us to estimate their real talents; but those of the English Rofcius have been commented on and defcribed by so many able critics, that we are certain they were of the most accomplished kind. He was therefore amply qualified to personify, and give life and effect to the characters of Macbeth, Hamlet, Lear, Richard the Third, Romeo, &c.; and by his exquisite representation of these biftronic personages, the public were additionally delighted and admiration with the amazing genius of the author. Since Garrick's time other actors have judiciously chosen some of Shakspere's characters, as best calculated to show their own talents; and as the most certain touchstone of passion. A Kemble and a Siddons have enwreathed their brows with never-fading laurel by diligently studying and successfully perforating many of our poet's great characters. The former has acquired a well-earned fame in portraying Macbeth, Lear, Coriolanus, Prefce, Cardinal Wolsey, Richard, Hamlet, and Othello; the latter has astonished and gratified many thousand spectators by her horrifying representation of lady Macbeth, her dignified playing of the queen in Henry VIII., and the queen in Hamlet; by her commanding powers in Portia; and in her pathetic eloquence of Daffodona. Cooke displayed the characters of Richard the Third, Iago, and Shylock, with great skill and excellence: and in the present day, Kean has personified these characters, with that of Richard II. and Hamlet, so as to command the approbation of the most acute and intelligent critics.
SHAKESPEARE.

The number, variety, and veracity of commentaries that have been successively published on the text of Shakespeare's plays almost exceed credibility; and a foreigner, or stranger to the subject, would be more than astonished, were the whole brought in one mass before him. It is true, that many of them are unimportant and useless, but it is equally true, that several of his critical annotators have displayed much research, learning, and acuteness; and to such the puffed and poetical antiquaries are much indebted. It was our intention to have given a concise account of these; because the whole constitute the Shaksparian library; and all may be regarded as satellites to the vast and replete poetic planet. The chief editors of his plays have been already noticed, as well as the respective eras of their different writings. Rowe was the first to add any thing to the original text, by prefixing a memoir of the author. This memoir has been reprinted with almost every succeeding edition, and without any alteration or comment, till Malone accompanied it with notes to his edition of 1792. Mr. Alexander Chalmers, in an edition of 1805, has prefixed a "Sketch of the Life of Shakspere," in which he has adopted most of the statements of Rowe, with the additional and corrective remarks of Malone and Steevens.

"The whole, however," he remarks, "is unsatisfactory. Shakspere in his private character, in his friendships, in his amusements, in his closet, in his family, is no where before us."

The plays of Shakspere are divided into three classes, and called in the first edition "comedies, histories, and tragedies." Each is of a distinct character; but in some of them there is a mixture of the three in one. "The Merry Wives of Windsor," "The Comedy of Errors," and "The Taming of the Shrew," are all comedies; the rest have something of both kinds. It is not easy to determine in which way of writing he most excelled. His Falstaff is universally allowed to be a master-piece; the character is always well sustained, though drawn out into three plays; and even the account of his death, given by his landlady, Mrs. Quickly, in the first act of Henry V. is as natural and diverting as any part of his life. "If there be any fault," says the critic, "in the draught he has made of this lewd old fellow, it is, that though he has made him a thief, a liar, and a coward, and, in short, every way vicious, yet he has given him so much wit, as to make him almost too agreeable; and I do not know whether some people have not, in remembrance of the amusements which he had formerly afforded them, been forry to see his friend Hal uly him so curiously when he comes to the crown, in the end of the second part of Henry IV. Among other extravagancies in the "Merry Wives of Windsor," he has made him a deer-stealer, that he might have the opportunity of remembering his Warwickshire protector under the name of Justice Shallow." The whole play is admirable, the humours are various and well opposed; the main design, which is to cure Ford of his unreasonable jealousy, is extremely well conducted.

Another of the characters which has been fixed on as one of Shakspere's fine delineations, is that of Shylock, the Jew, in "The Merchant of Venice," in which there appears such a deadly spirit of revenge, such a savage fierceness, and such a bloody denunciation of cruelty and mischief, as cannot agree either with the style or character of comedy, though usually ranked as such. Taken altogether, it is perhaps one of the most finished of Shakspere's pieces; the tale indeed is improbable in some of its parts; but taking the facts for granted, the story is beautifully written. There is something in the friendship of Antonio and Bassanio very great and generous. The whole fourth act is extremely fine, but there are two passages that are universally known and applauded, the one is in praise of mercy, and the other is on the power of music.

The melancholy of Jaques in the comedy of "As you like it," is as singular and odd, as it is amusing, and if, according to the maxim of Horace,

"Difficile est proprie communia dicere,"

it will be a hard task for any one to go beyond him in the delineation of the several degrees and ages of a man's life. See the article A.

Shakspere's images are indeed every where so lively, that the thing he would represent flounds full before you, and you possest every part of it. Rowe mentions his image of Patience, in the person of a young woman in love, as one of the finest and most uncommon things ever written; it is as follows:

"She never told her love; but let concealment, like a worm i'th' bud, Feed on her damask cheek: she pin'd in thought, And fad like Patience on a monument Smiling at grief."

The style of his comedy is, in general, natural to the characters, and easy in itself; and the wit most commonly sprightly and pleasing, except in those places where he runs into dogdrill rhymes. But the greatness of this author's genius does no where so much appear, as where he gives his imagination the entire loofe, and raises his fancy to a flight above mankind, and beyond the limits of the visible world. Such are his attempts in the Tempest, Midsummer Night's Dream, Macbeth, and Hamlet. Of these, the Tempest is thought by able critics to be the most perfect in its kind of any thing that Shakspere has left behind him. His magic hath something in it very solemn, and very poetical: and that extravagant character of Caliban is extremely well sustained, and sways a wonderful invention in the author, who could strike out such a particular wild image, and it is certainly one of the finest that was ever exhibited to the human imagination. It has been said by able judges, that "Shakspere had not only found out a new character in his Caliban, but had also devised and adapted a new manner of language for that character."

It is the same magic that railes the fairies in the Midsummer Night's Dream, the witches in Macbeth, and the ghost in Hamlet, with thoughts and language so proper to the parts they sustain, and so peculiar to the talent of this writer. "If," says the author whom we have so often quoted, "one undertook to examine the greatest part of his tragedies by those rules which are established by Aristotle, and taken from the model of the Grecian stage, it would be no difficult task to find a great many faults; but as Shakspere lived under a kind of more light of nature, and had never been made acquainted with the regularity of those written precepts, so it would be hard to judge him by a law of which he was ignorant. We are to consider him as a man, that lived in a state of almost universal licence and ignorance; there was no established judge, but every one took the liberty to write according to the dictates of his own fancy. When one considers, that there is not one play before him of a reputation good enough to entitle it to an appearance on the present stage, it cannot but be a matter of great wonder, that he should have advanced dramatic poetry as far as he did.

"It is now a received article of literary faith in England, that notwithstanding the faults and defects with which Shakspere abounds, and which were chiefly those of his age, no dramatist in any country has displayed such intimate
intimate knowledge of the human heart; such extensive acquaintance with nature in its various forms, an imagination so powerful and poetical, and such a copiousness of moral instrument supplied to the mind, as was almost incredible. The amours of nature were dear to him, and he drew them not laboriously, but luckily. When he describes any thing, you more than feel it, you feel it too. He needed not the spectacles of books to read nature; he looked inward, and found her there. I cannot say he is everywhere; where he is, he is seen. He is many times flat and stupid; his comic wit degenerating into cleshes, his serious swarming into bombast. But he is always great, when some great occasion is preferred to him. No man can ever say, he ever had a subject for his wit, and did not then raise himself as high above the rest of the poets.

"Quantum levis follet inter vivarum cuprelii."

Shakspeare, like most men of pre-eminent talents, is said to have been much inflamed by the attacks of envious rivals, notwithstanding that generous and good nature were the peculiar characteristics of his personal deportment. Among those who are said to have treated him with hostility was the celebrated Ben Jonson; but Dr. Farmer departs from the received opinions on this subject, and thinks that, though Jonson was arrogant of his scholarship, and publicly professed a rivalry of Shakspeare, he was in private his friend and associate.

Pope, in his preface, says, that Jonson "loved" Shakspeare "as well as honoured his memory; celebrates the honesty, openmindedness, and frankness of his temper; and only differs in his temper, as he reasonably ought, between the real merit of the author, and the unflattering abuse of the player." Mr. Gilchrist, whose dramatic criticisms are generally profound and acute, has published a pamphlet, to prove that Jonson was never a harsh or an envious rival of Shakspeare; and that the popular opinion on this subject is founded in error. The following story respecting these two great dramatists is related by Rowe, and has been generally credited by subsequent biographers. "Mr. Jonson, who was at that time altogether unknown to the world, had offered one of his plays to the players, in order to have it acted; and the persons into whose hands it was put, after having turned it carelessly and superciliously over, were just upon returning it to him with an ill-natured answer, that it would be of no service to their company, when Shakspeare luckily called his eye upon it, and found something so well in it, as to engage him first to read it through, and afterwards to recommend Mr. Jonson and his writings to the public."

The opposition or rivalry of Shakspeare and Jonson produced, as might naturally be expected, much contention, concerning their relative merits, between their respective friends and admirers; and it is not a little remarkable, that Jonson seems to have maintained a higher place in the estimation of the public in general than our poet, for more than a century after the death of the latter. Within that period Jonson's works are said to have passed through several editions, and to have been read with avidity, while Shakspeare's were comparatively neglected till the time of Rowe. This circumstance is in a great measure to be accounted for on the principle that classical literature and college learning were regarded in these days as the chief criteria of merit. Accordingly Jonson's charge against Shakspeare was the want of that species of knowledge; and upon his own pretensions in it, he was entitled to handle a topic with more vigour. That all classical scholars, however, did not feel Jonson's pretensions, is certain; for among the most intimate adherents of Shakspeare, was one of the most learned men of his age, the ever memorable Dr. Johnson. On one occasion, the latter, after listening to silence to a warm debate between John Suckling and Jonson, is reported to have interposed by observing, "That if Shakspeare had met the authors, he had his wit to rid him of anything from them; and that if he (Jonson) would produce any one topic fairly treated by any one of them, he would undertake to show something on the same subject, at least as well written, by Shakspeare." A trial, it was added, being made, six or seven judges were appointed to decide the dispute, who unanimously voted in favour of the English poet, after a candid examination and comparison of the passages produced by the contending parties.

In September, 1769, was celebrated the Shakspeare Jubilee, at Stratford, under the direction of Garrick.


Shakspeare was fond of music, and not wholly ignorant of the art. He not only frequently introduces music in his plays, but singing in almost all his fourteen comedies; and even in most of his tragedies, where this wonderful and exquisite dramatic art has manifested the same predilection for music as poetry.

In the "Tempest," the use that he has made of it is admirable, as well as the description of its effects. Act i. Sc. 5. Ariel, invisible, playing and singing to Ferdinand, says,
Where should this music be, 'tis th' air or earth?
It founds no more: and sure it waits upon
Some god o' th' isle.

And afterwards:

This is no mortal business, nor no found
That the earth owns: I hear it now above me.

Indeed, the serious part of this most fanciful play is very fortunately calculated for an opera. Shadwell, in the last century, made one of it, in the manner of what were then called operas on our stage. It has been performed of late years more as a musical masque, than opera or play, at Drury-lane, to the music of the late Mr. T. Linley, as it used to be to that of Dr. Arne, and others. The songs in this play, Dr. Wilton, who wrote and published two of them, tells us, in his "Court Ayres, or Ballads," published at Oxford, 1666, that "Full fathom five," and "Where the bee sucks," had been first set by Robert Johnson, a composer contemporary with Shakspeare.

Aét ii. Sc. 1. "Enter Ariel playing solemn music."
We never could understand this indication: no music seems to be heard by the characters on the stage, nor do they take any notice of it through the whole scene. Afterwards, when with music and a song he acquaints Gonzalo of the danger he is in, his million has meaning. "While you here do roaring lie," &c.

Even Caliban talks well about music:

"the isle is full of noises,
Sounds and sweet airs, that give delight and hurt not."

Ariel never appears or is employed without music, which is sweetly defcribed, and introduced with perfect propriety. Prospero calls for medicinal music:

"A solemn air, and the bell comforter
To an unsettled fancy, cure thy brains."

"Midsummer Night's Dream."

Aét i. Sc. 5. "Come now a roundel, and a fairy song."
If, as Dr. Gray says, a roundel is "a dance in a ring," a roundelay was the long and tune to such dance; as ballad, from ballata, Italian; fo roundelay, from rondelet, old French, rondeau, modern.

The ideas and language of fairytale are wonderfully imagined and supported in this play; and the vfe alligned to music happy and fertile.

Aét iv. Sc. 1. "Rural music, song, &c."

Poker and song, narrow-bones and cleavers, salt-box, hurdy-gurdy, &c. are the old national instruments of music on our island.

Queen. "Music, ho! music: such as charmeth sleep."

Still music, meaning such soft and gentle music as tranquillizes, soothes, and lulls to music.

Aét v. Sc. 1. In the lift of sports ready for the nuptial feast of Theseus, is "the battle with the Centaurs; to be sung by an Athenian eunuch to the harp." This seems to imply a more ancient practice of calbration for the voice than can be found in opera annals.

Speaking of Quince, in the clown's prologue, Hippolita says, "indeed, he hath play'd on his prologue, like a child on a recorder; a found, but not in government."

Two songs alluded to in the last scence of this play are lost.

Oberon. "And this ditty after me
Sing and dance it trippingly."

Queen. "First rehearse this song by rote,
To each word a warbling note; Hand in hand, with fairy grace,
Will we sing, and blest this place."

"Two Gentlemen of Verona."

Though this comedy furnishes fewer occasions for music than the two preceding dramas, yet musicians are employed in it as well as musical allusions. As Ben Jonson, in his masque of "Cythian's Revels," speaks of the gamut or syllables of solemnity, ut, re, mi, fa, sol, la, which pianofingers had made well known to his audience; so Shakspeare, in this play, aét i. fc. 3. introduces all the musical terms then in use: as, a tune, a note, a light, a heavy tune, burden, melodious, to reach high, keep in tune, fang out, too sharp, too flat, concord, harsh defect, the mean bose, &c.

Aét iv. Sc. i. there is a laboured description of the powers of poetry and music; Orpheus's lute, concert, spelt as now:

"— to their instruments
Tune a deploring dump?"—
or lament (lamentation), sung by a wretched and forrow ing lover in the dumps.

Sc. 2. A fermata, or notturno, is introduced:

"— now muft I to her window,
And give some evening music to her ear."

Enter Musicians.

"— now, gentle men,
Let's tune, and to it lustily."

Song. "Who is Sylvia? what is she?" &c.

"Measure for Measure."

Though this play has less music in it than the three preceding, yet at the beginning of aét iv. a song, from his own Passionate Pilgrimage: "Take, oh, take those lips away," is sung to Mariana by a boy, who is sent away on the arrival of the duke, in the character of a friar; when apologizing for the seeming levity of listenning to music, he says:

"I cry you mercy, sir, and well could with
You had not found me here so musical."

To which the duke answers:

"'Tis good; though music oft hath such a charm,
To make bad good; and good provoke to harm."

This is a heavy charge, which it would not have been easy for Shakspeare to substantiate, and does not very well agree with what he says in the "Tempest," of the innuovous efficacy of music. "Sounds and sweet airs, that give delight, and hurt not." Music may be applied to licentious poetry; but the poet in it corrupts the music, not the music the poetry. It has often regulated the movements of lascivious dances; but such airs heard, for the first time, without the song or dance, could convey no impure ideas to an innocent imagination; so that Montefquieu's assertion is still in force: that "music is the only one of all the arts, which does not corrupt the mind."

"Merchant of Venice."

Aét i. Sc. 1. A flourith of cornets when the Moorish prince comes in.

Act i. sc. 2. "Let music sound, while he doth make his choice; when, if he love, he makes a swan-like end. Fading in music,  
— he may wax;  
And what is music then? then music is  
As are those dulcet sounds at break of day,  
That creep into the dreaming bridegroom's ear,  
And summon him to marriage,"  

Music within.  
A long while Baffano examines the calf's feet:  
"Tell me where is fancy bred," &c.  
The passages in the fifth act of this interesting play are beautiful, numerous, and celebrated:  
"And bring your music forth into the air," &c.  
"Soft stillness and the night,  
Become the touches of sweet harmony."  

Jefica: "I am never merry when I hear sweet music."  
This is the initial of a well-known, and now proverbial eulogium on moderated sound: "The man that has no music in his soul," &c.  
"As you like it."  

Act ii. sc. 1. A song:  
"Under the green-wood tree," &c.  
Remarks on music by Jacques. Then another song:  
"Blow, blow, thou winter's wind."  
Music. Song: "What shall he have that kill'd the deer."  
Song: "Twas a lover and his lute."  
Still music. Song: "Then is there mirth in heav'n."  
Another song: "Wedding is great Juno's crown."  
"Love's Labour's lost."  

Act iii. Armado. "Warble child; make passionate my tende of hearing."  
This is a most beautiful and comprehensive request: none of the fine arts can subserve, or give rapture, without passion. Hence mediocrity is more intolerable in them than in other inventions. Music without passion is as monotonous as the tolling of a bell. But no song is printed; though the author tells us there is singing. Dr. Johnson says, "Here is apparently a song lost."  

Music as for a masquerade.  
Songs for spring and autumn:  
"When daffodils begin to peere."  
"Winter's Tale."  
Two nonsensical songs, by the rogue Autolycus:  
"When daffodils begin to peere."  

"He's main musical." This Autolycus is the true ancient minstrel, as described in the old Fabliaux. See Gen. Hist. Muf. vol. ii. p. 268.  

Act iv, sc. 4. The clown, as elsewhere, is much addicted to singing. Song, by the clown:  
"When that I was a little boy," &c.  

Serves as an epilogue to this entertaining play.
In "The Taming of the Shrew," no other use is made of music than to introduce minstrels at the wedding, and disguise Hortensio in the character of a man well-versed in music, to facilitate his admission to the presence and courtship of Bianca; an expedient, however, which was unsuccessful.

More fragments of old ballads are here quoted than in any other of Shakespeare's plays; though, as Dr. Warburton said, "he seemed to bear the ballad-makers a very particular grudge, and often ridicules them with exquisite humour."

In "The Comedy of Errors," music has no admission or concern.

"Much ado about Nothing."

Music at the masquerade, act ii. sc. 2. And in Benedick's dainty description of such an all-accomplished woman as could ever incline him to wed, he adds to her qualifications, music: "—of good discourse, an excellent musician, and her hair of what colour it shall please God." Sc. 8.

Act ii. sc. 9. "The song, 'Sigh no more, ladies, sigh no more,' is introduced by several reflections on music, and the affection of fingers. Baltazar, the musician and servant to Don Pedro, was perhaps thus named from the celebrated Baltazarini, called 'De Beaujoyeux,' an Italian performer on the violin, who was in the highest fame and favour at the court of Henry III. of France, 1577. In the last act, sc. 8, the epitaph and song are beautiful, and well calculated for music.

"All's Well that ends Well."

Act i. sc. 5. Flourish of cornets for the king of France's entrance and exit.

Act iii. sc. 8. Aucket afar off. Ibid. A march afar off.

Act v. sc. 3. Sound trumpets.

Historical plays. "King John."

No music but trumpets and the din of war.

"King Richard II."

Act i. sc. 4. Military instruments are admirably described:

"—rous'd up with boist'rous untun'd drums,
And harfth refounding trumpets dreadful Bray."

Ibid. Mowbray, duke of Norfolk, on being ordered into banishment, says:

"My native English, now I must forgo;
And now my tongue's use is to me no more,
Than an unfringed violin, or a harp;
Or, like a cunning instrument can't up,
Or being open, put into his hands
That knows no touch to tune the harmony."

Act ii. sc. 1. "—the tongues of dying men
Inforce attention, like deep harmony:
—more are men's ends mark'd, than their lives before;
The setting fun, and music in the close,
As the last taffe of sweets, is sweetest last—"

Ibid. sc. 3. Speaking of John of Gaunt's death:

"—all is fay'd,
His tongue is now a ftringles instrument."

Act v. sc. 10. Richard, in his prifon, fays:

"—Music do I hear?
Ha, ha! keep time: how fow'r sweet music is,
Where time is broke, and no proportion kept?"

Here he plays on musical terms for several lines.

All instruements played with the bow, in Shakespeare's time, were fretted, except violins.

In "The Taming of the Shrew," act ii. sc. 3, he could not refit the temptation of quibbling on the term fret.

"Frets call you them? quotio she: I'll fume with them."

"—then call'd me rafcal, fidler, And twangling Jack;"

alluding to a famous street musician of the time.

"First Part of Henry IV."

Act i. sc. 2. Falstaff fays he's as melancholy as the "drone of a Lincolnshire bagpipe."

Act ii. sc. 3. "An I have not ballads made on you all, and fong to filthy tunes, let a cup of fack be my poison."

Act iii. sc. 3. "——thy tongue
Makes Welch as sweet as ditties highly penn'd,
Sung by a fair queen in a fummer's bow'r,
With ravifhing defcription to her lute."

"Second Part of Henry IV."

Induction. "——Rumour is a pipe,
Blown by furnifes, j-aloufies, conjectures;
And of fo easy and fo plain a stop,
That the blunt mofter with uncounted heads,
The ffill discordant wavering multitude,
Can play upon it."

We advanced no farther in hunting through the pleafant wilds of Shakespeare; but in digging accidentally, the following passages struck us as worthy of notice.

"Henry V." Act i. sc. 2. There is a manifest allusion to the different parts of music.

"For government, though high, and low, and lower,
Put into parts, doth keep in one confent,
Congreffing in a full and natural clofe,
Like music."

In "Othello," act iv. sc. 13. Defdemona fays:

"My mother had a maid, called Barbara;
She was in love; and he, the lo'v'd, prov'd mad (falle)
And did forfake her; she had a song of willow,
An old thing twas, but it express'd her fortune,
And the died finging it. That fong, to-night,
Will not go from my mind; I've much ado,
Not to go hang my head all o' one fide,
And fing it like poor Barbara."

"King Lear," act i. sc. 7. "O, these episodes portend these divilions! fa, fa, la, mi?"

None of the commentators have hitherto been sufficiently skilful in music to fee the meaning of these fyllables in composition, which imply a feries of founds fo unnatural, that ancient musicians prohibited their use. "Mi contra fa eft diabolus." Shakfpeare, however, fways by the context, that he was well acquainted with the property of the musical intervals contained in the tritonus, or sharp 4th, which confiding of three tones, without the intervention of a femitone, is extremely difficult to fing, and difagreeable when
when fungi, if ni, or fi, is the fat rate of the phrase or passage.

Shakspere's Chief, or High Cliff, in Geography, a lofty cliff on the E. coast of England, in the county of Kent; so called from the beautiful description of it given by that poet in the tragedy of King Lear, 2 miles S. of Dover.

Shaky, or Shaken, a natural defect in timber when it is full of tight cracks, and will not bear the fastingen, or when sawn into planks the caulking.

Shal, in Geography, a district of Peria, in Baluchistan, the country of the Baluchis, which is considered by some as a province distinct from Mekran (the ancient Gedroidea), and which commences at Kohuline (the hilly road), 25 miles N.E. of Bayla, or in N. lat. 30° 25', and extends to Nukshki, 70 miles N.W. of Kelat, or in N. lat. 30°. This country is a confused mass of mountains, through which the road generally leads in water-courses. Flocks of sheep and cattle abound in every part of this country, and it also produces great quantities of wheat. It is divided into the two mountainous provinces of Jhalawan and Sarawan, the low country of Cutch Gandava to the E., and the provinces of Zhurbe and Amund Dijel; and to these may be added the small districts of Shal and Mutlung, lying N. of Kelat. Shalawat is the most southern province of Baluchistan, and Sarawan (which fee) is the most northern province. Cutch Gandava, situated at the bottom of the mountain lying S.E. of Kelat, is about 150 miles long, and 40 or 50 broad. Its soil is rich, black, and loamy, and produces every species of grain, as well as cotton, indigo, madder, &c. Cutch Gandava exports great quantities of grain to the sea-ports of Curacher and Semnawati, whence it is shipped to Muscat, the coast of Mekran, &c. Amund Dijel lies N. of Cutch Gandava: its climate is good, the soil excellent, and the productions abundant; so that the Khan of Kelat derives a large revenue from this small district. Shal and Mutlung are smaller than Amund Dijel, but they are remarkable for their fruits, which are excellent and cheap. The climate is warmer than that of Kelat; the soil is more sandy; but the grain and other products are the same. (See Zhurbe.) The capital of Baluchistan is Kelat, a town surrounded by a mud-wall, and containing 4000 houses, and about 7000 inhabitants, of whom about 500 are Hindoos. The bazaar of Kelat is well supplied, and the town appears opulent, being frequented by merchants, and carrying on a considerable trade. N. lat. 25° 6'. E. long. 67° 57'.

Shalberg, a mountain of Switzerland; 4 miles N. of Sargans.

Shalberis, a cairn of Hindoosan, bounded on the N. by Goragot and Bettoorish, on the E. and S. by Bettoorish, and on the W. by Bettoorish and Dinagpour; about 18 miles from N. to S. and nearly as much from E. to W. The chief town seems to be Carz.é.

Shaldea, a town of Hindoosan, in Bahar; 7 miles S.W. of Rotafurg.

Shale, in Natural History, a variety of chalcedony clay: the first variety is denominated slate clay, the schewer Thon of Werner. (See Clay.) The second variety is bituminous slate, the brand of which of Werner, of a brownish black, or blackish-brown, colour, appearing black coal; it is found in considerable quantities in Saxony; 1 litre, 0 gr. 38; transparency, 0; fracture dull; fragments tabular; barrettes 6; fp. gr. about 2,600; breaks like slate; variegated, though very slowly, with the mineral acids; is feeling rather greasy; placed on burning coal, it bursts with a weak flame and fulphurous smell, the residuum being light-grey; it seems to differ from the former variety, in containing bitumen. Kirwan. See Bitumen. The acid emitted from shale, during its calcination, uniting itself to the argillaceous earth of the shale, forms alum. About a hundred and twenty tons of calcined shale will make one ton of alum. The shale, after being calcined, is steeped in water, by which means the alum, which is burned during the calcination of the shale, is dissolved: this dissolved alum undergoes various operations, before it is formed into the alum of the shops. Watton's Chem. Ell. vol. n., p. 315. See Alum.

This kind of slates forms large strata in Dethbureh; and that which lies near the surface of the earth is of a softer and more flinty texture than that which lies deeper. It is also found in large strata, generally above the coal, in most coal counties of this kingdom. Dr. Short informs us, that the shale washes the lead ore near it, by its strong acid; and that it corrodes and destroys all minerals near it, except iron or coal, of whose vitriol it partakes. See Slate.

Shalg, in Geography, a town of Turkellen; 10 miles S. of Turkellen.

Shallop, Shalloop, or Sloop, is a small light vessel, with only a small main-mast, and fore-mast, and lug-foils, to hale up, and let down, on occasion. Shallop are commonly good faders, and are therefore often used as tenders upon men of war.

The French sloop is a large-decked sloop of burden, used in Holland and Flanders, having one mast, carrying a gaff-sail. On the fore-side of the mast, above the top-sail, is a short spar projecting forwards; to which is bent a long narrow sail, the tack of which is made fast to the item, and the sheet to the side near the shrouds. On the bowsprit are set two or three jibs, and a small mast is often fixed abaft that carries a naze.

Shallot, in Gardening, the common name of a very useful culinary plant. See Allium.

To what has been said under the above head, it may here be necessary to add some improvements, which have since been made, in the culture of these small bulbous roots. As the habits of growth in roots of this nature differ greatly in the different sorts, some requiring to be nearly or quite on the surface of the ground, while others stand in need of being a considerable depth below it, which has not been well attended to in the garden culture of such roots; it may be readily supposed that these have considerable influence and effect on the growth of such root crops. In consequence of finding that crops of this root generally became mouldy and perished, and that they were usually planted, from the directions of garden cultivators, at the depth of two or three inches from the surface; the injury, failure, and destruction of such crops, were naturally ascribed to this cause. A few bulbs or bunches of this root were consequent divided, as far as possible, into single bulbs, &c. and planted upon or rather above the surface of the ground, some very rich soil being placed underneath them, and the mould upon and side near the shrouds. A few boue and causes the mould to be fully planted, until they became firmly rooted. This mould was then removed by means of a hoe, and the use of the watering-pot, and the bulb of course left wholly out of the ground. The growth of the plant had now to perform a resemblance to that of the common onion, as not readily to be distinguished from it, until their irregularity of form, the consequence of the numerous germs within each bulb, became evident. The forms of the bulbs, however, continued constantly different from all those raised in the ordinary method, being much more broad, but of less length. The crop was a great deal better in quality, and at the same time much more

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more abundant in quantity, it may confequently not be unworthy of the gardener’s attention. See the Transactions of the Horticultural Society of London, vol. ii. p. 97.

SHALLOT CREEK, in Geography, a river of North Carolina, which runs into the Atlantic, N. lat. 33° 53’. W. long. 78° 28’.

SHALLOW. See SHOAL.

SHALTOCH CAIRN, in Geography, a mountain of Scotland, in Ayrshire; 12 miles E. of Girvan.

SHAM, Ed. See DAMASCUS.

SHAMAK PALLAME, in Geography, a town of Hindooftan, in Coimbetore; 15 miles N.E. of Coimbetore.

SHAMARASHUP, a town of Hindooftan, in Coimbetore; 18 miles S.W. of Eroora.

SHAME, or SHAMMAL, in Mining, a term used to epxrefs a fort of nich, or landing place, left at certain di-tances in the adits of mines, and formed by a flage of boards. The method of digging the tin-mines in Devonshire, and some parts of Cornwall, is this; they fpink their way in fuch a breadth as is fufficient for them to fland and work, and at every fatham they leave a fquare place vacant, to which the ore is to be thrown up with fhovels as it is dug. This they do from call to call; that is, as far as a man can conveniently throw up the ore with his fhovel. Thus the ore, as it is dug by the beclmen, is thrown up by the fhovellers, who follow them from fhamble to fhamble, till it comes to the top of the mine. This, however, is but an inconvenient way, and the ufe of fhimals is generally supplied by a widder at the opening of the mine, which manages two buckets, the one of which is fent down empty, while the other is fent up full; and one man employed below to load, and another to empty. Phil. Tranf. No. 62. See Mining.

SHAMBLES, or SHINGLES, in Geography, a bank of sand in the English Channel, near the coaft of Doriftire, about four miles E. by S. from Portland Bill, with 14 feet at low water.

SHAMBRIER, in the Manage, is a long thong of leather, made falt to the end of a cane, in order to animate a horse, and punifh him, if he refufes to obey the rider.

SHAMBYPATAM, in Geography, a town of Hindooftan, in the Carnatic; 36 miles S. of Tanjore.

SHAMDAK, a town of Aflam, on the Burhampoor-ter; 65 miles N.W. of Gerghonge.

SHAME, in Ethics. See Passion.

SHAMERAN, in Geography, a town of Curdiitan; 18 miles S. of Sherezur.

SHAMMY, CHAMMY, or CHAMOIS, a kind of leather, either dressed in oil, or tanned; much efpewed for its softness, pliancy, &c.

It is prepared from the skin of the chamois, or shamais, a kind of rupecapra, or wild goat, called also Jard, inhabiting the mountains of Dauphiny, Savoy, Piedmont, and the Pyrenees. See CHAMOIS.

Besides the softness and warmth of the leather, it has the faculty of bearing foap without damage; which renders it very useful on many accounts.

In France, &c. some wear the skin raw, without any preparation. Shammy leather is used for the purifying of mercury; which is done by passing it through the pores of the skin, which are very close.

The true chamois leather is confidered with common goat, kid, and even with fheep-skins; the practice of which makes a particular profession, called by the French chamo-

fure. The leaf, though the leaf efteemed, is yet so popular, and such vast quantities of it are prepared, especially about Orleans, Marfilles, and Touloufe, that it may not be amifs to give the method of preparation.

Manner of Shamofing, or of preparing Sheep, Goat, or Kid-skins in Oil, in imitation of Shammy. — The skins, being fuffled, drained, and incarved over with quick-flime on the flefhy fide, are folded in two lengthways, the wool outwards, and laid in heaps, and left to ferment eight days; or, if they had been left to dry after faying, then fifteen days.

Then they are washed out, drained, and half fried; laid on a wooden led, or horfe; the wool flrapped off with a round flaff for that purpose, and laid in a warm pit, the lime of which had been used before, and has loft the great part of its force.

After twenty-four hours they are taken out, and left to drain twenty-four more; they are then put in another ftronger pit. This done, they are taken out, drained, and put in again, by turns; which begins to difpofe them to take oil; and this practice they continue for fix weeks in fummer, or three months in winter: at the end of which they are washed out, laid on the wooden led, and the furface of the skin on the wool-fide peeled off, to render them the fouter; then made into parcels, flapped a night in the river, in winter more, stretched fix or seven over one another, on the wooden led, and the knife padded ftrongly on the fleffy, to take off any thing fuperfuous, and render the skin fmoth.

Then they are flapped, as before, in the river, and the fame operation is repeated on the wool-fide; they are then thrown into a tub of water, with bran in it, which is brewed among the skins till the great part fticks to them, and them feparated into fmall tubs, till they fwell, and rise of themselves above the water.

By this means the remains of the lime are cleared out; they are then wrung out, hung up to dry on ropes, and fent to the mill, with the quantity of oil neceffary to fcorum them: the beef oil is that of ftock-fish.

Here they are firft thrown in bundles into the river, for twelve hours, then laid in the mill-trough, and fullled without oil till they be well foftened; then oiled with the hand, one by one, and thus formed into parcels of four fkins each; which are milled and dried on cords a fecind time; then a third; and then oiled again, and dried.

This procefs is repeated as often as neceffity requires; when done, if there be any moifure remaining, they are dried in a flove, and made up into parcels wrapped up in wool; after fome time they are opened to the air, but wrapped up again as before, till fuch time as the oil f eens to have loft all its force, which it ordinarily does in twenty-four hours.

The fkins are then returned from the mill to the chamofier, to be fcored; which is done by putting them in a liquid fum of wood-afhes, working and beating them in it with poles, and leaving them to fleep, till the softness had its effect; then they are wrung out, flapped in another lixivium, wrung again; and this is repeated till all the grease and oil be purged out. When this is done, they are half dried, and palled over a fharpened iron instrument, placed perpendicular in a block, which opens, softens, and makes them gentle; laflly, they are thoroughly dried, and palled over the fame instrument again; which finifhes the preparation, and leaves them in form of shammy.

Kid and goat-skins are shamofed in the fame manner as thole of sheep, excepting that the hair is taken off without the use of any lime; and that when brought from the
the mill, they undergo a particular preparation called 
casting; the most delicate and dainty of all is that of
a Conch, for in this, that as soon as brought from the
shell, they are steeped in a stiff liquor, taken out, dried
on a round wooden lute, and the hair is scraped off with
the kind; this makes them fast, and, in working, to
call a kind of free keep. The difficulty is in preserving
them evenly.

SHAMOKIN, in Geography, a town of Pennsylvania,
in the northumberland county, containing 2,177 inhabitants.

SHANKIN CREEK, a town of Pennsylvania, which
runs into the Susquehanna. N. lat. 40° 31′; W. long. 70° 53′.

SHAMANGI, a town of Peria, in the province of
Laristan.

SHANCORI, a town of Perian Armenia; 12 miles
W. N.W. of Kars.

SHANDEGAN, in, a town of New York, in the
county of Ulster, 14 miles N.W. of Kingston.

SHANDEAN, Little, a town in the same county; 12 miles
N.W. of Kingston.

SHANDYMUNGOLM, a town of Hindostan, in
Baramaul; 8 miles E. of Namaul.

SHANEDI, a town of Nubia, on the right bank of
the Nile; 45 miles S.W. of Nubia.

SHANGOLDEN, a small post-town of Ireland, in the
county of Limerick; 114 miles W.S.W. from Dublin.

SHANGRA, a country of Africa, W. of Moscanga.

SHANGRAPOY, a town of Hindostan, in Mardwar;
20 miles S.S.E. of Trumman.

SHANK, in Conchology, the Shanferit name of that
species of shell, which gives its name in Europe to this
branch of natural history. French and other foreign writers
spell the word chank. The only substitution of a hard
for a soft initial, has led to a supposition that conch may
by early writers have been taken from the same source as
shank, or even derived from it. The Shank, or shank,
or conch, is the large biscumnum, and is often seen beautifully
coloured as a pheasant’s breast. With the Hindoos, the
shank is an object of mythical reverence. It is seen in one
of the four hands of their deity Visnu, and is one of his
commonest attributes. Images and pictures of him are
deed dilligently gifted more by this than by any other mark.
It has of course a fabulous or mythological origin; and we
accordingly find it among the “fourteen gems” that were
recovered from the ocean, after a general deluge, as related
under the article KUMMATARA of this work, where
the Shank is said to be “a shell conferring victory
on any one who should find it.” In the distribution of
the precious articles, the shell seems to have fallen to the share
of Vishnu.

Shells, as a rounding implements, were much used in early
Indian wars, as trumpets and drums are with us. In
the terrible civil wars between the Pandus, and their kinmen
the Kurus, as Homerically described in the Mahābhārata,
Krisna used a shell named Panchajanya, obtained in the
manner related under our article KANYA, from a sea-
monster named Sankshura, which fee. Each claw in the
wars alluded to bore a shell, to which, like the heralds of
our chivalrous knights, different and significative names are
given. In the portion of the Mahābhārata translated by Mr. Wilkins,
called Bhagavata Gita, the following passage occurs. “The
ancient chief, and brother of the grand sire of the Kurus,
then shouting with a voice like a roaring lion, blew his shell
to raise the spirit of the Kurus chief; and infallibly immensur-
able shells, and other warlike instruments, refounded on all
sides,—the clangour was excessive. Krishana and Arjuna,
standing in a splendid chariot drawn by white horses,
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also dignifies it, as Virgil did the Po, with the title of Fluviorum Rex. Spencer too celebrates

"The spacious Shannon spreading like a sea."

And other poets have been eloquent in describing its majestic course, holy islands, and sublime scenery; but geographers are, in general, very brief, and sometimes contradictory in their accounts of this river. They do not even agree as to its source. According to Camden and Ware it rises in Slieve-carrtron, (i.e. the mountain of iron mines,) in the county of Leitrim; but Gough and Ferrar make it spring from the plains of Quilka, in the county of Cavan. Again, Dr. Beaufort says, Lough Clean is the fountain-head; while Boade, Pinkerton, and most other writers on the subject, make it Lough Allen. These differences, however, may be in some measure reconciled by observing, that Lough Allen receives the waters of the other sources above-mentioned, and that the Shannon does not take its name until it has passed this lake. As it is likewise the receptacle of most of the other current waters of the surrounding country, every stream that falls into it may claim some share in the disputed honour; but Lough Clean has the highest title, as contributing most largely by means of the river Duff. Lough Allen is nearly in the centre of the county of Leitrim; it is about twenty square miles in extent, and in some parts is said to be unfathomable. From this grand resevoir and copious spring, the Shannon falls in great force at a place called Balatana. The direction, at first, is south and south-east, dividing the provinces of Leinster and Munster from Connaught. It passes Limerick, where it turns nearly to the west, and, sixty miles below this city, falls into the Atlantic ocean, between Kerry Head and Cape Lean, after a course of two hundred miles. It is navigable nearly to Limerick for ships of the greatest burden, and for smaller vessels throughout the whole extent of its course.

This noble river traverses several large lakes, and forms many extensive bays and estuaries, interspersed with beautiful islands. It receives above thirty other rivers in its course, and diffuses verdure and fertility over the banks of ten counties; namely, Leitrim, Roscommon, Galway, and Clare, on the right; and on the left, Longford, Westmeath, King's County, Tipperary, Limerick, and Kerry.

The principal towns situated on its banks are Leitrim, Carrick, Jamestown, Laneborough, Athlone, Banagher, Portumna, Killaloe, Calféconnel, Tarbert, and Kilrush; besides the city of Limerick, which it accompanies by different branches, and in some measure inflates.

The largest lakes which it passes through are, Lough Bofin, Lough Ree or Reghit, and Lough Derg or Dergart. The first, which is about ten square miles in extent, is situated at the confines of the counties of Leitrim, Longford, and Roscommon. Lough Ree extends nearly from Laneborough to Athlone, a distance of about sixteen miles, and is from two to five miles in breadth. It contains above fifty islands, many of which are covered with wood and good pasturage. Lough Derg is eighteen miles long, and from two to seven broad. It is divided into about sixty islands, one of which, called Innismore, contains above a hundred acres of good land; and on another, called the Holy Island, are the ruins of seven churches, and a round tower. This lake extends nearly from Portumna to Killaloe. There is also below Limerick, at the confluence of the Fergus river, an immense estuary, or firth, of many square miles in extent, interspersed with several rich and romantic islands.

The principal rivers that fall in from the right bank, or Connaught side, are the Key, Suck, Scariff, and Fergus. The confluence of the Key is at Carrick, and the Suck, which divides the counties of Roscommon and Galway, flows in at Conlerton above Banagher. Several smaller rivers fall in from the county of Galway; and from Clare flow the Scariff and Fergus; but the great weight of water comes from the other side by rivers running from east to west, which, it may be remarked, is different to the usual course in other parts of the world. The Inny is the first great river on the left bank: it is the boundary between the counties of Longford and Westmeath, and falls into Lough Ree, where it forms a large estuary. The second river on this side is the Great Broña, which forms a fine confluence with the Shannon above Banagher; and the Lesser Broña, united with the Birr river, falls in a few miles below that town. From hence to Limerick many smaller rivers flow in on the Ormond side, and below that city there are some larger ones: the principal are the Magy, Doel, Ovan, Cummage, Feak, Gare, and Caheen. Several of the above are navigable to a considerable distance from the Shannon.

From such an accumulation of rivers, lakes, and springs, the mouth of the Shannon is increased to an immense magnitude, being nearly ten miles in breadth, for the last fifteen miles, and from twenty to thirty fathoms deep. It is not only larger than any other insular river, but discharges much more water into the ocean than any continental stream whatever, running from a distance as two hundred miles. Camden seems to credit a tradition, commonly believed in his time, of a gradual increase in the number and fize of the lakes and rivers of Ireland. The supposition is curious, and may not be wholly unfounded.

As the Shannon from Limerick to the ocean is of great and increasing importance to the commercial world, we shall here give some particulars of its navigation from an hydrographical survey lately made. The distance is above sixty English miles, and the bearing nearly W. by S. The breadth of the river is various. If the length has been divided into three parts, the first will be from one to three miles broad; the middle division increases to about five, and the third to seven miles in breadth. The foundings of the mouth have been already mentioned: they decrease towards Limerick; but in all parts the river is of considerable depth, and is remarkable for its transparency.

The tides in the mouth of the Shannon rise from nine to fourteen feet perpendicular height; and they increase as the river becomes narrower, in remoteness that at the pool of Limerick, they are from twelve to twenty feet high. The current of the tide varies considerably in different parts of the stream, running at the rate of from two to five miles an hour. It is not, however, perceptible far above the city, owing to several cataracts.

There are many fine bays on the Clare side, which afford safe anchorage and good shelter for shipping. The principal are Kilbanah, Carigahault, Clonderla, and Lobheeda, besides the commodious harbour of Poolinishary, near Kilrush, and Tarbert bay on the Kerry side. It may be mentioned, that Kerry Head, also called Ballyheigh Point, is a long and narrow promontory; and that Cape Linn, or Loop Head, on the other side, is still narrower: having at its extremity a light-house, in lat. 52° 30', W. long. 10° 20'.

The navigation between the Upper and Lower Shannon was formerly impeded by the noted cataract near Calféconnel, called the Salmon's Leap, but of late years canals have been drawn round this rock as well as others called the Falls.

An important communication has been likewise opened between the Shannon and Dublin by means of the grand canal, which
which forms its junction at Beneleigh. (See our article Canal.) It may be observed, that the Shannon nearly bisects Connaught with the county of Clare; and that if a canal, of about four miles in length, were cut from Lough Clew to the river Bannet, which falls into Sligo bay, the inter mountain boundary would be complete, and the Shannon rendered navigable from sea to sea.

The bridges over this river are chiefly at the forementioned towns, but there are none below Limerick. In this city there are three, one of which, called Thomond bridge, contains fourteen arches; and about ten miles higher is O'Brien's bridge, which has nineteen arches.

The fisheries on the Shannon are numerous and productive, particularly for salmon, which is of the finest flavour. Mr. Arthur Young, in his Tour through Ireland, p. 359, observes of this river, that besides affording all sorts of wild fowl, the quantity and size of its fish are amazing. Pikes swarm and rise to the weight of colts each. Trout, bream, eel, gillarous, &c. are large and abundant, and perch are so plentiful, that, in some years, the poor almost live upon them. It may be added, that not only river fish, but even such as are generally denominated pond and lake fish, abound here; so that what Spenser says of the Trent may be truly applied to the bounteous Shannon, which

About itself enfeumes
Both thirty forts of fish, and thirty furnryreames.

The Shannon forms a very important subject in the ancient history of Ireland. Ptolemy mentions three large cities on its banks, called Regia, Macedicus, and Regia Altera. But his editors, Mercator and Ortelius, do not exactly agree in their maps as to the situations, and no vellages remain to settle the question. The general opinion is, that Regia was on the east side of Lough Ree, and the names correspond, as Ree signifies a king, in the Irish language. Macedicus is supposed, from the name, to have been at McLick, a village in the county of Galway, and Regia Altera at or near Limerick.

This river was of great political and military use before the English power was established in Ireland. It long served as a barrier between the territories of provincial kings, and not infrequently was the scene of naval engagements, particularly below Limerick. The following curious instance is recorded in the Annals of Munster, and quoted by Archdall. "This year (1665), Hugh O'Rueark, king of Brefine, in company with Thady O'Reily, king of Maine, were defeated by Hugh O'Connor, king of Connaught, who totally overthrew their whole army, and funk and disperfed their fleet on the Shannon." (Monachial Hibernicum, p. 280.) Even in modern times this river has been occasionally found of great military importance. See our articles Athlone, and Limerick.

The islands on the Shannon add an interesting feature to the history of the early progress of Christianity in Ireland; particularly from the fourth to the eighth century, when that country enjoyed a repose unknown on the continent, and was famed for the "Infusa Sacra et Salbitorus," or, to use the words of Dr. Johnston, "the pious and hospitable school of the west." During that period many of those islands were dedicated to the service of religion, and numerous vellages still are seen in the remains of churches, abbeys, and other monastic institutions. The holy island in Lough Derg has been already noticed, and there are many others of a familiar description, which are still held in pious veneration by the multitude, and are much resorted to on certain festivals. We shall mention only another, which is Inisnáit, in the mouth of the Shannon, about twenty miles from the ocean, and which is thus described by Archdall, p. 49.

"On the rich and beautiful island of Scattery, are the ruins of a monastery dedicated to St. Simon, who founded here an episcopal see for about the time of St. Patrick. There are like wise the ruins of seven churches, out of eleven which existed in Queen Elizabeth's time. An ancient round tower of one hundred and twenty feet in height, and in complete repair, rese the town." For a more particular account of their "Infusa Sacra Sena," see O'Goghty's Céad Mile Feirste Uilte, Wilton, Archdall, &c.

The views of the Shannon are in many parts highly picturesque and sublime. We shall fly resume the terriee of our country is from a beautiful hill in Lower Ormond, called Knocknagown, viz. O'Neill's hill, so named as being the Sacred residence of O'Shaugh, Spencer's Fairy Queen. From this eminence the river is seen to an extent of nearly twenty miles, apparently descending in its course. The second is from the admired ruins of Carrick O'Gumel, beyond Limerick; and the third from Knockpatrick, a lofty hill in the same county, and much nearer to the sea. It is celebrated by several writers as commanding the most grand and interesting prospect that can be imagined both of the river and the sea. Among these authors may be mentioned Necharm, an English poet and divine of the twelfth century, whose verses on the Shannon are thought worthy of quotation by Camden, and which we shall here transcribe, annexing a free translation.

"Fluminibus magnis lactatur Hibernia, Sine Rea
Inter Connatiun, Momomamque fluit.
Transit per muros Limerici, Nocm Patrce illium
Oceanu claustrum sub ditione videri."

"Amid majestic streams, Hibernia's pride,
The noble Shannon bids her plains divide.
Leinster and Munster to the callward bear,
With Connaught to the right, and lofty Clare;
By Limrick's walls he rends his lordly way,
While tributary streams their homage pay.
Till proud Knockpatrick views, from Deimond's coast,
This world of waters in the ocean loth!"

SHANNON, a river of Canada, which runs into the N.E. part of lake Ontario.

SHANSCRIT, Sanscrit, Samserit, Sanscrotam, or Hanseecrit language, is the original language of the Hindoos and Gentoos, in which their Shaffish, or Shaffer, is written, &c. The grand source of Indian literature, the parent of almost every dialect, from the Persian gulf to the China seas, says the learned Halhed, in the Preface to his Grammar of the Bengale Language, is the Shanseerit; a language of the most venerable and unfashionable antiquity, which, although at present flut up in the libraries of Brumis and appropriated solely to the records of their religion, appears to have been current over most part of the oriental world; and traces of its original extent may still be discovered in almost every district of Asia. It is apparent to find the finitude of Shanseerit words with those of Persian and Arabic, and even of Latin and Greek; and those not in technical and metaphorphical terms, which the fluctuation of refined arts and improved manners might have occasionally introduced; but in the main ground-work of language, in monosyllables, in the names of numbers, and in the appellations of such things as would be first discriminated in the immediate dawn of civilization. The coins of Assam, Nau- paul, Cashmire, and many other kingdoms, are all stamped with
with Shanfcrit letters, and mostly contain allusions to the old
Shanfcrit mythology: the fame conformity is also observa-
table in the imprefions of feals from Boothan and Tibet.
Befides, the arrangement of the Shanfcrit alphabet is very
different from that of any other quarter of the world.
This extraordinary mode of combination still exists in the
greater part of the Eaft, from the Indus to Pegu, in dialects
now apparently unconnected, and in characters completely
diffimilar; and affords a forcible argument that they are
all derived from the fame fource. Moreover, the names of
perfons and places, of titles and dignities, which are open to
general notice, and which are found even to the furthest
limits of Asia, prefent manifold traces of the Shanfcrit.
Another circumstance deferves to be mentioned, and that is,
that the raja of Khfenagur, a very learned and able anti-
quary of Bengal, affirmed, that he had in his own poffeffion
books which give an account of a communication formerly
fubfifting between India and Egypt, in which the Egyptians
are described as disciples, and not as instructors; and as
seeking that liberal education and thofe fciences at Hind-
doflaffi, which none of their own countrymen had fufficient
knowledge to impart. But though thefe feveral proofs of
the former prevalence of the Shanfcrit are now thinfly ftrent-
ted over an immense continent, and interconfedered with an
infinte variety of extraneous matter, arizing from every
poftible revolution in the manners and principles of the
nation: as an example, or by turns cultivated or deftroyed it;
that part of Asia, between the Indus and the Ganges, still pre-
ferves the whole language pure and inviolate; thefe offer a
thousand books to the perusal of the curious, many of
which have been religiously handed down from the earlick
periods of human existence.

H. T. Colebrooke, eqq. has given us in the Aflatic Re-
searches (vol. vii. p. 199, &c.), a literal tranflation of two
paffages cited from a treatife on rhetoric, compiled for the
ufe of Manieya Chandra, raja of Trabhuhtti, or Tirhut, in
which are enumerated the languages ufed by Hindoo poets.
The fift is as follows: “Sanfcrita, Pracrita, Paifachi, and
Magadhi, are in fhort the four paths of poetry.” The
gods, &c. speak Sanfcrita; benevolent genius, Pracrita;
wicked daemons, Paifachi; and men of low tribes and the
reft, Magadhi. But fages deem Sanfcrita the chief of
these four languages. It is ufed three ways: in profe, in
verfe, and in a mixture of both.” Again, “Language,
the virtuous have declared to be fourfold, Sanfcrita, or
the polished dialect; Pracrita, or the vulgar dialect;
Apabranja, or jargon; and Mifra, or mixed. Sanfcrita
is the fpeech of the celeftials, framed in grammatical in-
fluences; Pracrita is similar to it, butmanual as a pro-
vincial dialect; and otherwife, and thofe languages which
are ungrammatical, are spoken in their repective diftricts.”
The Paifachi, fays Mr. Colebrooke, seems to be gibberifh,
which dramatic poets make the daemons speak, when they
bring these fantaftic beings on the fstage. The mixture of
languages, noticed in the fefond quotation, is that which
is employed in dramas, as is expressly faid by the fame
author in a fubfrequent verfe. It is not then a compound
language, but a mixed dialogue, in which different perfonals
of the drama employ different idioms. Both the paffages
above quoted are therefore eafily reconciled. They, in
fact, notice only three tongues. 1. Shanfcrit, a polished
dialect, the inflexions of which, with all its numerous
anomalies, are taught in grammatical infiuences. This the
dramatic poets put into the mouths of gods and of holy per-
fonages. 2. Pracrita, conflufing of provincial dialects, which
are lefs reined, and have a more imperfect grammar. In
dramas it is spoken by women, benevolent genius, &c.

3. Magadhi, or Apabranja, a jargon deftinate of regular
grammar. It is ufed by the vulgar, and varies in different
diftricts: the poets accordingly introduce into the dialogue
of plays a provincial jargon, fpoken by the lowest perfonal
of the drama.

Sanfcrita is the passive particle of a compound verb,
formed by prefixing the preposition gam to the crude verb
ciri, and by interpofing the letter s, when this compound
is ufed in the feme of embellishment. Itsliteral meaning
then is “adored,” and when applied to a language, it
signifies “polifhed.” Pracrita is a familiar derivative from
the fame crude verb, with pra prefixed: the most common
acceptation of this word is “outcast, or man of the lowest
class;” as applied to a language, it signifies “vulgar.”
Apabranja is derived from braja, to fall down: it signifies
a word, or dialect, which falls off from correct etymology.
Grammarians ufe the Sanfcrita as signifying “daily formed
or regularly infiuled;” and Apabranja for false grammar.
The languages of India are all comprehended in these
three categories. The first contains Shanfcrit, a moft polifhed
tongue, which was gradually refined until it became fixed
in the clasfes of the writings of many elegant poets, moft of whom
are reputed to have flourifhed in the century preceding the
Christian era. It is cultivated by learned Hindoos throughout
India, as the language of science and of literature,
and as the repository of their law, civil and religious.
It evidently draws its origin (and some steps of its pro-
gress may even now be traced) from a primeval tongue,
which was gradually refined until it became fixed
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and as the repository of their law, civil and religious.
It evidently draws its origin (and some steps of its pro-
gress may even now be traced) from a primeval tongue,
The Shanscrit

Shanscrit.

ordinate length; the whole sentence too, or even whole periods, may, at the pleasure of the author, be combined like the elements of a single word, and general rules do not apply. None but well-known compounds would be used by any speaker who wished to be understood, and each word would be distinctly articulated, and definitely of the terms which precede and follow it. Such indeed is the present practice of those who still speak the Shanscrit language; and they deliver themselves with such fluency as is sufficient to prove, that Shanscrit may have been spoken in former tunes as much facility as the contemporary dialects of the Greek language, or the more modern dialects of the Arabic tongue.

The father of Shanscrit grammar, who first composed those grammatical inutiles in which this language is formed, or by which words are correctly formed or inflected, was Panini, who lived in the remote age, that he ranks among those ancient sages, whose fabulous history occupies a conspicuous place in the "Puranas," or Indian theogonies. According to the Panarica legends, Panini was the grandson of Devala, an inspired legislator; but whatever may be his history, to him the Sutras, or fanciful aphorisms of grammar, are attributed by universal consent.

His mystic is grounded on a profound investigation of the analogies in both the regular and the anomalous inflections of the Shanscrit language. He has combined those analogies in a very artificial manner; and has thus composed a most copious etymology into a very narrow compass. His precepts are indeed numerous, but they have been framed with the utmost care; and this great brevity is the result of very ingenious methods which have been contrived for this end, and for the purpose of afflicting the student's memory. In Panini's system the mutual relation of all the parts marks that it must have been completed by its author; it certainly bears internal evidence of its having been accomplished by a single effort, and even the corrections, which are needed, cannot be interwoven with the text. It must not be hence inferred, that Panini was unaided by the labours of earlier grammarians; in many of his precepts he cites the authority of his predecessors, sometimes for a deviation from a general rule, often for a grammatical canon which has universal cogency. He has even employed some technical terms without defining them, because, as his commentators remark, those terms were already introduced by earlier grammarians. None of the more ancient works, however, seem to be now extant; being superseded by his, they have probably been diffused for ages, and are now perhaps totally lost.

The inaccuracy of the Paniniana grammar were corrected by Catayana, an inspired saint and lawyer, whose history is involved in the impenetrable darkness of mythology. The amended rules of grammar have been formed into a memorial verity by Bhartrihari, whose metaphysical aphorisms, entitled "Carica," have almost equal authority with the precepts of Panini, and emendations of Catayana. Bhartrihari is said to have lived in the century preceding the Christian era. The text of Panini being concise and ambiguous, many commentators were composed to elucidate it, of the chief of which Mr. Colebrooke has given an account. The brief and most concise commentary now extant, is entitled the "Carica vritti," or commentary composed at Varanasi. Within a few centuries past, a grammar, well adapted for aiding the student in acquiring a critical knowledge of the Shanscrit tongue, has been compiled by Rama- chandra, entitled "Pracriyacacumudi."

When Shanscrit was the language of Indian courts, and was cultivated not only by persons who devoted themselves to religion and literature, but also by princes, lawyers, doctors, physicians, and sages; in short, by the first three classes, and by many classes included in the four; an easy and popular grammar must have been needed by persons who could not waste the best years of their lives in the study of words. Such grammars must always have been in use; but, however, which are now studied are not, we believe, of very ancient date. The most esteemed is the "Saraswata," together with its commentary named "Chandra.

It seems to have been formed on one of the Caumudis by translating Panini's rules into a language that is intelligible, independently of the gloss, and without the necessity of referring to a different context.

Another popular grammar, which is in high repute in Bengal, is entitled "Mugdhob'dha," and is accompanied by a commentary. It is in the work of Vepadeva, and proceeds upon a plan grounded on that of the Caumudis; but the author has not been content to translate the rules of Panini, and to adopt his technical terms. He has, on the contrary, invented new terms, and contrived new abbreviations. The same author likewise composed a metrical catalogue of verbs alphabetically arranged. It is named "Caviclatapruma," and is intended as a substitute for the "Dhatupata."

The best and most esteemed vocabulary of the Shanscrit is the "Amera cola," which, like most other Shanscrit dictionaries, is arranged in verse to aid the memory. Numerous commentaries have been written on this vocabulary; the chief object of which is to explain the derivations of the nouns, and to supply the principal deficiencies of the text. Shanscrit etymologists carefully acknowledge a single primitive amongst the nouns. When unable to trace an etymology which may be consistent with the acceptation of the word, they are content to derive it accordingly as grammatical rules from some root to which the word has no affinity in sense. At other times they adopt fanciful etymologies from Puranas or from Tantras. But in general the derivations are accurate and instructive.

Amera's dictionary does not contain more than ten thousand different words. Yet the Shanscrit language is very copious. The insertion of derivatives, that does not at all deviate from their regular and obvious import, has been very properly deemed superfluous. Compound epithets, and other compound terms, in which the Shanscrit language is peculiarly rich, are likewise omitted; excepting such as are especially appropriated, by a limited acceptation, either as titles of deities, or as names of plants, animals, &c. In fact, compound terms are formed at pleasure, according to the rules of grammar; and must generally be interpreted in strict conformity with those rules. Technical terms too are mostly excluded from general dictionaries, and confined to technical nomenclatures. The "Amera colin" then is less defective than might be inferred from the small number of words explained in it. Still, however, it needs a supplement. The remaining deficiencies of the Amera colin are supplied by consultative, or easier dictionaries and vocabularies, which are very numerous.

The Shanscrit language is very copious and vigorous; but the style of the best authors wonderfully concise. It far exceeds the Greek and Arabic in the variety of its etymology, and, like them, has a prodigious number of derivatives from each primary root. The grammatical rules are also numerous and difficult, though there are not many anomalies. "The Shanscrit language," says Sir William Jones, (Aiat. Ref. vol. i. p. 422), "whatever be its antiquity, is of a wonderful structure, more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either; yet bearing to both of them a stronger affinity, both
both in the roots of verbs, and in the forms of grammar, than could possibly have been produced by accident; so strong, indeed, that no philologer could examine them all three without believing them to have sprung from some common source, which, perhaps, no longer exists. There is a similar reason, though not quite so forcible, for supposing that both the Gothic and the Celtic, though blended with a very different idiom, had the same origin with the Shanfcrit, and the old Persian might be added to the same family."

The fundamental part of the Shanfcrit language is divided into three classes; viz. dhat, or roots of verbs, *fiubhi, or original nouns, and *srya, or particles. The latter are always indeclinable, as in other nations; but the words comprehend in the two former classes must be prepared by certain additions and inflections to fit them for a place in composition. Here the art of the grammarians interposes, as not a syllable, nor a letter, can be added or altered but by regimen; nor the most trifling variation of the sense in the minutest subdivision of declension or conjugation be effected without the application of several rules; and all the different terms for every change of gender, number, case, person, tense, mood or degree, are methodically arranged for the assistance of the memory; resemblying, though on an infinitely more extensive scale, the compilations of *propria que maribus and in present.

In the Shanfcrit language, the three distinctions of genders, viz. masculine, feminine, and neuter, are preferred in their common number and order. A Shanfcrit noun, in its first formation from the general root, exists equally independent of case as of gender. It is neither nominative, nor genitive, nor accusative, nor is it imprefied with any of those modifications, which mark the relation and connection between the several members of a sentence. In this state it is called an imperfect, or crude noun. To make a nominative any noun, the termination must be changed, and a new form supplied. Thus we see that, in the Shanfcrit at least, the nominative has an equal right with any other inflexion to be called a case. The Shanfcrit has seven declensions of nouns, which are all used in the singular, dual, and plural number, and differently formed, as they terminate with a confonant, and with a long or short vowel; and also as they are of different genders. The seven changes of inflexion are exclusive of the vocative, and therefore the Shanfcrit comprehends two more than even those of the Latin: they are as follow, viz. 1. The nominative, or *agent in a sentence; 2. The passive case, or subjunct of the action; 3. The causal case, pointing out the cause by which a thing is done; or the instrument with which it is done; or the subject in or by which it is suffered; 4. The dative, with the sign to or for; 5. The ablative, implying the subject from whence any thing proceeds; 6. The possessive case, called by us, the genitive; 7. The locative case, different of situation, and generally known by the sign in. The vocative is excluded from the number of cases, as no inflexion is employed in its formation.

The Shanfcrit, the Arabic, the Greek, and the Latin verbs are furnished with a set of inflexions and terminations fo comprehensive, and so complete, that by their form alone they can express all the different distinctions both of person and time. Three separate qualities are in them perfectly blended and united. Thus by their root, they denote a particular act; and by their inflexion, both point out the time when it takes place, and number of the agents. Every Shanfcrit verb has a form equivalent to the middle voice of the Greek, used through all the tenses with a reflexive sense; and the former is even the most extensive of the two in its use and offices; for in Greek the reflexive idea can only be adopted introactively, when the action of the verb descends to no extraneous subject; but in Shanfcrit the verb is both reciprocal and transitive at the same time. The verbal substantive of the Shanfcrit very nearly resembles those of the Greek and Latin; but perhaps it would not be suspected that all the verbs in *mi are formed exactly upon the same principle with the Shanfcrit conjunctions, even in the minutest particulars. All the terms which serve to qualify, to distinguish, or to augment either *substance or action, are called by the Shanfcrit grammarians under a head, literally signifying infixed or addition. According to this arrangement, a single sentence consists of three numbers: the agent, the action, and the subject; which, in a grammatical sense, are reduced to two, viz. the noun (whether agent or subject) and the verb. All such words as tend to specificate or to amplify the noun, are denominated by a term, which signifies *adjectives or *epithets; and such as are supplied to define must be relation or connection, are called *consonants of nouns, and by European grammarians, *propositions: those particles which in any manner affect the verb are denominated *attributes of verbs.

The Shanfcrit alphabet contains fifty letters; and it is one boast of the Bramins, that it exceeds all other alphabets in this respect. But when we consider that of their thirty-four consonants, nearly half are combined sounds, and that fix of their vowels are merely the correspondent long ones to as many which are short, the advantage seems to be little more than imaginary. The Shanfcrit character, used in Upper Hindoostan, is said to be the same original letter that was first delivered to the people by Brihima, and is called Dzdnagar, or the language of angels; whereas the character used by the Bramins of Bengal is by no means so ancient, and is evidently a corruption of the former. In the four beids, or vedas, which constitute the original and facred text of the great Hindoo creator and legislator Brihima, the length of the vowels is expressed by a musical note or sign placed over every word; and in reading the beids, their distinctions of tone and time must be observed; so that they produce all the effect of a laboured recitative. It is remarkable, that the Jews in their synagogues chant the Pentateuch in the same kind of melody, and it is supposed that this usage has defended itself from the remotest ages. Some writers have erroneously asserted, that the four beids are in verse; whereas they are written in a kind of measured prose; and they are now scarcely intelligible to the most learned pundits or lawyers; they are also scarce, and difficult to be found. However, comments have been written upon them from the earliest periods; of which one of the most ancient and approved was composed by Bifeft Mamamome, or the Moll Wife, a great writer and prophet, who is said to have lived in the futfte jogue, or firit age of the world. See Halihed's Pre- face to his translation of the Code of Gento Laws, printed in 1776.

Dr. Leyden, in his account of the languages and literature of the Indo-Chinese nations, (AsiaU. Researches, vol. x.) has shewn, that the "Pali," as it is generally written, or "Bali" language, as it is commonly pronounced, occupies the same place among the Indo-Chinese nations, which Shanfcrit holds among the Hindoos, or Arabic among the followers of Islam. Throughout the greater part of the maritime countries, which lie between India and China, it is the language of religion, law, literature, and science; and has had an extensive influence in modifying the vernacular language of those regions. La Loubere, on the authority of d'Hercbelot, has stated that the ancient Peric language was termed Paahalvi (Pahalvi), and that the Persians do not distinguish in writing between Pahali and Bahali. P. Paulinus, however, applies this term Bali inaccurately to the square Bali character, instead
SHANSCRIT.

of the Language. This Language, notwithstanding its exten-
tive use among so many nations, and the degree of culti-
vation which it has received from the different tribes by
which it is employed, has hitherto attracted little attention
among Europeans. The 'Bali alphabet, according to Dr.
Leyden, seems, in its origin, to be a derivative from the
Devanagari; though it has not only acquired considerable
differences of form, but has been also modified to a certain
degree, in the power of the letters, by the monosyllabic
pronunciation of the Indo-Chinese nations. The form of
the Bili character varies essentially among the different
nations by which it is used.

The Bili is an ancient dialect of Shanscr, which some-
times approaches very near the original. When allowance
is made for the regular interchange of certain letters, the
elision of harsh consonants, and the contraction of similar
syllables, all the vocables which occur in its ancient books,
seem to be purely Shanscr. In Claritas and later composi-
tions, however, some words of the popular languages of
the country sometimes imitate themselves, in the same
manner as Tamil, Telunga, and Canara vocables occasionally
occur, in the later ShanScr compositions of the Deekhin.
The Bili, while it retains almost the whole extent of
ShanScr flexions, both in nouns and verbs, nevertheless
employs this variety rather sparingly in composition, and
affects the frequent introduction of the preterite partici-
ple, and the use of imperforal verbs. It also uses the
cater of nouns in a more indeterminate manner than the
ShanScr, and often confounds the active, neuter, and pas-
tive tenses of verbs. Like other derivative dialects, it occa-
sionally uses ShanScr nouns and participles in an oblique
fence; but notwithstanding all these circumstances, it ap-
proaches much nearer the pure ShanScr, than any other
dialect, and exhibits a close affinity to the Prakrit, and the
Zend.

These three dialects, the Prakrit, the Bili, and the
Zend, are probably the most ancient derivatives from the
ShanScr. The great mass of vocables in all the three,
and even the forms of flexions, both in verbs and nouns,
are derived from the ShanScr, according to regular laws of
elision, contraction, and permutation of letters. Some-
times, in purifying these analogies, they nearly coincide,
sometimes they differ considerably, sometimes one, and
sometimes another of them approaches nearest to the origi-
nal ShanScr. Their connection with this parent language
was perceived, and pointed out by Sir W. Jones, and has
also been alluded to by P. Paulinus, who derives his infor-
mation concerning the Bili, from Carpanus and Mante-
gatus. The fate of these three languages is also, in some
degree, similar. The Prakrit is the language which con-
tains the greater part of the sacred books of the Jains;
the Bili is equally revered among the followers of Buddh'ia;
while the Zend, or sacred language of ancient Iran, has
long enjoyed a similar rank among the Parisis or hostsprers
of fire, and been the repository of the sacred books of Zo-
readers. It is perhaps, however, more accurate to consider
all the three, rather as different dialects of the same derived
language, than as different languages; and conformably
to this idea, the Bili itself may be reckoned a dialect of
Prakrit. The term Prakrit, both in books, and in common
use among the Brahmis, is employed with some degree of
latitude. Sometimes the term is confined to a particular
dialect employed by the Jains, as the language of religion
and science, and appropriated to females, and respectable
characters of an inferior class, in drama. Sometimes it
includes all the dialects derived immediately from the Shan-
Scr, whether denominated Prakrit, Magadhi, Suratien,
Paisali, or Apabhraasta; and sometimes it is even extend-
ed to the Dei b'hishki, or popular tongues of India, as
Marathit or Maharrta, Canara, Telunga, Udha and Ben-
gali. According to the extended use of the term Prakrit, it
can certainly include both Bili and Zend; and if more ex-
tensive research should justify the idea derived from an
imperfect investigation, Dr. Leyden apprehends that the Bili
may be identified with the Magadhi, and the Zend with
the Surati, or ShanScr authors. These three dialects, the Prakrit, Bili, and Zend,
have been regularly cultivated and fixed by composition.
The same laws of derivation are applicable to the forma-
tion of all the three; but yet there is often considerable
diversity in the forms which particular words assume, as
appears from the comparative specimen given by Dr. Ley-
den.

The learned Mr. Colebrooke has published in the 1oth
volume of the Asiatic Researches, an elaborate essay on
ShanScr and Prakrit poetry. He observes, that the profusy
of ShanScr will be found, from the examples which he has
adduced, to be richer than that of any other known language,
in variations of metre, regulated either by quantity or by
number of syllables, both with and without rhyme, and
subject to laws imposing in some instances rigid restric-
tions, in others allowing ample latitude. The rules relative
to Prakrit profody, are applicable, for the most part, to Shan-
Scr profody also; since the laws of verification in both
languages are nearly the same.

ShanScr profody admits of two sorts of metre; one
governed by the number of syllables; and which is mostly
uniform or monoschematic in profuse poetry, but altogether
arbitrary in various metrical passages of the Vedas. The
other is in fact measured by feet, like the hexameters of the
Greek and Latin; but only one sort of this metre, which is
denominated Arya, is acknowledged to be so regulated;
while another sort is governed by the number of syllabic
inflants or matras.

The most common ShanScr metre is the stanza of four
verses, containing eight syllables each; and denominated
from the name of the class "Aumshihth," for an account of
which, and of other kinds of metres, we refer to fuller
books.

The ShanScr writers notice different species of prose. They discriminate three and even four sorts, under distinct
names. 1. Simple prose, admitting no compound terms.
It is denominated "Mukta." This is little used in polished
compositions; unless in the familiar dialogue of dramas.
It must undoubtedly have been the colloquial style, at
the period when ShanScr was a spoken language. 2. Prose,
in which compound terms are sparingly admitted. It is
called "Culaca." This and the preceding sort are by some
considered as varieties of a single species named Churnica.
It is of course a common style of composition; and, when
polished, is the most elegant as it is the chastest. But it
does not command the admiration of Hindoo readers.
3. Prose abounding in compound words. It bears the
appellation of "Uchchaca praya." Examples of it exhibit
compounds of the most inordinate length; and a single
word exceeding a hundred syllables is not unprecedented.
This extravagant style of composition, being useful to
the taste of the Indian learned, is common in the most ela-
borate works of their favourite authors, 4. Prose modu-
lated so as to frequently exhibit portions of verse. It is
named "Vratacandithi." It will occur without study, and
even against design, in elevated compositions; and may be
expected in the works of the best writers.

Some of the most elegant and highly wrought works in
prose are reckoned among poems, as already intimated, in
like
like manner as the “Telemachus” of Fenelon and “Tod Abdal” of Gellner. The most celebrated are the “Vafavardatta” of Subandhu, the “Dafa Cumara” of Dandi, and the “Cadambri” of Vana.

For a further account of the Shanferit, see Language of Bengal, or Bengal. Exclusive of the Shanferit, there are three different dialects in the kingdom of Bungal, viz. the Pherian, the Hindooftan, and the proper Bengal. See Persia and Pers. Language, Hindoostanee, and Bengal.

SHAN-SI, in Geography. See Shan-si.

SHAONA, a town of Egypt, on the W. coast of the Red Sea; 90 miles S.S.E. of Coiffe.

SHAOUMRE, a town of Arabia, in the province of Hedjjas; 25 miles from Calaat el Moolah.

SHAOUN, a town of Arabia, in the province of Hedjas; 45 miles S. of Jambo.

SHAPARY, a town of Hindooftan, in the circuit of Gangpou; 20 miles S. of Padi.

SHAPE, Inflammation of, among neat cattle, an affection in cows, arising from the hot weather after taking the bull; and which is shown by a swelling of the parts with boils or eruptions. It is observable by the animal rubbing her hind parts in the hedges, &c. In the cure Mr. Downing advises, after free bleeding, the following: Nitre in powder, two ounces; cream of tartar, three ounces; Cattle soap, one ounce; and aniseed powder, one ounce; which are to be mixed for a dose, and to be given in a quart of warm whey, repeating them as there may be occasion.

To Shape the Coursie, in Sea Language, is to direct or appoint the track of a ship, in order to prosecute a voyage.

SHAPINSAY, in Geography, one of the Orkney islands, Scotland, is situated to the N. of the Mainland of Orkney, at the distance of three miles from Kirkwall, the capital of all the islands. It measures about seven miles in length and five in breadth, and formerly constituted part of the territorialities of the bishopric of Orkney. Almost the whole of it is capable of cultivation; but a great part yet remains in a neglected state, to the detriment, as well as the disgrace of the proprietors. Nevertheless, sufficient grain is raised for the supply of the inhabitants. Kelp is produced in great abundance, and is much used as a manure. Lead ore is likewise abundant in the south-west corner of this island, and was for some time wrought, but the work is now entirely abandoned.

In common with most of the Orkney islands, Shapinsay exhibits some monuments of antiquity; among these may be reckoned, besides several Popish chapels, a numerous collection of Pits-house ranged along the shores, like so many forts, together with tumuli, or barrows, in various situations. A monumental stone of large dimensions raises its venerable head in a plain near its eastern extremity; and on the northern shore is the stone Odin.

To the south of Shapinsay, at the distance of a furlong, is situated the beautiful islet of Elgar or Ellerholm, which bears evident traces of former habitation, and of having been, at no very distant period, attached to the principal island. At present it furnishes pasture for a number of sheep and young cattle during summer, and serves to give, by its favourable position, the utmost security to the harbour of Elwick, which is one of the finest in the Orkneys.

Barry's History of the Orkney Islands, 2d edit. by J. Headrick, London. 1808.

SHAPLEIGH, a poht-town of America, in Massachusetts, in the province of Maine, incorporated in 1785; 108 miles N. of Bollten.

SHAPPOOTA HILLS, a mountainous ridge of Hindooftan, between the Nerbuddah and Taptot; 60 miles E. of Surat.

SHAPORA, a town of Hindooftan, in the circuit of Rantamper; 45 miles W. of Rantamper.

SHAPOUR, a city of Persia, in the province of Fariftan, is said to have been originally founded by Taimur Devehund, who called it Deen Dar; it was destroyed by Alexander the Great, and subsequently built by Sapor, the son of Artaexerxes Babgan, who named it after himself. The ruins of this ancient city are distinct about 16 miles from Kazeroun; and if we may form an idea from the breadth and circumference of the ramparts, and the remains of some other public buildings, it must have been a city of great extent and magnificence. It is situated immediately on the eastern range of mountains, on the banks of a small but rapid river, and in a wild, romantic spot, amidst rocks and precipices, many of which are decorated with pieces of sculpture similar to those near Persepolis, for a description of which we refer to Kinners Memoir of the Persian Empire, p. 66. The hills in the immediate vicinity of these ruins appear to have been formerly fortified; and an extraordinary cavern, farther up the river, has given rise to many fabulous stories.

SHAP, an island in the Chepapeak; 27 miles S.S.E. of Annapolis. N. lat. 38° 40'. W. long. 70° 25'.

SHAR, or SHEAR-HOG, in Agriculture, a term signifying a yearling sheep, which has been once shorn. The name lamb-hog. See Sheep.

SHARAF BENI GATE, in Geography, a town of Arabia, in the province of Hedjas; 25 miles N. of Madian.

SHARBASHI, a town of Turkih Armenia; 18 miles S.E. of Moueth.

SHARBASI, a town of Turkih Armenia; 18 miles S.E. of Moueth.

SHARIBIN, a town of Egypt; 16 miles S.S.W. of Damietta.

SHARD, in Agriculture, a term applied to a fragment of an earthen vessel, or the gap in a hedge.

SHARE of a Plough, that part which enters, cuts, and breaks up the ground, the extremity forward being formed with a sharp-pointed iron, called the point of the share; and the end towards the wood behind, the tail of the share. This part constitutes a portion of what is usually denominated the t h r o a t, which is of very great importance in the construction of this implement. (See Plough.) The dimensions are these: the length of the whole share from point to tail, according to Tull, should be three feet nine inches, but in modern ploughs much shorter; at the top of the iron it hath sometimes an upright piece called the fin; and near the iron, at the other end, there is an oblong-square hollow called the socket; the use of which is to receive the bottom of the share. Near the tail there is a thin plate of iron, well riveted to the wood; by means of this plate, the tail of the share is held firmly to the hinder flint of the plough by a small iron-pin, with a screw at the end, and a nut screwed on it, on the inner or right side of the share. But shares are made in different forms.

The point of the share is that part in which it does not run up to the fin; this point is generally made three inches and a half in length, and should be flat underneath, and round at the top, and the lower part of it must be of hard steel. The edge of the fin should also be well flinted, and should make an acute angle with the share. The socket is a fort of mortar; it should be a foot long and about two inches deep; the fore-end of it must not be perpendicular, but oblique, conformable to the end of the share which enters into it. The upper edge of the fore-part must be always...
always made to bear up against the sheet; but if this end of
the bucket should not be quite to oblique as the sheet,
it may be helped by parting off a small part of the wood at
the point.

However, in modern ploughs, the shares, as has been seen,
are very different, according to their constructions and the
uses for which they are intended.

Lately, improved cast-iron plough-shares have been made
by R. Ramsone, of Ipswich, Suffolk, for which he has ob-
tained a patent. These shares are made hard on one side
and soft on the other, which affords the great advantage of
wearing them, as it is found by farmers that those made
in the common way wear thick, with a bush on the under-side,
which obstructs their entering into hard or strong soils, and
at the same time increases the labour of the team, as well as
pals over weeds without cutting or eradicating them.
The same person also makes plough-grounds, which are so con-
structed, as that by turning a screw the plough is made to work
more or less to the land with the greatest ease and facility.

And both these constructions are said to be capable of being
applied to all sorts of ploughs which have been already con-
This species has been long known to the inhabitants of the
fourth and west of Ireland and Scotland, and tho' of Caern-
arnvonshire and Anglesea; they quit the bays of these
Welsh counties about Michaelmas, and the frith of Clyde,
and the Hebrides, about the latter end of July. They have
nothing of the fierce and voracious nature of the shark
kind, but are so tame as to suffer themselves to be stroked;
lying motionless on the surface of the water, commonly on
their bellies, but sometimes on their backs, as if to fun
themselves; whence they are called balking sharks. Their
food seems to consist entirely of sea-plants. Linnaeus says
they feed on medusze. At certain times they are seen sport-
ing on the waves, and leaping with great agility several feet
out of the water; they swim deliberately, with the dorad fons
above water; their length is from three to twelve yards,
and they are sometimes longer; their form is slender; the
upper jaw much longer than the lower, and blunt at the end.
the mouth placed beneath, and each jaw furnished
with numbers of small teeth; those before being much bent,
and those more remote in the jaws being conic, and sharp-
pointed; on the sides of the neck there are five large
transverse apertures to the gills; on the back two fins; the
first very large, nearer the head than the middle; the other
small, and situated near the tail; on the lower part there are
two others; viz. two pectoral fins, two ventral fins, and a
small anal fin; near these, the male has two genitals, as in
other sharks; and between these fins was situated the pudendum of the female; the tail very large, having the
upper part much longer than the lower; the colour of the
upper part of the body a deep leaden, and the belly white;
the skin rough, like hidegren, but lefs so on the belly than on
the back; within side the mouth, towards the throat,
was a very short fork of whalebone; the liver is of a great
size, that of the female being the largest, and is melted into
a pure and sweet oil, fit for lamps, and much used by the
people, who take it to cure bruises, burns, and rheumatic
complaints. A large fish will yield eight barrels of oil.
These fishes are viviparous, a young one, a foot in length,
having been found in the belly of one of them. When
they are struck with a harpoon, and wounded, they lill
up their tails, and plunge headlong to the bottom, rolling
the rope round them, and attempting to disengage them-
elves from the harpoon, by rolling on the ground. They
swim away with such rapidity and violence, that there has
been an instance of a velfet of seventy tons having been
towed away against a fresh gale; and they will employ the
filifers for twelve, and sometimes twenty-four hours,
before they are subdued. Pennant's British Zoology, vol. iii.
p. 101, &c.

SHARK, Hammer-headed, Squalus zydena, a fish of the
shark kind, called also the balance-fish.

It is an extremely singular and remarkable fish, and differs
not only from all the other sharks, but from all the fish in
the figure of its head; this is not placed, as in
all other fishes, longitudinally, or in a line with the body,
but is set on transversely, as the head of a hammer or mallet
upon the handle. This is femicircular at the front, and
runs to fo thin and sharp an edge, that as the fish swims for-
ward with violence, it may cut other fishes, and is terminated
at each end by an eye; these are very large, and so placed,
that they more conveniently look down than either upward
or sidewise. In the farther part of the forehead also, near
the eyes, on each side, there is a large oblong foramen,
serving either for hearing or smelling, or perhaps for both;
the mouth is very large, and placed under the head, and
armed with four rows of extremely sharp and strong teeth,
flat, and serrated at their edges; the tail is composed of
two fins, one vastly larger than the other; the body is
rounded and very long, and is not covered with scales, but
a thick skin; the back is ash-coloured, and the belly white.
Rondelet, de Aquat, p. 549.

It is caught in the Mediterranean, and sometimes in dif-
ferent parts of the ocean. Some authors have called it
zydai, and others libella; which last answers to the English
name of the balance-fish.

SHARK, Pickled. See Acanthias and Squalus.

SHARK, Long-tailed. See Sea-Fox and Squalus
Pulcher.

SHARK, Spotted, Squalus Canicula of Linneus. See
Squalus Catus.

SHARK, Ottfer spotted, called the morgan, or rough
bound-fish, Squalus Canicula of Linneus. See Squalus
Catus.

SHARK, Smooth, Squalus Mysto!us of Linneus. See
Squalus Mysto!us.

SHARK, called the tope, Squalus Galeus of Linneus. See
Squalus Galeus.

SHARK, called the angel or monk-fish, Squalus Squatina of
Linneus. See Squalus Squatina.

SHARK River, in Geography, a river of New Jersey,
which runs into the Atlantic, N. lat. 40° 10'. W. long.
74° 4'.

SHARKIND, a town of Sweden, in East Gothland;
9 miles S.S.W. of Nordkioping.

SHARKSTOWN, a town of Maryland, on the island
of Kent; 28 miles S.E. of Baltimore.

SHARM el Kemn, or Sharm el Kaman, a port on the
Red Sea, on the coasts of Egypt. N. lat. 24° 44'.

SHARMA, a town of Arabia, in the province of Hadra-
mant; 30 miles E.N.E. of Sahar.

SHARMAGOL, a town of Persia, in the province of
Chorofan; 12 miles S. of Nefa.

SHARMAK, a sea-port of Africa, on the Gold Coast;
13 miles W. of Commedo.

SHARMALIK, a town of African Turkey, in the
province of Diarbekir; 15 miles S.W. of Ourfa.

SHAROKIE. See Schon.

SHARON, a town of the province of Maine; 40 miles
N. of Portland.—Alfo, a town of Connecticut; 12 miles
N.W. of Litchfield.—Alfo, a post-town of the state
of New York; 25 miles W. of Albany.—Alfo, a township
of Massachusetts; 10 miles S.W. of Bolton.—Alfo, a
township of Vermont, on White river; 6 miles N.W.
of Norwich.

SHARP, Abraham, in Biography, an eminent mathel-
matician, mechanist, and altronomer, was descended from a
family of Little Horton, near Bradford, in Yorkshire,
where he was born about 1651. After he had received
a good education, he was put apprentice at Mancheller, but
being steadily attached to mathematical pursuits, he quitted
buffines and removed to Liverpool. Here he applied with
great diligence to his favourite study, and to procure a sub-
ficiency he opened a school, where he taught written and the
elements of arithmetic. He next went to London, with the view
of associating with Mr. Flamhead, by whole inter-
tell he obtained a profitable employment in the deck-yard
at Chatham, where he remained till he was invited to become
the affiant of Flamhead at the Royal Observatorv at Green-
wich. In this situation he continued to make observations,
and had a large share in forming a catalogue of 3200 fixed
stars, with their longitudes and magnitudes; their right af-
cension and polar distance, and the variations of the fame,
while they change their longitude by one degree. In this
employment he injured his health, and was obliged to retire to
to his native air, at Horton, where he fitted up an observatory of his own, having constructed a very curious machine for turning all kinds of work in wood and brass. He constructed most of the tools used by joiners, clock-makers, opticians, and mathematical instrument-makers. He manufactured entirely his own telescopes and other astronomical instruments.

He next materially assisted Mr. Flamstead in calculating most of the tables in the second volume of his "Historia Celestis," and made curious drawings of the constellation, which were sent to Amsterdam to be engraved, and though executed by a masterly hand, the originals were lost, having been carried to and from England under difficulties of a beauty and accuracy. In 1670 Mr. Flamstead completed his mural arc at Greenwich, in which he had been greatly assisted by his friend Mr. Sharp, who had been some time in the observatory as his amanuensis. Mr. Smeaton, in a paper published in the Philosophical Transactions for the year 1741, speaking of this mural arc, says, it may be considered as the first good instrument of the kind, and that Mr. Sharp was the first person who cut accurate and delicate divisions upon astronomical instruments.

In 1717, Mr. Sharp published a work entitled "Geometry Improved," in which he engraved the figures as well as composed the work. This treatise contains: 1. A large and accurate table of segments of circles, with the method of its construction, and various uses in the solution of difficult problems. 2. A concise treatise of polyedra, or solid bodies of many hales, both the regular and irregular ones, to which are added twelve new ones, with various methods of forming them, and their exact dimensions in words or species, and also in numbers. In the year 1699 he undertook, for his own private amusement, the quadrature of the circle, deduced from two different series, by which the truth of it was demonstrated to 72 places of figures. Mr. Sharp maintained an epistolary correspondence with the most eminent mathematicians and astronomers of the day; among these were the illustrious Newton, Dr. Halley, and Dr. Wallis. It appears from a great variety of letters which remained after his death, written to him by these celebrated men, that he spared neither pains nor time to promote the interests of real science. Being duly reckoned one of the ablest calculators of his time, his assistance was required by, and freely given to Flamstead, Sir John Moore, Dr. Halley, and others, in all difficult calculations. When he quitted Mr. Flamstead, he retired to Little Horton, in Yorkshire, where he spent the remainder of his days, and where he died in July 1742, in the 41st year of his age. He was of very retired habits, and admitted few visitors, excepting two gentlemen, at Bradford, one a mathematician and the other an ingenious apothecary. Many of his singularities are recorded in the General Biography, and also in Hutton's Mathematical Dictionary, to which the reader is referred.

Sharp, John, archbishop of York, a celebrated divine of the church of England, was the son of a respectable tradesman at Bradford, in Yorkshire, where he was born in 1644. He was admitted of Christ's college, Cambridge, in 1660, and in 1667 he commenced master of arts, and was ordained. He was now appointed private tutor to the four sons of Sir Heneage Finch, a station which he occupied about five years, when he obtained, through his patron's recommendation, the archdeaconry of Berkshire. When Sir Heneage was raised to the poll of keeper of the great seal, he manifested such confidence in the fidelity and judgment of his friend, as to commit to him the nomination of the characters of applicants for church livings in the gift of the crown. A sermon which he preached in 1674, reflecting upon those who defected from the church, gave rise to a controversy, in which Dr. Swell, Baxter, and others engaged. In 1677 he was instituted to the rectory of St. Gore's, Chelmsford, in which parish he resided ten years. Among his pupils was Richard Baxter, who, though he was himself a preacher on Sunday evenings, was a constant bearer of the lecture in the mornings; and those two excellent men, notwithstanding their different points of doctrine, lived together upon the most friendly terms. In 1679 Mr. Sharp succeeded D.D., and in 1681 he was promoted to the deanship of Norwich. On the death of Charles II., to whom he had been a chaplain, he drew up the addenda of the second part of London to its successor, to whom he was also commonly chaplain. After this he preached against papism, and thus exciting the royal displeasure, he was obliged to quit the metropolis, and reside altogether at his deanship. He employed himself in forming a cabinet of coins, chiefly British, Saxons, and English. Being wearied with his exclusion from his function in London, he presented a very humble petition to the king, in consequence of which, he was allowed to return to his duty in the metropolis, and he was extremely careful never after to give offence, as he had done before. After the abdication of the monarch, Dr. Sharp visited the adherents to William, by some offensive passages in a prayer and sermon, which he delivered before the house of commons, who at first refused him their accustomed thanks, which, however, were voted afterwards. In 1689, Dr. Sharp was appointed the facultor to Dr. Tillotson in the deanery of Canterbury, and he was nominated one of the commissioners for revising the liturgy. At this period several bishops had been deprived of their fees for refusing to take the oaths to William and Mary, and Dr. Sharp might have succeeded to almost any of them, but he refused, not through any scruple of conscience, but on account of his friendship for the persons deprived. When, however, the archbishopric of York became vacant in a different way, he readily accepted the high office, and he was consecrated in July 1691. He filled this exalted station in a manner, which has cau ed him to be represented as a model of prelatical virtues, and which procured him general respect and esteem. He died at Bath in 1714, in the 69th year of his age. His only writings were sermons, of which were published two volumes, consisting of such occasional discourses as he had printed during his life-time, and five others, that were selected after his decease. He was reckoned an excellent preacher, and his style and doctrine are said to be equally of the standard purity. Biogr. Brit.

Sharp, Thomas, younger son of the preceding, was born in Yorkshire, and admitted of Trinity college, Cambridge, about 1703, when he was of the age of 15. He obtained a fellowship in 1729, and took his doctor's degree the same year. Archbishop Dawes appointed him his chaplain, and in 1720 he was collated to the rectory of Rotherby, in Northumberland. He was afterwards preferred to a prebend in Durham cathedral, and also to the archdeaconry of Northumberland. He died in 1758. Dr. Sharp wrote two dissertations concerning the etymology of the Hebrew words Elohim and Berith—"Discourses on the Antiquity of the Hebrew Tongue and Character." He left a son, Granville, to whose fine character as a genuine English patriot, we shall endeavour to do justice in the next article.

Sharp, Granville, son of the preceding, a most distinguished philanthropist and friend to the liberties of mankind, was born in the year 1734. He was educated for 3 E 7 the
the bar, but did not practice at it. When he quitted the legal profession, he obtained a place in the ordnance office, which he resigned at the commencement of the American war; the principles of which were abhorrent from his mind. He now took chambers in the Temple, and devoted himself to a life of idly; at the same time, laying himself out for public utility. He first became known to the public in the case of a poor and friendless Negro, of the name of Somerset. This person had been brought from the West Indies to England by a master, whose name we should gladly hand down to the execution of public utility, if it were in our power; and falling into bad health, was abandoned by him as a useless article of property, and turned into the streets, without a shilling to his name. To this day, he is the only one of these unhappy objects of charity. In this destitute state, almost, it is said, on the point of expiring on the pavement of one of the public streets of London, Mr. Sharp chanced to see him. He instantly had him removed to St. Bartholomew's hospital, attended personally to his wants, and in a short time had the happiness to see him restored to health. Mr. Sharp now clothed him, and procured him comfortable employment in the service of a lady. Two years had elapsed, and the circumstance almost, and the name of the poor Negro, had escaped the memory of his benefactor, when Mr. Sharp received a letter from a person, signing himself Somerset, confined in the Poultry Compter, stating no cause for his commitment, but intreating his interference to save him from a greater calamity even than the death from which he had before rescued him. Mr. Sharp instantly went to the prison, and found the Negro, who in fickness and misery had been deserted by his master, sent to prison as a runaway slave. The efficient patriot went immediately to the lord mayor, William Nash, Esq., who caused the parties to be brought to trial, to grant a meritorious fugitive, by an upright magistrate declare that the master had no property in the person of the Negro, in this country, and gave the Negro his liberty. The matter instantly collared him, in the presence of Mr. Sharp and the lord mayor, and infilled on his right to keep him as his property. Mr. Sharp now claimed the protection of the English law, caused the matter to be taken into custody, and exhibited articles of peace against him for an assault and battery. After various legal proceedings, supported by him with most undaunted spirit, the twelve judges unanimously concurred in an opinion that the matter had acted criminally. Thus did Mr. Sharp emancipate for ever the race of blacks from a state of slavery, while on British ground, and in fact banished slavery from Great Britain. Such an incident could not fail deeply to impress a benevolent mind; and slavery, in every shape and country, became the object of his unceasing hostility.

In 1769 he published a work, entitled "A Representation of the Injustice and dangerous Tendency of tolerating Slavery, or of admitting the claim of private Property in the Persons of Men in England." Having succeeded in the case of an individual Negro, he interested himself in the condition of the many others, who were seen wandering about the streets of London, and at his own expense collected a number of them, whom he sent back to Africa, where they formed a colony on the river Sierra Leone. He performed a still more essential service to humanity, by becoming the instigator of the "Society for the Abolition of the Slave Trade;" which, after contending against a vast mass of opposition, at length gloriously succeeded, as far as this country was concerned in the horrible traffic.

Mr. Granville Sharp is mentioned in connection with this business, in terms of the highest commendation, by Mr. Clark, in his "History of the Abolition of the Slave Trade." (See vol. i. p. 63—70.) The following short account of him is extracted from the Edinburgh Review, vol. xii.

"We think it a duty to mention the name of Mr. Granville Sharp. Regardles of the dangers to which he exposed himself, both in his person and his fortune, Mr. Sharp stood forward in every cause as the courageous friend of the poor Africans in England, in direct opposition to an opinion of York and Talbot, the attorney and solicitor-general for the time being. This opinion had been acted upon; and so high was its authority, that, after it had been made public, it was held as the settled law of the land, that a slave, neither by baptism, or arrival in Great Britain or Ireland, nor by reason of being born in the British or British Possessions, became free by being brought back to the plantations. Discouraged by judge Blackstone, and several other eminent lawyers, Mr. Sharp devoted three years of his life to the English law, that he might render himself the more effectual advocate of these friendless strangers. In his work, entitled "A Representation of the Injustice and dangerous Tendency of tolerating Slavery in England," published in the year 1769, and afterwards in his learned and laborious "Inquiry into the Principles of Villenages," he refuted the opinion of York and Talbot by unanswerable arguments, and neutralized their authority by the counter opinion of the great lord chief justice Holt, who many years before had decided, that as force could be used against no man in England without legal process, every slave coming into England became free, inasmuch as the laws of England recognized the distinction between person and property as perpetual and sacred. Finally, in the great case of Somerset, which was argued at three different fittings, in January, in February, and in May, of the year 1772, (the opinion of the judges having been taken up on the pleadings,) it was at last, after the time, and declared to be the law of the land, that as soon as ever any slave set his foot upon English territory, he became free. Among the heroes and fages of British story, we can think of few whom we should feel a greater glow of honest pride in claiming as an ancestor, than the man to whom we owe our power of repeating with truth,

"Slaves cannot breathe in England; if their lungs Receive our air, that moment they are free; They touch our country, and their shackles fall."

Similar principles led Mr. Sharp to use his endeavours to restrain the arbitrary practice of marine imprisonment; and a citizen of London having been carried off by a press-warrant, Mr. Sharp obtained a habeas corpus from the court of king's bench, to bring him back from a vestil at the Nore; and by his arguments obliged the court to liberate him. In his political principles he was always the ardent and zealous friend to liberty, and he neglected no opportunity to defend its principles, and assert the rights of the people. He was the warm advocate of "parliamentary reform," and published, in 1778, the second edition of an excellent little work, full of constitutional knowledge and sound reasoning, entitled "A Declaration of the People's natural Right to a Share in the Legislature, which is the fundamental Principle of the British Constitution of State." He was, in 1794, as zealously attached to the cause as he had been twenty years before; though, perhaps, he did not feel himself sufficiently active to engage in it as a partisan, when it was a subject of obloquy. He was not, however, an unconcerned spectator of the dreadful tyranny, which, but for the intervention of an honest English jury, would have overwhelmed the land. He went, to one of the persons at that time confined in the Tower of London, a copy of the work.
work referred to, with assurances of a readiness to do any thing in his power to stem the torrent leting in against the Liberties of the country.

Mr. Sharp's plan of reform recommended to the public, was founded on the earliest principles and practices of the British constitution. He proposed to reform the ancient libels, bannings, bounds, &c.; and the whole body of the people were to form a national militia, each thousand to constitute a regiment, the alderman or magistrare to be the colonel; and each hundred to constitute a company, the contable of each for the time being to be their captain. So many of the thousands to be summoned once in every year, by their magistrates, as would have a right to vote in their respective hundreds, before the contable, in the choice of their part of the representative legislature. Mr. Sharp has shown that the division of this kingdom into counties and hundreds was instituted by the immortal Alfred; that such a division is consistent with the most perfect state of liberty that man is capable of enjoying, and yet fully competent to answer all the purposes of mutual defence, to secure the due execution of the laws, and maintain public peace.

Mr. Sharp was educated in the principles of the established church, and through life fostered a warm attachment to them. He always, even at the close of life, had a thorough dread of Popery, but was candid and liberal to Protestant dissenters of all parties. His zeal for the established religion of the country led him to recommend an episcopal church in America; and he introduced the first hitherto from that country to the archbishop of Canterbury for consecration.

Mr. Sharp died in July 1713, and like Cato, though advanced to the age of 79, he purfied his studies with all the ardour of youth. He was an able linguist, deeply read in theology, and was well acquainted with the scriptures in the original tongues. He was pious and devout, without gloom, strictly moral and temperate, a great lover of music, and cheerful in conversation. His services to humanity were very distinguished, and few persons in private life have deserved a higher or more honourable commemoration.

As a writer, his pieces are very numerous. From these we learn that he was a believer in the doctrines as set forth in the articles of the church, as that of original sin, the existence and operations of the devil on the human mind, and of the Athenian mystery of the Trinity. He also, from studying the book of Revelation, fully expected the commencement of the Millennium, or personal reign of Christ on earth, in the spring of 1811; but he lived long enough to see his error. He possessed a very extensive library, in which the theologian, lawyer, classical scholar, politician, antiquary, and orientalist, might find almost every thing of which they could flound in need; and his collection of books was esteemed the best in the kingdom.

The principal works of Mr. Sharp, besides those already mentioned, are "Remarks on several very important Propositions," "Remarks on the Uses of the Deutero-Canonical Article in the Greek of the New Testament, containing many new Proofs of the Divinity of Christ," &c. This occasioned "Six Letters" to be addressed to him, in vindication of his theory; and also "Six more Letters," &c., by Gregory Blunt, esq., which is a work of great talent, profound learning, and masterly wit. It has long since been out of print, and the author is probably known only to two or three persons; the designation Blunt being assumed to conceal the real name. Mr. Sharp's last work was entitled "Remarks on the 68th Psalm, addressed to the Confederation of the House of Israel." Monthly Mag. Gent-
To which is prefixed a biographical preface, from which the foregoing facts have been extracted.

SHARPING CORN, a customary present of corn, which, at every Christmas, the farmers in some parts of England make to their smith, for sharpening their ploughing-harrow-tines, &c.

SHARPING, in Ichthyology, the English name of the gaiterofetus. See Stickle-Back.

SHARPSBURG, in Geography, a town of America, in Maryland; 69 miles N.W. of Baltimore.

SHARUM, a town of Arabia, in Hadramaut; 15 miles S.W. of Kefchim.

SHARUT, Shahrat, or Sharoot, a small town of Persia, in Atarabad, called also Biitan, is surrounded in some parts with a flight earthen wall. The houses, from a want of wood, are built of unburnt bricks, and covered with a flat arch of the same materials. In its vicinity are seen many people, whose noses, fingers, and toes have been destroyed by the frost, which is laid to be severer at this place than in any part of Persia. This town, with its dependencies, yields a revenue of 1599 tomans. The position of the town is determined by two routes, one from Tehran and the other from Tarabih.

SHASAD, or Shazadrany, a town of Hindooftan, in the circuit of Sumbul; 16 miles S. of Sumbul.

SHASAVA, a town of Hindooftan; 15 miles S. of Agra.

SHASH, or Takshund.

SHASHTI, in Mythology, a name of the Hindoo goddefs Parwati; which see.

SHASK, in Geography, a town of Hindooftan, in Baglan; 15 miles S. of Bahbelgong.

SHASSAIR, a town of Africa, in Biledulgerid; 7 miles N. of Fighig.

SHASTAH, Shaster, or Sastra, which latter is said to be the correct spelling and pronunciation, the name of a Sacred book, in high estimation among the idolaters of Hindooftan, containing all the dogmas of the religion of the Bramins, and all the ceremonies of their worship, and serving as a commentary on the Vedam.

The word is derived from a root signifying to ordain, and means generally an ordinance, and particularly a sacred ordinance delivered by inspiration: properly, therefore, the word is applicable chiefly to sacred literature.

The term Shaster denotes fience or fystem; and is applied to other works of astronomy and philosophy, which have no relation to the religion of the Indians. None but the Bramins and rajas of India are allowed to read the Vedam; the priests of the Brahmans, called fusterers, may read the Shaster; and the people, in general, are allowed to read only the Parar or Poursan, which is a commentary on the Shaster.

The Shaster is divided into three parts; the first containing the moral law of the Indians; the second, the rites and ceremonies of their religion; and the third, the distribution of the people into tribes and classes, with the duties pertaining to each class.

The principal precepts of morality contained in the first part of the Shaster, are the following: that no animal be killed, because the Indians attribute souls to brute animals as well as to mankind; that they neither hear nor speak evil, nor drink wine, nor eat flesh; nor touch any thing that is unclean; that they observe the feasts, prayers, and washings, which their law prescribes; that they tell no lies, nor are guilty of deceit in trade; that they neither oppress nor offer violence to one another; that they celebrate the solemn feasts and feasts, and appropriate certain hours of ordinary sleep to cultivate a disposition for prayer; and that they do not steal, or defraud one another.

The ceremonies contained in the second part of the Shaster, are such as these: that they wash often in the rivers, hereby obtaining the pardon of their sins; that they mark their forehead with red, in token of their relation to the Deity; that they present offerings and prayers under certain trees, set apart for this purpose; that they pray in the temple, make oblations to their pagodas, or idols, sing hymns, and make processions; &c. that they perform pilgrimages to dilated rivers, and especially to the Ganges, there to wash themselves, and make offerings; that they make vows to particular saints, according to their respective departments; that they render homage to the Deity, at the first flight of the sun; that they pay their respect to the sun and moon, which are the two eyes of the Deity; and that they treat with particular veneration, those animals that are deemed more pure than others, as the cow, buffalo, &c. because the souls of men have transmigrated into these animals.

The third part of the Shaster records the distribution of the people into four classes; the first being that of the Bramins, or priests, appointed to instruct the people: the second, of the Malabar and feris, or nobles, which are the magistrates; the third, that of the Shuddars, or Gents; and the fourth, that of the mechanics. Each person is required to remain in the class in which he was born, and to pursue the occupation assigned to him by the Shaster. According to the Bramins, the Shaster was imparted by God himself to Brahma, and by him to the Bramins, who communicated the contents of it to the people.

Modern writers have given us very different accounts of the antiquity and importance of the Shaster. Mr. Holwell, who had made a considerable progress in the translation of this book, apprehends, that the mythology, as well as the cosmogony of the Egyptians, Greeks, and Romans, were borrowed from the doctrines of the Bramins contained in it, even to the copying of their exteriors of worship, and the distribution of their idols, though grossly mutilated and adulterated. With respect to the Vedam and Shaster, or scriptures of the Gentoo, this writer informs us that Vedam, in the Malabar language, signifies the name as Shaster in the Shaster; and that the first book is followed by the Gentoo, that of the Malabar, and the Malabar contains the island of Ceylon. The Shaster is followed by the Gentoo, that of the provinces of Bengal, and by all the Gentoo of the rest of India, commonly called India Proper, along the course of the rivers Ganges and Jumna to the Indus. Both these books, he says, contain the institutes of their respective religion and worship, as well as the history of their ancient rajahs and princes; often couched under allegory and fable: their antiquity is contended for by the partisans of each; but he thinks, that the similitude of their names, idols, and great part of their worship, leaves little room to doubt, nay, plainly evinces, that both those scriptures were originally one. He adds, if we compare the great purity and chaste manners of the Shafan, with the great aburities and impurities of the Vedam, we need not hesitate to pronounce the latter a corruption of the former.

With regard to the high original of these scriptures, the account of the Bramins is chiefly as follows. Brahma, q. d. Mighty Spirit, about four thousand eight hundred and sixty fix years ago, assumed the form of man, and the government of Hindooftan. He translated the divine law (designed for the reformation of mankind, who had offended in a pro-exilent state,
SHASTAH.

Aest, and who are now in the last scene of probation, to the dignity from which they were degraded,) out of the language of angels into the well-known Sanskrit language, and called his translation the "Charittha Bhaede Shastaho" of Bir- 
num, or the Six Scriptures of the Divine Words of the Mighty Spirit. He appointed the Bramins, deriving their name from him, to preach the word of God; and the doctrines of the 
Shastah were accordingly preached in their original purity a thousand years. About this time there was published a 
paraphrase on the Charittha Bhaede and the Vedams, which, according to the Gentoo account, is three thousand three hundred and sixty-six years ago, their polytheism commenced; and the principles of 
religion became obscure, and their ceremonies to numerous, that every head of a family was obliged to keep a Bramm, 
as a guide both in faith and practice. Mr. Holwell is of opinion, that the Charittha Bhaede, or original scriptures, are 
not copied from any other system of theology, promulgated to, or obtruded upon mankind. The Gentoo do not at 
tribute them to Zoroaster; and Mr. Holwell supposes, that 
both Zoroaster and Pythagoras visited Hindoo land, not to 
instruct, but to be instructed.

From the account of Mr. Dow we learn, that the books which contain the religion and philosophy of the Hindoos, 
are distinguished by the name of Bedas; that they are four 
in number, and, like the sacred writings of other nations, 
failed to be penned by the divinity. Bedas, he says, in the 
Sanskrit language, literally signifies science; and these books 
treat not only of religion and moral duties, but of every branch of philosophic knowledge. The Bramins maintain, 
that the Bedas are the divine laws, which Brahmas, at the 
creation of the world, delivered for the instruction of man-
kind; but they affirm, that their meaning was perverted in the first age by the ignorance and wickedness of some princes, 
whom they represented as evil spirits, who then haunted the 
earth. The first credible account we have of the Bedas is, that about the commencement of the callug, of which era the 
year 1768 was the 4586th year, they were written, or rather 
collected, by a great philosopher, and reputed prophet, called 
Beafs Muni, or Beafs the Inspired.

The Hindoos, says Mr. Dow, are divided into two great 
religious sects; the followers of the doctrine of Bedans, 
which is the original Shalffer, or commentary upon the 
Bedas; and those who adhere to the principles of the Ne-
adiran. The original Shalffer is called Bedang, and is a 
commentary upon the Bedas. This, he says, is erroneously 
called, in Europe, the Vedam. It is ascribed to Beafs Muni, 
and said to have been revised some years after by one 
Serrender Swami, since which it has been reckoned sacred, 
and not subject to any further alterations. Almost all the 
Hindoos of the Deccan, and those of the Malabar and Coro-
mandel coasts, are of this sect. The followers of the Bedang 
Shalffer do not allow that any physical evil exists; they 
maintain that God created all things perfectly good, but 
that man, being a free agent, may be guilty of moral evil, 
which may be injurious to himself, but can be of no deter-
mint to the general system of nature. God, they say, being 
perfectly benevolent, never punished the wicked otherwise 
than by the pain and affliction which are the natural con-
sequences of evil actions; and, therefore, it is either a 
condemnation of our evil.

The Vedanit Shalffer is said to have been written by a 
philosopher called Gyntari, near four thousand years ago. 
The Bramins, from Mr. Dow's account of their sacred 
books, appear to believe more in the unity, eternity, 
immortality, and omnipotency of God; and the polytheism, 
of which they have been accused, is no more than a sym-
bolical worship of the divine attributes, which they divide 
into three classes. Under the name of Brahmas, they worship 
the wisdom and creative power of God; under the appella-
tion of Bulhens, his providential and preserving character; 
and under that of Shibah, that attribute which tends to 
destroy.

According to M. de Sainte-Croix, the Shalffer, however 
entailed in Europe with respect to its antiquity, is posterior 
the Vedam, being no more than the explication of the 
Hollowell's Interesting Historical Events, &c. 8vo. Dow's 
History of Hindoo land, 4to. 1768. L'Entour Vedam, &c. 
by M. de Sainte-Croix, 12mo. Paris, 1779. See Gentoo, 
Shanshit, and Vedan.

Six Safiras are commonly described as of superior fantic 
y, and are called the proper Safiras: in these are com-
prired the four Vedas, the eighteen Puranas, commentaries 
on the Vedas, called Upaveda, and others. (See Veda, and 
Purana.) The Sudra, or lowest of the four classes of 
Hindoos, are not permitted to study these six Safiras, as 
being too holy for such profane contemplation. (See 
Sudra.) As noticed under the article Ramavarna, that 
book is reckoned too sublime for the perusal of a inferior 
class. The Sudras may bear it read. An ample field, how-
ever, remains for them in the study of profane literature, 
comprised in a multitude of popular books, which correspond 
with the several Safiras, and abound with beauties of every 
kind. All the tracts on medicine must indeed be studied by 
the Vaidyas, or those who are born physicians; and this 
profession is confined chiefly to the Sudras. The Vaidyas 
are said to have often more learning than many Bramins, with 
far less pride than any. They are usually poets, grammarians, rhetoricians, &c. and may be esteemed in general 
among the most amiable and virtuous of the Hindoos. See 
Vaidya.

The word Safira, however, applied more extensively than 
the above account may seem to imply. For instance, a col-
lection of tracts on arts and manufactures, is called Sipl 
Safira. The name of Niti Safira is given to a system of 
ethics. The Derrama Safira is indeed one of the six superior, 
and gives an explanation of the principles of the six 
philosophical schools; a brief notice of which is given under 
the article Philosophy of the Hindoos. An analysis of this 
work would shew that many of its theories are either 
selves of similar doctrines propounded in later times in 
Greece, or borrowed from the same source with them. Other 
collections of tracts, and some separate works, bear also 
the denomination of Safira; and it is sometimes rather vaguely 
alled. A Brahman deeply versed in sacred literature has 
the honourable title of Safira added to his name; equivalent 
to our clerics. Sometimes he is distinguished by it alone, 
and called the Safira. There is also the Dharma Safira, a 
body of ethics and ritual observances; the Agama Safira, 
or occult ordinances. This latter has been fulfilled to 
have some reference to the Ogham of the west. See Oghiam, 
and O.'
SHA

Sañtri, which was omitted in its proper place, is a name for the Hindoo deity Buddha, or Bodd. The name signifies wisdom, or a wise man; and is still applied to, or assumed by, individuals, especially Bramins, who are supposed to have acquired an extraordinary degree of learning or wisdom. As all profitable wisdom is presumed to be comprised in the Sañtri, or sacred books, the title of Sañtri is thence derived. It is sometimes appended similarly to the scholar's name; and he is at others called the Sañtri, or Sañtri fahib,—Mr. Sañtri.

SHASUMAN, in Geography, a town of Peru, in the province of Mazzanderan; 30 miles E. of Eterabad.

SHAT-EL-AMAAR, a name given by the Arabs to the Tigris.

SHAT-EL-DEAAL, a river which runs from the north, and enters the Tigris near Bagdad.

SHAT-EL-DEGELA, a river or canal, so called by the Arabs, which communicates with another named Shat-El-Hie, which is a branch of the Tigris.

SHAT-EL-FRAATE, a name given by the Arabs to the Euphrates.

SHAT-TI-KATU, in Mythology, one of the names of the Hindoo Indra, regent of the firmament. It means the hundred facrices; that is, to whom a hundred facrices are offered; or rather, perhaps, he who has offered them. Indra, it is fabled, obtained his present dignity by the great facrice of a hundred horses. An offering of a horse is called Afwamedha, and is attended with infinite trouble and expense, as laid down in the Hindoo rituals.

See Indra, Naramedha, and Rihema.

SHATNUF, in Geography, a town of Egypt, on the right bank of the Nile; 9 miles N. of Cairo.

SHATOOR, a town of Hindoostan, in Madura; 30 miles N.N.W. of Coilpetta.

SHATORE, a town of Hindoostan, in Madura; 12 miles N.E. of Coilpetta.

SHAL-UL-ARAB, one of the noblest rivers in the East, formed by the combined streams of the Euphrates and Tigris. The union of these streams takes place near Korna, or Corny, which is one of the three Apameas, built by Seleucus in honour of his first wife, Apama. On the western bank of this river, and 70 miles from its mouth, in N. lat. 31° 30', is situated the city of Bushora or Bafra; and the river is navigable as far as the city for ships of 500 tons burthen. The city is sometimes so completely deluged by the river, that it appears like an island in the middle of a lake. The combined stream of the Shat-ul-Arab has generally been thought to enter the Persian gulf by a variety of mouths; but the fact is, that this noble river has, at this time, only one mouth, and probably never had any other. The inland, or delta, between the Shat-ul-Arab and the Eamilthera (the ancient Medena) was formerly included in the pachicel of Bagdad, but having been conquered by Sulek Soliman from the Turks, has remained in the possession of his successors. This is a low and fertile tract; the northern parts of which, towards the Hafir, are intersected by a number of canals, and are in a tolerable state of cultivation. Extensive ruins are visible in many places, and the borders of the Shat-ul-Arab, as far down as Chubda, are covered with date-trees. The river "Shat-el-Ajew," signifying in Arabic a river of Persia, discharges itself on the Persian side into the Shat-ul-Arab, near Margill.

SHATZAM, a town of Turkestan, in the province of Mokran; 210 miles S.E. of Arakhage.

SHAVAKAT, a town of Turkestan, on the Sirr; 20 miles S. of Tashkund.

SHUABACO, a town of Egypt, on the left bank of the Nile; 16 miles S. of Cairo.

SHAVE CRASS, in Botany. See Equefmet.

SHAVING-IRONS, among Gardener's tools to keep a garden free from weeds, otherwise called edge-ing-irons.

SHAVINGS, Horn, in Agriculture. See Manure.

SHAW, or Shalw, an article of female draps, much prized in the Eail, and now well known in England. As the shals all come from Cashmere, or Cachemir, it was generally concluded, that the materials from which they were fabricated was of the growth of that country. It was said to be the hair of a particular goat, and the fine under hair from a camel's beard; but we now certainly know that it is the produce of a 'Hilbet sheep. Bernier relates, that in his time, shals made for the great omrahs of the Thibetan wool, coat a hundred and fifty rupees; whereas those made of the wool of the country never coat more than fifty. For an account of their manufacture and value, see Cashmere.

SHAVOYA, or Shavoia, in Geography, a province of the empire of Morocco, situated to the S. of the kingdom of Fez, and W. of Touda; inhabited by mountaineers addicted to robbery and violence. Towards the latter end of the last century refusing to pay tribute to the emperor, Mulay Ishmael, he marched an army, which, surrounding its strong holds on the mountains, compelled them to flight, leaving their wives and children, who were put to the sword, and the plunder distributive among the soldiers.

SHAUR, a small island in the Red sea. N. lat. 27° 20'. E. long. 34° 58'.

SHAUS. See Chaus.

SHAVUNGUNK, a mountain of New York; 20 miles S. of Kingston.

SHAW, Thomas, in Geography, was born at Kendal in...
SHAW.

SHAW, Peter, a physician, and contemporary of the former, was the author of several works, which enjoyed a considerable reputation in their day. His first publication was entitled "New Practice of Physic," in two volumes, and first printed in 1726; it contained a brief description of diseases and the methods of treating them. His next work was an "Enquiry into the Virtues of Scarborough Spaw Waters," which he visited during the season; it was printed in 1734. In the same year he published also "Chymical Lectures publicly read in London 1731, 1732, and Scarborough 1733." This was deemed a scientific and valuable work, and was translated into French. He published some minor works, "A Portable Laboratory of 1731," "On Scurvy" 1736; "Ellays in Artificial Philosophy," 1738; "On the Juice of the Grape," 1739; and he edited the "Difpensatory of the College of Physicians of Edinburgh," in 1737. See Eloy Déf. Hist. de la Méd.; and the works mentioned.

SHAW, George, the younger of two sons of the reverend Timothy Shaw, was born December 16th, 1751, at Newington, in Buckinghamshire, of which place his father was vicar. He shewed, at a very early age, a great inclination to study; and when he was only four years old, instead of following the amusements common to young children, he usually entertained himself with books, or by the side of ditches and rivulets catching insects, and taking them home, and would spend all his leisure time in watching their motions and examining their structure. He was educated entirely by his father, and before he was fourteen years of age, his proficiency was such as allowed him to enter with great advantage upon a course of college studies. In 1765 he was entered at Magdalen-hall, Oxford, where he was no less distinguished by the regularity of his conduct, than by an uncommon diligence in application to his studies. In 1769 he was admitted to the degree of B.A. and in May 1772 to that of M.A. In order that he might assist his father in his clerical duties, he took orders, and was ordained deacon in 1774, at Buckden, by Dr. Green, bishop of Lincoln, and regularly performed the duty at Stoke and Buckland, two chapels, each three miles apart from the mother church. As soon as an opportunity offered, he began to pursue his theological career, which was never quite congenial to his mind, and went to Edinburgh, to qualify himself for the profession of physic. Having attended the lectures of Black, Cullen, and other eminent professors for three years, he returned to Oxford, where he was appointed deputy botanical lecturer. In this office he acquired much celebrity. He had been appointed to his office by Dr. Sibthorp, the botanical professor, who was then upon the eve of setting out upon his travels into Greece. (See Sibthorp.) Upon the death of this gentleman, Dr. Shaw became candidate for the vacant professorship; in which he would unquestionably have been successful, had not an old statute been found, which prohibits a prebend in orders from filling the office. In 1783 he was admitted to the degrees of bachelor and doctor of medicine; it appears that at this time he had removed from Magdalen-hall to Magdalen college. In the same year he removed to London, where he practised as a physician. Shortly after this, several gentlemen, distinguished for their attachment to the study of, and eminent for their acquisitions in natural history, established a society for the advancement of this science, under the denomination of the Linnean Society. Dr. (now Sir James) Smith was elevated to the presidency, and Dr. Shaw was nominated one of the vice-presidents. To the Transactions of this Society Dr. Shaw contributed the following papers. "Description of the Stylephorus Cordatus," which see; "Description of the Cancer Magnificus;" "Remarks on the Scolophendra Elektrica and Scolophendra Subterranica;" "A Note on Mr. Kirby's Description of the new Species of Hymenoptera;" "Account of a minute Insectorum;" "Description of the Species of Mycerix;" "Description of the Minera Basta; and Tubularia Magnifica."

Dr. Shaw at this period delivered a course of lectures at the Leiceter Museum, and never failed, as well before, as after, that rich and magnificent collection was removed from Leicester Fields, to attract very large and frequent audiences. In 1789 Dr. Shaw began to publish "The Naturalist's Miscellany," which came out in monthly numbers, and continued to his decease, when 280 parts had been published, and, according to the biography of the author given in the Gentleman's Magazine, a posthumous number, with an index, was to terminate the work, which is described as a most beautiful and extensive production, comprising, in 1064 plates, figures of the more curious and remarkable productions of the three kingdoms of nature, more particularly of the animal kingdom, with descriptions in Latin and English. In this year Dr. Shaw was elected a fellow of the Royal Society, and in 1790 he projected a work in 4to. entitled "Speculum Linneum; or Linnean Zoology," but it probably did not promise success, as a single number only appeared. In 1791 Dr. Shaw became a candidate for the office of a librarian in the British Museum, and his qualifications, which were of the first order, procured him the appointment of assistant keeper of the natural history. He now quitted the duties of physician, and devoted himself entirely to researches in natural science. Between the years 1792-6, appeared the following work: "Mufes Linneiani explicatio Anglica et Latina, opera et studio Georgii Shaw, M.D. F. R. S. Adduntur figuræ elegantissimi sculpturae et coloris. Impensis Jacobi Parkinfigii." In 1794 Dr. Shaw, in conjunction with Dr. Smith and Mr. Sowerby, engaged in a splendid publication, illustrative of the acquirements which had been made in natural science on the shores of New Holland. The animals peculiar to that country were described by Dr. Shaw in a work entitled "The Zoology of New Holland," the figures were delineated by Mr. Sowerby; and the botanical part was written by Dr. Smith, and published under the title of "The Botany of New Holland." Sixty large plates published by Miller, the editor of the Cramer's Dictionary, under the title of "Various Subjects in Natural History, wherein are delineated Birds, Animals, and many curious Plants, being judged defective from want of letter-prefx. Dr. Shaw supplied the deficiency in a work entitled "Cimelia Physicia: Figures of rare and curious Quadrupeds, Birds, &c. together with several most elegant Plants, engraved and coloured from the Subjects themselves: with Descriptions by George Shaw, M.D. F.R.S."

In the year 1800, Dr. Shaw began his great work, entitled "General Zoology, or Natural History, with Plates from the best Authorities, and most select Specimens." This work had proceeded to the eighth volume during the life-time of the author, and a ninth was left ready for the press. In this work he intended to comprise the whole of the history of the animal world. It began with quadrupeds, and had proceeded through fishes, amphibia, insects, and part of the birds. The Linnean arrangement, with occasional variations, has been pursued throughout.

In the years 1800 and 1802, Dr. Shaw delivered a course of zoological lectures, which were published in 1809 in two large volumes 8vo. In the first nine lectures the author has compiled the substance of what he had delivered in the General Zoology, and in the three remaining lectures is a sketch
a sketch of what, had his life been spared, he intended to accomplish in completing the General Zoology. In 1809, upon the death of Dr. Gray, keeper of Natural History in the British Museum, Dr. Shaw was promoted to that office. An abridgment of the Transactions of the Royal Society was begun in 1809, of which the department of natural history fell to the lot of Dr. Shaw. It is said he abridged 1500 distinct articles, which he rendered still more interesting than the originals, by the insertion of Linnaean and specific names, and by occasional annotations, and considerable references to subsequent authors of most celebrity, who had treated on these subjects. This was the last work in which he engaged. His time was wholly occupied upon the "Naturalist's Miscellany" and the "General Zoology," when death terminated his active and very useful life on the 22d of July, 1813, in the 62d year of his age. His illness was but of a few days' continuance: his fevers and his recollection only forsook him with his breath. He died, as he had lived, with philosophic composure and serenity of mind, which neither the acute pain which he endured, nor the awful change which he was well aware he was about to experience, could in any degree disturb.

"As few men have left behind them a character more estimable, his name will be transmitted to posterity among those who give utile to their age and country, who do honour to human nature by their virtues, and who contribute to the advancement of science, and the interests of literature, by their superior talents. Endowed by nature with considerable intellectual parts, and thence improved by affiduous cultivation, he acquired a vast stock of general knowledge. His extensive information was trenched up without confusion, applied in his works with discernment, and communicated to every enquirer with cheerfulness and freedom." Gentleman's Magazine, 1813, p. 290.

Shaw, Stebbing, a divine and antiquary, was born at Stowe, in Staffordshire, in 1762, and educated first at Repton school, and afterwards at Queen's college, Cambridge, where he took his degrees and obtained a fellowship. In 1787 he made a tour in the Highlands of Scotland, of which he published an account without his name. In the following year he made another tour in the west of England, an account of which he also published. In 1789 he commenced, in conjunction with a friend, a periodical publication, called The Topographer, chiefly containing extracts made from curious books and MSS. in the British Museum. This work was discontinued in about two years. He next undertook the "History of Staffordshire," of which the first vol. in folio, was published in 1798; in 1801 the first part of the second volume was given to the public, and he died in 1803.

Shaw, in our Old Writers, a grove of trees, or a wood. Shaw Fowle, an artificial fowl made for fowlers to shoot at.

Shaw's Island, in Geography, a small island in the North Pacific ocean, at the entrance of Cook's Inlet. N. lat. 56°. E. long. 207° 16'.

Shawabad, a town of Hindoostan, in the circuit of Rantapour; 35 miles S. of Suliopour.

Shawanee, a town of America, in the county of Randolph, and territory of Illinois, containing 830 in. inhabitants.

Shawanese, the denomination of a tribe of Indians who inhabit Lousiana, on the Missilippi and St. Francis. The number of warriors is 300; that of the inhabitants 800; they trade requires 1000 dollars of merchandise; the value of their returns is 3000; their commerce is carried on in their villages or settlements. The Indians of this tribe have four towns on the Tallapookee river. By the treaty of peace, Aug. 3, 1795, the United States agreed to pay this tribe a fund in hand, and 1000 dollars annually for ever in goods. They inhabit on the Scioto river, and a branch of the Muskingum, and have their hunting grounds between Ohio river and lake Erie. They are generally of a small size, rather handline in their features, and a cheerful crafty people. Counselling among the elder, and dancing among the young men and women, take up a great part of their time.

Shawangunk, a post-town in Ulster county, New York; containing 2800 inhabitants; 20 miles from Goshen and 12 from New Paltz.

Shawunge, a town of Hiwiadan, in Oude, on the left bank of Dewah, opposite to Fryzabad.

Shawgur, a town of Hindoostan, in Allahabad; 32 miles N. of Gazypour.

Shawlia, in Betang, received its name in honour of the celebrated oriental traveller, Dr. Thomas Shaw, who has given a catalogue, in alphabetical order, accompanied with rude plates, of the rarer plants, observed by him in Barbary, Egypt, and Arabia. The species amount to 632, and the catalogue is enriched with several synonyms, as well as occasional descriptions and remarks. His dried specimens are preferred at Oxford. The orthography of the name is attended with difficulty to foreigners, our w being as unmanageable to them, as their multiplied consonants are to us. Some of them blunder into Schawzia, Shawnia, or Shavria. Perhaps the latter might be tolerated, were it not for the ludicrous ambiguity of Shawins itself, applied by facetious Oxonians to the above famous traveller and his namesake.—Forth. Gen. t. 18. Prodr. 58. Schreb. Gen. 958. Mart. Mill. Dict. v. 4. Jull. 180. Lamarch Dict. v. 7. 148.—Chis. and order, Syngena Monogamia, Forl. S. Polygama-fregellate, Schreb. Nat. Ord. Compositae bifoliadice, Linn. Corymbylum, Jull.

Gen. Ch. Cal. Perianth imbricated, cylindrical, of five or six oblong scales; the three innermost longest, and nearly equal. Cor. of one petal, funnel-shaped, short; limb in five linear spreading segments. Stam. Filaments, five, capillary; anthers united into a cylindrical tube. Pet. 5. Germs oblong, below the corolla, superior with respect to the calyx; style thread-shaped, longer than the corolla; stigma divided, spreading. Peric. none, except the unchanged pervalv calyx. Seed solitary, oblong. Down capillary, woolly at its base. Recept. naked.


1. S. paniculata. Forth. Prodr. n. 1.—Native of New Zealand. We have seen no specimen of this plant. The younger Linnaeus, in his copy of Forster's book, has made a note of its being referred by Banks and Solander to Salvia, under the name of undulata. Perhaps this is the most natural way of disposing of it, though if the calyx never contains but one floret, and is not in any way aggregate, the genus should stand in Pentandria Monogynia, along with Corymbium, at least according to the strict laws of artificial arrangement; but we should hardly, in either case, recommend such a measure.

Shawle, in Agriculture, a name applied to a shovel used in winnowing corn, in some places.

Shawmungo, in Geography, a town of Bengal; 18 miles W. of Rungpour. N. lat. 25° 27'. E. long. 88° 46'.
of Moulatan; 70 miles N.E. of Moultan. N. lat. 30° 40'. E. long. 72° 58'.

SHAWPOUR, a town of Bengal; 42 miles S.E. of Moolthabad.—Alno, a town of Bengal; 30 miles S. of Calcutta. N. lat. 22° 5'. E. long. 88° 26'.—Alno, a town of Hindooftan, in the ecart of Suryoga; 28 miles N. of Suryoga. N. lat. 23° 35'. E. long. 83° 25'.—Alno, a town of Hindooftan, in Berar; 45 miles N.W. of Maltoo.

SHAW, a town of Syria, in the pachac of Aleppo, situated in a romantic country, where the river Orontes winds majestically through the plain. The town is populous, and has a good caravanserai. Adjacent to it is a good stone bridge of seven arches. These conveniences have been originally provided for the caravan, which rests here in its route from Constantinople to Mecca.

SHAWROWAL, a town of Hindooftan, in the ecart of Chandree; 45 miles W. of Chandree.

SHAWSHEEN, a considerable stream of America, in Massachusetts, which rises in Bedford county, Middlesex, and passing through Billerica, Tewksbury, and Andover, discharges itself into Merrimack river.

SHAYE, a town of Hindooftan, in Guzerat; 33 miles N.E. of Junagar.

SHAYSHAR, a town of Syria, anciently called La-tzife, on the Orontes; 10 miles N. of Hamah.

SHAZADABAD, a town of Hindooftan, in Allahabad, on the right bank of the Ganges; 30 miles N.W. of Allahabad. N. lat. 25° 42'. E. long. 81° 43'.

SHAZADPOUR, a town of Hindooftan, in Bengal; 25 miles S.E. of Nattore. N. lat. 24° 12'. E. long. 89° 43'.

SHEDING, a riding, living, or division, in the Isle of Man; the whole island being divided into fixed foldings, in every one of which is a coroner, or chief constable, appointed by the delivery of a rod at the annual convention.

SHEAF, in Agriculture, a bundle of corn, as bound up in the field. Sheafs are made of very different sizes in different places, but they are bell when not made too large. See HARVEST.

SHEAF-Corn, such grain as is in the state of ear in the straw before being threshed out. It is sometimes employed in this state as fodder for different sorts of live-flock.

SHEAF OF AROSE, a bundle confining of 24 in number. SHEAFGUR, in Geography, town of Hindooftan, in Myfors; 4 miles W.N.W. of Vampanbad.

SHEALINGS, in Rural Economy, the portions of rich grass-land in the more hilly and mountainous parts of the country, which were fixed upon, and taken possession of, by the farming inhabitants at an early period of society, for the purpose of retaining to, and grazing their cattle flock upon, at certain seasons of the year. Some snug well-fertilized spot in such hilly ranges was always fixed on in this intention, which was removed from one to another whenever the cattle had consumed the grasses of it; huts or cobs being provided for the accompanying persons to live in, who had the care of the animals, &c.; a trusty tenant being usually first heaven to secure the spot, and drive away any wandering and trespassing cattle from it. This person was denominated the pounder, perhaps because he was authorized to point or confine troublesome flock, and fix the fine established for the trespassers. In some cases there were more than one such spots, and where they were very rich, as near lakes, brooks, or in valleys, the grass was consumed in common by two or more of them associating together. The shealings were by no means, as some have supposed, depopulated at random, but according to the flock, or as they were pleased. See Sow.

These small-holder farmers lived with great hospitality, and on some oatmeal, and the produce of the dairy, with the same time a contact on their corn for their farms or household purposes. For the sake of performing different parts of work on their farms, the sheaf, weet, &c., was the left to be done by the women.

Though some of these shealings still exist in the same way in the northern parts of S. Iland, they are fast falling into dilute. In the room of such small shealings is placed during the former feaste, the dish of grain are frequently dispensed from the farmer's homestead, and left to shepherds, who live there all the year round, attending their flocks, in a modern kind of substantial maslin work.

In this mode of occupation, the landlord is forced to draw more rent from his glees and mountainous property, and the farmers are at liberty, during the bell feaon of the year, to ply the necessary and variety of labours wanted, for the improvement of their arable grounds, which, to indigenous men, are never at an end.

The shealings feasting was, and is, as far as it yet continues, that of contentment, of festivity, of health, and of joy. The women are employed in spinning wool to clothe their families, and in making butter and cheese for part of their winter provisions. The youth are employed in filling and wrestling, or athletic exercises, which put their swiftness and courage to the test, as a preparation for the more serious conflicts of a field of battle. When the several labours of the day are ended, the whole hamlet retires to rest, and to drown their fatigue in the foundent flumbers, on a bed of health, the mellifluous fragrance of which perfume the whole dwelling. See the Agricultural Report of the County of Inverness.

SHEALY, in Geography, a town of Hindooftan, in the Carnatic; 10 miles S.W. of Tanjore.

SHEAR, in Agriculture, a provincial word, signifying the reaping of grain. It is also applied to sheep, as one-shear or two-shear, which signifies one or two years old.

SHEAR-OFF, in the Sea Language. See SHEERING.

SHEAR-WATER, in Ornithology, the Procellaria puffina of Linnaeus, and called by some winters avis diomedis, is a bird about fifteen inches long, and thirty-one inches broad; the bill is an inch and three quarters broad; the nostril tubular; the head and whole upper side of the body, wings, tail, and thighs, are of a bovity and so the under side, from the chin to tail, and inner coverings of the wings, white; the legs, weak, and compressed sideways, dusky behind, and whitish before.

These birds are found in the Calf of Man, whither they return in February; taking possession of the rabbit-burrows, and then disappearing till April; the young, which are fit to be taken in the beginning of August, are killed in great number, salted, and barrelled; and when boiled, eaten with potatoes. They quit the isle the latter end of August, or beginning of September; and there is reason to imagine, that, like the Cormorant, they are dispersed over the whole Atlantic ocean. In the Orkney isles this species, called the 'lyre,' is much valued for food, and for its feathers. They are taken and salted in August for winter provisions. See Puffin.

SHEARDAY, in Agriculture, provincially the sheep shearing.

SHEARING, a term applied to the cutting of grain, and to a sheep that has been once shorn. See Silep.

SHEARING, Sheep. See SHEEP-SHEARING.

SHEARING, in the Woollen Manufacture. See SHEERING.
SHEARLING, another term commonly applied to a sheep that has been once shorn by sheep-maillers.

SHEARPUR, in Geography, a town of Hindustan, in Bengal, on the Burhampooter; 82 miles W.N.W. of Dacca. N. lat. 24° 53'. E. long. 89° 54'.

SHEET, or Sheets, a name by which some call a young horn.

Sheets, or Sheets, in a Ship. See Sheet.

If the main-fall sheets are haled aft, it is in order to make a ship keep by a wind, but when the fore-sheets are haled aft, it is that the ship may fall off from the wind; and if she will not do it readily, they then hale the fore-fall, by the sheet, flat in, as near the ship's fides as they can; and this they call航运ing the fore-fall. When they say, caje the sheet, they mean veer it, or let it go out gently; but when the word is, let fly the sheet, they mean let it go all at once, and run out as fast as it can; and then the fall will hang loofe, and hold no wind. The feamen fay, when they would have the sheets of the main or fore-fall haled aft, tally the sheets. In a very great gale, or guilt of wind, there is another rope bent to the clues of the main-fall and fore-fall, above the sheet-block, to foccur and cafe the sheet, and this they call a false fheet.

Sheats, in a Ship, also are those planks under water which come along her run, and are closed into the flernpoft: so also that part within board, in the run of the ship, is called the flern-sheets.

Sheat, Falfe, See SHEAT.

Sheat, Overhale the, in Sea Language, a word of command to hale upon the flanding part of the sheet.

Sheat-Anchor, in a Ship. See Anchor.

Sheat of a Plough, in Agriculture, that part of the plough which passes through the beam, and is fattened to the share. It is sometimes called sheath.

And the shear, or as it is sometimes called, the fore-sheat, there being another piece of timber behind it, which is called the hinder-sheat, in other are two inchcs wide, and fattened to the beam by a refch (a piece of iron with two legs), and by a wedge driven by it into the hole of the beam. But in the modern construction of this tool, the sheat is fattened without having recourse to these means. The angle contained betwixt the sheat and the beam of the plough should be about forty-two degrees.

Sheath, in Botany, is synonymous with path, perichelium, and vagina. In the first instance it belongs to the single-leaved covering, burbling longitudinally, which Linneas reckons a kind of calyx, differing from a perianthium in being more or less remote from the flower. Such occurs in Galanthus, Narcifius, Allum, and others of the Hexandrous clas; as also in Arum; and more especially in the natural order of Palme. The perigeeum, see that article, is the fealy sheath, or calyx, of Moflen. Vagina, which will be further explained in its place, is the flheeting part of a leaf.

Sheathing of a Ship, is the caulking that part of her hull which is to be under water with something to keep the worms from eating into her planks.

It is usually done by laying tar and hair, mixed together, all over the old planks, and then nailing on thin new boards. But this hinders a ship's failing; and therefore, of late, some have been sheathed with milled lead, which is much smoother, and consequently better for failing; and also more cheap and durable than the other way. It was first invented by Sir Philip Howard, and major Watfon.

The sheathing with copper is a still later invention, and anwes better than any other.

It is very well worth the trying what the new flone pitch will do in this cafe; if it will defend from the worm, as perhaps it may, a ship might be paid with it cheaper than with the crown pitch; and it will not crack nor fale off, as that will do, but keeps always soft and smooth. It has been found to take in thirteen months, and to remain very black and foft all the time.

Sheave, a cylindrical wheel, made of hard wood or metal, moveable round a pin as its axis in a mortife, as being used to raife or increase the mechanical powers, as a pulley, applayed to remove or lift weighty bodies. Sheaves are either fixed in blocks, to form tackles, or let through the ship's fides, for affifiting to lead the tacks and sheats on board, or in mortifes cut through the masts, yards, caps, &c. to facilitate the working of the rigging, and outer ends of the cat-heads, to form the cat-tackle to raife the anchor to the bow.

Sheaves, in Rural Economy, provisionally the broken parts of the items of flax which come away in dreeling. Also the small bundles of grain in the flraw.

Sheb, in Geography, a town of Nubia, on the borders of Egypt, on the route from Charjie to Cobe; 175 miles N. of Charjie. This place is occasionally infected by a tribe of the wandering Arabs, called Ababds, who come from the neighbourhood of the Nile. Sher is marked by the production of a great quantity of native alnum, as the name imports. The surface, from which the alnum is found, abounds with a reddish flone; and in many places is seen argillaceous earth.

Shebat, in Chronology, the eleventh month of the Jewish eccclifiaical year, anwering to part of our January and February.

Sheoby, or Shelby, as Morfe has it, in Geography, a county of Kentucky, in the United States, containing 14,453 inhabitants, of whom 2900 are flaves.

Shebyville, a town of the forementioned county, containing 424 inhabitants, of whom 218 are flaves; fo that the total in the county and town includes 14,877 inhabitants.

Shebshir, a town of Egypt; 9 miles S. of Amrus.

Shebster, a town of Perfia, in the moft pictureque, and, at the fame time, the moft flourishing division of Azerbijan, which lies along the N. and W. borders of the lake of Urumea, from Tabreez to the confines of Armenia. Shebster is a large and flourishing town.

Shecatica Bay, a bay on the S. coast of Labrador. N. lat. 51° 20'. W. long. 58° 20'.

Shechallin, or Shchallin, a lofty mountain in the parish of Fortingall, diàit of Rannoch, and county of Perth, Scotland, is situated in the immediate vicinity of Loch Rannoch. It rifes in a conical form, and hence derives its name, which signifies the maiden's breast. According to mensuration, its height is 3364 feet above the level of its base, which nearly coincides with that of the ocean. This mountain is rocky and barren; but is particularly remarkable from the circulation of its having been chosen by Dr. Mankelyne, late alroner royal, for ascertaining the power of mountains in attracting the pendulum. Sinclair's Statistical Account of Scotland, vol. ii. 1792. See At traction of Mountains, and Mountains.

Shechinah, in the Jewish History, the name of that miraculous light, or violet glory, which was a fymbol of the special presence of the Deity. This shechinah, after it had conducted the Israelites through the wilderness, had its more flated residence in the tabernacle and the temple. See Ark of the Covenant.

For a farther account of this miraculous phenomenon, the
It is evident that sheep are animals of the utmost importance to mankind, whether considered in the light of affording food and clothing, or in that of the valuable implement and profit which they produce in various systems of management to which they are subjected by the farmer; in some instances constituting a very large proportion, and in others nearly the whole of his dependence and support. There is also another point of view in which they appear equally advantageous and interesting, which is that of their becoming thus beneficial in situations and upon lands that must otherwise be nearly if not wholly unsuited. Also in the view of affording the raw material for one of the most extensive staple manufactures of the kingdom, the advantages which they afford are almost incalculable.

But besides the wool, the skins and other parts of these animals afford a variety of other equally useful and important articles and products, such as those of parchment, leather, glue, fuel, and many others, which are of great value for different intentions and purposes in the arts and other ways, and which employ a great number of labourers in forming and preparing them. In short, there is hardly a part of the sheep that does not afford an useful and valuable product of some sort or other. In usefulness they may, of course, be placed at least next to, if not before, the cow. In disposition, almost all the improved breeds are extremely mild, tame, and gentle, which is a proof of their value as grazing stock: but those which have been least attended to, or which continue more in their native or original state, are much less tractable, as those which inhabit the downs, heaths, and mountains in different parts of the island.

The character of stupidity, want of sagacity, and of some other valuable properties, which the naturalist Buffon has given these animals, seems by no means well-founded. It is probably the offspring of prejudice, and the improper examination of the subject.

The increase or growth of the sheep continues to advance till at least three years old, when it is in general considered as in the most proper state for the purposes of the grazer, though it is employed in this way till a much later period, sometimes even till five or six, and also with the view of breeding; but an early maturity is a property of much conformation, especially for the grazer. Of sheep, the breeds or varieties that are dispersed over the globe are almost endless; even in this country they are so extremely numerous as scarcely to be described with any correctness.

The characteristic circumstances by which they have been chiefly distinguished, are those of their possessing horns, or being wholly without them, and from the length or shortness and fineness of the wool or coat, as well as the situation in which they are chiefly found. It has been flayed by Lord Somerville, in his "System of the Board of Agriculture," that all the breeds of sheep in this kingdom may be arranged into two classes; those which shear the short or clothing, and those which shear the long or combing wool. And that the quality of the flesh in each class follows the character of the wool; the short-woolled sheep being clove in the grain as to flesh, consequently heavy in the scale, and high-flavoured as to the taste, the pulled long-woolled sheep more open and loose in the grain, and larger in size. And by the author of "The present State of Husbandry in Great Britain," they have been distributed under three general divisions, as below:

1. The mountain breed;
2. The short-woolled breed;
3. The long-woolled breed.

And among the first are comprised several varieties, as the black-faced, which range on the mountains of Wales, etc.
SHEEP.

Wiltmoreland, Cumberland, Yorkshire, and those in the south, west, and north of Scotland, and in the Shetland islands; the Cheviot hills, in the south of Scotland and north of England; and the forest and common sheep of the last-mentioned country. In the second division are included those of Hereford, Dorset, Sulles, Norfolk, and some parts of Cumberland. And the third division comprehends all those varieties that are dispersed over the more rich and fertile parts of England, and which are distinguished under the titles of the Durham or Teeswaters, the Lincolnshires, the old and new Leicestershires, &c.

But others divide them into long, short, and middle-wooled kinds.

And a still more clear and concise view of the various breeds of British sheep, is afforded in the tabular form given by Mr. Culley, as enlarged and corrected by the author of the "General Treatise on Cattle," and others.

<table>
<thead>
<tr>
<th>Names of Breeds</th>
<th>Weight of Fleece</th>
<th>Wethers per Quar.</th>
<th>Age killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teeswater.</td>
<td>White face and legs.</td>
<td>Long wool.</td>
<td>9lb. 30lb.</td>
</tr>
<tr>
<td>2. Lincoln.</td>
<td>White face and legs.</td>
<td>Long wool.</td>
<td>11. 25.</td>
</tr>
<tr>
<td>3. New Leicester.</td>
<td>White face and legs.</td>
<td>Long wool (fine).</td>
<td>8. 22.</td>
</tr>
<tr>
<td>5. Romney-Marsh.</td>
<td>White face and legs.</td>
<td>Long wool (fine).</td>
<td>8. 22.</td>
</tr>
<tr>
<td>11. Dorset.</td>
<td>White and speckled.</td>
<td>Short (mid.).</td>
<td>3. 20.</td>
</tr>
<tr>
<td>12. Wilts.</td>
<td>Black and white.</td>
<td>Long wool.</td>
<td>7. 18.</td>
</tr>
<tr>
<td>13. Berks.</td>
<td>Speckled and white.</td>
<td>Short wool.</td>
<td>2. 18.</td>
</tr>
<tr>
<td>14. South Down.</td>
<td>Black and white.</td>
<td>Short wool.</td>
<td>2. 18.</td>
</tr>
<tr>
<td>15. Norfolk.</td>
<td>Speckled and white.</td>
<td>Short wool.</td>
<td>2. 10.</td>
</tr>
<tr>
<td>16. Herwick.</td>
<td>White face and legs.</td>
<td>Short wool.</td>
<td>3. 16.</td>
</tr>
<tr>
<td>17. Cheviot.</td>
<td>Dun face and legs.</td>
<td>Short wool.</td>
<td>1. 7.</td>
</tr>
<tr>
<td>18. Dun-faced.</td>
<td>Various coloured ditto.</td>
<td>Fine cottony.</td>
<td>1. 8.</td>
</tr>
<tr>
<td>20. Spanish.</td>
<td>Ditto fine.</td>
<td>2. 16.</td>
<td>3</td>
</tr>
</tbody>
</table>

There are a few other breeds met with in different districts, as noticed below.

Since it is found by the grazier that the more an animal approaches towards perfection in its form, the better, in general, it is adapted to the purpose of fattening; it is obviously a matter of much importance to be well acquainted with the peculiar disposition and connection of parts which constitute such excellence or perfection of form; these have been already fully explained in speaking of the nature and principles of breeding animals, as well as in considering the nature and management of cattle. And the same thing is to be aimed at in sheep flock; as the more any breed may approximate to such an excellence of shape, the more perfect it must be. A sort of model to be aimed at, in so far as shape is concerned, in the improvement of these animals, due attention being always had to other properties, has been given by Mr. Culley, in his description of a ram, and which may be seen under that head. (See Ram.) The nature and combination of the various points and parts should, of course, be well understood and impressed on the mind of the breeding and grazing farmer, in order that he may always rear or procure these animals to the greatest advantage.

The varieties of this most useful animal are endowed with different particular qualities, properties, powers, and propensities, which it is necessary to ascertain, in order for the farmer to draw and produce the utmost advantage possible from the combing, croffing, and rearing of them. All the breeds of sheep are the most distribut while they are kept or left in the state of nature.

The common and usual descriptions of the several breeds are the following:

Teeswater Breed or Variety.—This is a breed of sheep said to be the largest in the island; it is at present the most prevalent in the rich, fine, fertile, inclosed lands on the banks of the Tees in Yorkshire. In this breed, which is supposed to be from the same blood as those of the Lincoln, greater attention seems to have been paid to fleece than wool. It is, however, a breed only calculated for warm rich pastures, where they are kept in small lots, in small inclosures, and well supported with food in severe winter fowens. The produce in weight of mutton is large, but then, from their requiring so much longer time and richer keep, and being admitted in so much smaller proportions on the acre, they are probably not, upon the whole, so profitable, even in situations where they can be kept with the greatest chance of success, as the smaller more quick-feeding breeds. In the eyes there is, however, a property which is of much consequence, which is, that in general they are very prolific, bringing two and frequently three lambs, and in some cases a greater number each, according to Mr. Culley. He gives the following description of the breed. The legs are longer, finer boned, and support a thicker and more fine and heavy carcass than the Lincolnshires; the sheep are much wider on the backs and sides, and afford a fatter and finer grained mutton. The weight per quarter in two-years old
old wethers is from 25bs. to 45bs., and in particular instances to 55bs. or more. The wool is shorter and lets heavier than that bred elsewhere. However, the writer of the “Treatise on Cattle,” thinks that the breed is nearly worn out; but admits that there is a distinct breed in Ireland.

This is a sort of sheep that has been little attended to, but which, when improved by proper methods, it is supposed would answer and pay well in districts where it could be well supported. In the Considered Report of the Society of Agriculture in the West Riding of Yorkshire, Mr. Parkin supposes that an useful kind is capable of being bred by crooking the ewes of this sort with Dishley rams, in a careful manner. And it is added, that by the use of these, and those of the Northumberland kind, the quality of the wool and the mutton has not only been greatly improved, but the quantity of bone and offal much increased; and, at the same time, the fattening property considerably increased; they becoming fatter at two years old than the others are at three. The wethers of this improved sort generally fell unhorned, at two years old, from 45s. to 55s. a-piece, and weigh from twenty-four to thirty pounds the quarter. They sell a great deal higher at the present time.

Lincolnshire Breed or Variety.—This is a breed of sheep which is characterized by their having horns; white faces; long, thick, weak carcasses; thick, rough, white legs; bones large; pelts thick; and wool coarse-grained. The weight per quarter in ewes from 14lbs. to 20lbs.; in three-year old wethers from 25lbs. to 35lbs.; the wool from 10 to 18 inches in length. And it is chiefly prevalent in the district which gives the name, and other rich grazing ones. But the writer of the work on Livestock supposes that this breed is now so generally improved by new Leicester rams, that they are probably, in a great measure, freed from those defects of the old breed, of which Mr. Colley, with much reason, complained, namely, wool of ill form, and too much bone, and coarse-grained flesh. It must not, however, be denied, that a good old Lincoln has ever been, and the name, at least, still continues a great favourite at Smithfield, and the flavour of the Lincoln mutton has been generally held superior, as more savory than the Dishley. The new or improved Lincoln now have finer bone, with broader legs and trussed carcasses, and are among the best, if not actually the best, long-wooled sheep we have. Many will recollect the ridiculous and indecorous squabes, some years ago, between two eminent breeders concerning these two breeds of sheep. About this time, they attempted to feed Lincoln sheep on the Fifeshire wafhes, and pretended the flock degenerated, which might happen from insufficiency of winter keep, or, if they were breeding flocks, from crossing with other breeds, an everlasting and unregarded practice in those not profusely breeding counties. This has been suggested as a breed only capable of being made fat on the coarse grazing lands; but that in such cases it may probably be kept till three years old, with greater profit than the new Leicester kind. The proportion of bone to mutton is considerable, and the latter not very fine in quality. But the principal excellence of the breed is in the large quantity which it affords, which pays for their being kept longer before they are fattened. Such breeds as feed quicker should however be preferred by the farmer on most sorts of land.

New Leicester, or Dishley Breed or Variety.—This is an improved breed of sheep, which is readily distinguished from the other long-wooled sorts, according to Colley, by having fine lively eyes; clean heads, without horns; straight, broad, flat backs; round or barrel-shaped bones; fine small bones; thin pelts; and a disposition to make fat at an early age; to which may be added a superiority in the fineness of the grain and the flavour of the mutton to that of either sheep of the large long-wooled kinds. The weight per quarter in ewes three or four years old from 18lbs. to 20lbs.; in two year old wethers, from 20lbs. to 30lbs.; the length of wool from six to fourteen inches.

But the author of the “Treatise on Cattle,” who seems chiefly to object to the Leicester breed, from its too great propensity to fatten, which, it is supposed, also abates the proce-
procreative and laitiherous powers, says, “Pure Diflby sheep are by no means the molt prolific, nor the belt nurxes.” And adds, that the heads of the improvers having had time to cool, it is no longer boastful, that new Leiceflcr sheep are able to fulfill, and even thrive, on the shorteft commons. In fine, it is contended, the merits of this flock as an improving crofs, (their grand point of utility,) being fo undeniably great, their difadvantages have been overlooked, and com- parifons have been ufually made with fuch only as had a ftrong need of improvement, in which the new Leiceflers in course were few to triumph. And further, that though the Diflby crofs has made its way into every part of this ifland, to the Land’s End, to the bottoms of the Welch mountains, and of the Scottifh Highlands, to Ireland, and even to Russia, its general succes has been attended with various particular inftances of failure, a remarkable one of which is given by lord Somervile, in his Facts, in refpeét to the Bampton or Western long-woolled sheep. The crofs is sometimes very injudiciously used with short or carding wool flock, excepting where the intention is only forward lamb. On flock naturally good and improvable, this peculiar effect of the new Leicefler crofs has refulted, the improved have confiderably furpafled, in the molt valuable properties, their improvers. Of this many examples may be fnen, it is suppoled, in the improved Lincoln, Northumberland, and Midland county sheep.

The following is a table of the value of new Leicefler sheep, at various ages, as given on the authority of different eminent breeders in the Lincolnshire Agricultural Survey.

<table>
<thead>
<tr>
<th>Age</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months</td>
<td>17s.</td>
</tr>
<tr>
<td>12 months</td>
<td>30s.</td>
</tr>
<tr>
<td>18 months</td>
<td>35s.</td>
</tr>
<tr>
<td>24 months</td>
<td>45s.</td>
</tr>
<tr>
<td>30 months</td>
<td>45s.</td>
</tr>
<tr>
<td>36 months</td>
<td>55s.</td>
</tr>
</tbody>
</table>

But others, in different parts of the dittrict, flate it thus:

- Leiceflers, at fix months old, worth 14s.
- Leiceflers, at twelve ditto 22s.
- Leiceflers, at eighteenth ditto 28s.
- Leiceflers, at twenty-four ditto 35s.
- Leiceflers, at thirty ditto 45s.
- Leiceflers, and, if kept to thirty-fix, would be 50s.

If a three-fliear fell for 3l. it will be worth,

- At 6 months, 28s.
- At 12 months, 35s.
- At 18 months, 40s.
- At 24 months, 48s.
- At 30 months, 56s.
- At 36 months, 60s.

Ating to the firft of these tables, the scale of receipt is:

<table>
<thead>
<tr>
<th>Time</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the firft summer</td>
<td>0 17 0</td>
</tr>
<tr>
<td>For the firft winter</td>
<td>0 13 0</td>
</tr>
<tr>
<td>For the second summer, including</td>
<td>0 11 0</td>
</tr>
<tr>
<td>$8bs. wool at 9d.</td>
<td>0 11 0</td>
</tr>
<tr>
<td>For the second winter</td>
<td>0 10 0</td>
</tr>
<tr>
<td>For the third summer, including wool</td>
<td>0 6 0</td>
</tr>
<tr>
<td>For the third winter, including wool</td>
<td>0 6 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fleece</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 13 0</td>
<td></td>
</tr>
<tr>
<td>3 18 0</td>
<td></td>
</tr>
<tr>
<td>2 15 0</td>
<td></td>
</tr>
</tbody>
</table>

At 73s. they pay, per annum, 24s. 4d.

And it is remarked, that, at these prices, the half fliear year pays better than any; if this is fuit, there is a great lofs, by felling at 2½ years old; for it is just at the conclusion of the worft half year there is.

Mr. Dawion of Berthorp, who has an excellent flock bred from Mr. Dalby’s tufts, half year fold 200 two-fliear wethers at 3l. round. The following is his table of fales for seven years, of wethers of that age.

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1790</td>
<td>35s.</td>
</tr>
<tr>
<td>1791</td>
<td>35s.</td>
</tr>
<tr>
<td>1792</td>
<td>43s.</td>
</tr>
<tr>
<td>1793</td>
<td>38s.</td>
</tr>
<tr>
<td>1794</td>
<td>44s.</td>
</tr>
<tr>
<td>1795</td>
<td>50s.</td>
</tr>
<tr>
<td>1796</td>
<td>60s.</td>
</tr>
</tbody>
</table>

He tods threes. Average 2l. 3l. 6d.

And, at this average, he would thus divide it, by suppoing the proportion to be,

<table>
<thead>
<tr>
<th>Time</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 6 months</td>
<td>0 17 0</td>
</tr>
<tr>
<td>At 12 months</td>
<td>1 7 0</td>
</tr>
<tr>
<td>At 18 months</td>
<td>1 12 0</td>
</tr>
<tr>
<td>At 24 months</td>
<td>2 0 0</td>
</tr>
<tr>
<td>At 30 months</td>
<td>2 3 6</td>
</tr>
</tbody>
</table>

The advantages and difadvantages of the Lincoln and new Leicefler breeds of sheep have been very fully confidered in the Agricultural Survey of the former county; and the refluts flated as below in the ditfifins of it.

Circumstances of compariion between the Lincoln and Leicefler breeds of sheep.

- Bolton. Lincoln better than Leicefler, on general experience and particular experiment.
- Brothertoft. In experiment, very little difference.
- Ewerby. Leicefler tenderer than Lincoln. Lincoln pay beet for keeping to three-fliear.
- Hackington. Last year of Lincolns pay beet.
- Ewerby. Old ftood the winter better, and pay better than young.
- Owerby. Shearling Leiceflers have, at Wakefield, fold as high as two-fliear Lincolns. Difference of wool has been as 8 to 16. Leiceflers tenderer in winter.
- Normanby. Lincoln fleece 2lbs. heavier than Leicefler. Leicefler off-hearlings; Lincolns two or three-fliear, but the latter pay well, if kept to three-fliear. Leiceflers finer grained mutton.
- Leiceflers rather thicker on the land, but Lincolns considerably larger.
- As much wool per acre from Leiceflers as Lincolns.
- Walcot. Leicefler fleeces, though not fo heavy as Lincoln, fold, in one instance, for as much money.
- Barton. Leicefler not tenderer in winter than Lincoln. Old breed of Lincoln used to go lean at two years old.
- Now, Leiceflers fat at the fame age.
- No difference in number on the fame land.
- Wool the fame.
- Leiceflers come to fame sooner, but will not bear cold, wet land in winter so well, nor heat or cold after shearing, as the Lincoln.
- Bonby. Leiceflers have refifted hardships on the worft land better.
- Barrow. Five Leiceflers where four Lincolns; and Leiceflers have refifted hardships on the worft land better.

Brockleby.
SHEEP.

Brocklesby. Lincoln more profitable than Leicester.

Lumber. Where a man can keep, by means of marsh, to three-shear, Lincoln most profitable, but not otherwise. Not more Leicesters kept on the same land. Leicester wool is a tod more than Lincoln. Leicester more liable to the fly.

Cadney. Leicester will feed a little faster, and run a little thicker.

Beefby. Leicester one in six more on the same land, but both go at the same age. Leicesters harder, and have less offal. Tallow equal: wool higher priced. Gives corn to Leicesters, but did not to Lincolns.

Alesby. Leicesters feed quicker, and have less offal; wethers and hogs less wool, but ewes equal, and on the whole more per acre; harder, and bear driving better. Go off at the same age, but Leicesters fatter. Five kept instead of four. Lamb easier: necessary to give corn.

Humberston. More pride than profit in the new fort. Leicesters 24 lbs. less wool than Lincolns, and not better; but run one in ten thicker.

Louth. Leicesters feed quicker, and have lighter offals. No difference in hardiness. Lincoln belt.

Tathwell. Lincolns and Leicesters being put together into the marsh, and sent thence at same time to Smithfield; the former yielded 42 a. head more, and 57 a. head more wool.

Cookswold. Marsh graziers all prefer Lincoln. No difference in number kept.

Tathwell. Lincoln wool 4 lbs. heavier than Leicester. At two-shear, Lincoln heavier by 2 lbs. a quarter; at three-shear, 6 lbs. In tallow, 6 lbs. at three-shear, in favour of Lincoln. In number per acre no difference. In hardiness, Lincoln belt. Leicesters less wool, and less mutton per acre.

Driby. No difference in number kept.

Spilsby. Leicesters as fat at Lady-day, coming two-shear, as Lincolns at Lammas. Same number per acre. No difference in hardiness; Leicesters have corn.

Horneastle. Three-shear better than two, as sure to find more tallow.

Asgarby. Leicesters bred too fine; fine-headed ones do not yield wool enough.

Frampton. As many of one as the other per acre. Lincolns travel best, and pay best.

Randby. Leicesters thicker on land, as five to four.

Alderkerk. In an experiment of the two breeds on the same land, of the same weight and age, the Lincolns considerably superior.

Thoresway. True Lincolns most saleable, and most profitable to breed.

Sudbrook. One-third more Leicesters on the same land.

Risuelom. Boston graziers not judges, for they can get good Lincolns, but not Leicesters, as the breeders of these can fat them themselves. Leicesters run one-fourth thicker on the land. From six to twelve months old, rather tenderer than Lincolns; Leicesters travel best.

Claypool. Leicesters as fat at one year as Lincolns at two, and with less trouble, and one-tenth thicker. Do as well as Lincolns in winter on wet land.

Marlton. Leicesters belt, and run one-fifth thicker.

Woolthorpe. Leicesters by far the belt; but more apt to be barren than Lincoln. Drape ewes far more valuable.

Grantham. Leicesters travel belt, and are the belt; and much less los in lambing; run one third thicker.

A clear distinction is to be drawn, as the writer remarks, between the rich south-eastern district and inferior soils; for, upon the former, the information is strong in favour of Lincoln. However, in general, he should observe, that the new Leicesters are spreading very rapidly over the country, probably faster than they have done in any other, one or two only excepted, which may be attributed to the general goodnes of the soil; for this breed makes a much more respectable figure here than it has done in various trials made on counties inferior to it in soil; and the breed driving-out the Lincolns so much as it has done in the poorer parts of this county, is a fact which unites with this circumstance. The true Lincoln is a large sheep, and with a longer wool, and therefore demands better pasturage; where it finds such, there the old breed remains; subject, perhaps, to little more change than fashion may cause. Upon inferior land the Leicester establishes itself; and upon land still inferior in other counties, experiments prove unsuccessful for the same reason; that of the necessity of having a smaller size and shorter wool.

But some of the original pure long-wooll'd polled breed of sheep, are still to be met with in the midland districts, which are a larger boned, longer formed, deeper coated, and more coarse flock than the improved fort. And that, from the coarsetwo and larger size of the head and neck in the old fort, the ewes lamb with more difficulty than in the true Didsbury breed.

The new Leicester fort of sheep is found a very advantageous breed on some kinds of land in the county of Oxford, as on the flone-brash; there are some farmers indeed, who think that no other fort comes nearly up to them, when all their valuable properties are taken into the account.

Coatswoold or Gloucester Breed or Variety.—This is a breed of sheep which, according to a late writer on them, is of the fine combing wool fort, deriving the finewool of their fleece from the same source as the new Leicesters. This part of that county formerly, and within memory, bred, it is said, small fine-wool'd sheep of the Ryeland kind, which in past times had been cotted, but the practice was discontinued. These sheep, being judged too small for the improving state of the country, have been, by gradual crossings with Midland longwooll'd rams, chiefly Warwicks, completely changed from short to large long-wooll'd flock. The writer saw a picked lot of Cotwolds last year, he says, which answerd the following description: long coarse head, with a particular blunt, wide nose: a top-knot of wool on the forehead, running under the ears: rather long neck: great length and breadth of back and loin; full thigh, with more sub stance than the hinder than fore-quarters; bone somewhat fine: legs not long: fleece soft, like that of the Didsbury, but in chiefness and darkens of colour, bearing more resemblance to short or carding wool. Although very fat, they had all the appearance of sheep that were full of solid flesh, which would come heavy to the scale. It is added, that it is said, some of these sheep have reached 40c, and even 50lbs, a quarter,
a quarter, at two years and a half old, giving 11 lbs. to 14 lbs. of wool each sheep, and being fat, they are indubitably among the largest breeds in England. A single dip, continues he, of new Leicceler gives the Cotswolds a fulness in the fore-quarter; but any farther crosses of that kind, it appears, diminishes their fleece. The strange crosses of Wilts horned sheep has been recurred to in some parts, for no possible good purpose, he should apprehend, either to the car- cafe or wool; and it is probable, supposing such large flock profitable, that the chief alteration required by the Cotswolds, is to encourage length of staple in their fleece or wool.

In this breed the ewes are usually put to the tup, so as to have lambs at two years old, mostly producing two lambs each, in the proportion of nearly one-third of the whole, where kept well, which must always be done. They may be kept for breeding till three or four years old, if they are of the proper improved sort. But it is said that the wethers afford more profit when killed so early as at two years old, as they are apt to become too fat when kept longer.

The Cotswolds or Gloucesters, and the half Leiccelers and half Gloucesters, and other mixtures of these breeds, are considered as very excellent sorts of sheep flock in many parts of Oxfordshire; they are of a good size, bear plenty of wool, and flanders penning well. But penning or folding is not thought beneficial by some farmers, as more and better sheep may be kept without it.

The native Cotswolds, if they are any where to be found, would be, it is said, at two-year from twenty-eight to thirty-two pounds the quarter: they are a long sort of sheep, not full in the sides, sharp in the chine, not full in the fore-flank, coarse in the bone, not straight but good in the hind-quarters; will not fatten so early as when crossed; and of wool, the two-year wether affords three and a half fleeces to the tod. The new Leicceler, it is contended, is calculated to correct every one of the deficiencies which have been noticed, and to bring a greater disposition to fatten. Between all Cotswold and all Leicceler, the average difference of wool, it is said, is three pounds.

In Devonshire, some, it is said, have succeeded in the crosses of new Leicceler upon the Cotswold, the equal breed of which is attempted to be preferred as much as possible. Wethers of this kind, at eighteen months old, will average nineteen pounds the quarter, and seven pounds of unwashed wool the fleece. When kept on for another twelvemonth, the age at which they are mostly killed in this county, this cross will attain the size of twenty-five pounds the quarter, and yield nine pounds of wool to the fleece. This wool is allowed by the flapers to be one penny the pound superior to that of the Exmoor, Bamptons, South Devon, and Dartmoor sheep, yet still the common price of one shilling. The pound is only allowed for it. In the young wethers of this breed, the loose fat is flated to be nine pounds, with nearly three pounds of kidney fat on each side. The larger wethers are said to produce thirteen pounds of rough fat, and four pounds of kidney fat on the side.

Romney-Marsh Breed or Variety.—This is a kind which is described by Mr. Young, as being a breed of sheep without horns; white faces and legs; rather long in the legs; good size; body rather long, but well barrel-shaped; bones rather large; and it is said that the weight per quarter, in fat wethers at two years old, is usually from 22 lbs. to 28 lbs. In respect to the wool, it is fine, long, and of a delicate white colour, when in its perfect state. On this Marsh 20 lbs. of wool are supposed to be produced per acre. In this breed there is a property of arriving at the state of fatness at an early age, as well as that of producing a large fleece of fine long combing wool, of course it is a valuable sort; however, from the size, and great weight of the coarse, it is not capable of being supported and fattened on the rich kinds of marsh pasture; and on those which extend from Halings to Rye, in Kent, according to the Sussex Agricultural Report, the graziers find it much more beneficial than the South Down; the marsh wethers fattening more quickly. The wool afforded by such fat wethers averaging fix pounds, and in breeding ewes five pounds, but not equal in quality to the wool clipped from shearlings. And the author of the "Synopsis of Husbandry" remarks, that a convincing proof of the great value of this breed of sheep, as well as of the land on which they are fed, is seen in the manner of flocking, which in fogs is from four to seven per acre, in fattening wethers from fix to eight, in barrens from two to three, and in couples three; which is certainly a great flock. And this is a breed that might probably undergo much improvement without croffing; by proper care and attention, and being left exposed in the winter fafon.

In the old Romney-Marsh breed, the sheep were remarkable for having large heads; for being large, long, and tub- bellied; also for being large in their bones, long in their legs, and coarse in their wool; which form is still held in estimation by some, in consequence of improper prejudices, to the great injury of the grazer and community in general; but the pure breed of this sort, Mr. Price says, is distinguished by a thickness and length of head, a broad forehead, with a tuft of wool upon it, a long thick neck, a great length and thickness of carcase; being flat-fided, and having a sharp chine, tolerably wide on the loin, but the breast narrow, not deep, the fore-quarter not heavy or full, a good clef; the thigh full and broad, the belly large and tubby; the tail thick, long, and coarse, the legs thick with large feet, the mule of coarse and the bone large; the wool long and not fine; coarse on the breech: the sheep prove good, and are great favourites with the butchers. But this description is not now, it is said, to apply as it was some time ago, when most of them had horns.

The same writer, in his account of the sheep management in this marsh district, has remarked, that the introduction of the Leicceler breed has very perceptibly altered the form and properties of the original breed or flock of this tract, so that in a few years it will scarcely be distinguishable, and that it is probably the general opinion that it has been injurious to it, in reducing the size and value of the animal, as well as the quality and quantity of its wool, though it has still many advocates, and has certainly contributed much to its improvement. The principal objections which the graziers of this Marsh seem to have to the mixing of the Leiccelers with their own breed, are, that they have seldom or ever twin lambs, which are very desirable and beneficial in this situation; that the lambs are more tender, and, of course, a greater loss liable to be sustained, especially in an open exposed tract of this sort; that their lambs do not winter so well as those of the native breed upon the uplands; they are much less hardy, consequently cannot stand cold and hardships so well, which is very disadvantageous; that their wool is not in such abundance, or so valuable, which is a great defect; that there is a want of proof in them, which renders them a great deal less saleable to the butcher; this may, however, be no disadvantage to the breeder or grazer, as it shews other more valuable properties and dispositions; and that they are too short in their bodies and legs, so as to stand too low in their pens at the market. These are, however, probably improved valuable properties, which must be rather beneficial than hurtful. Some improvement has, however, been given to the Marsh breed by the Leicceler crofs, as 


This breed of sheep is thought to be highly valuable for cold exposed situations, as being easily bred, and standing in need of no artificial food in the most severe winters, except a little hay; they are very hardy for their size, have now many improved qualities, and may probably be made the most profitable of any for rich pastures, as affording the largest proportion of meat at the least expense. In wethers, the general average is now from ten to twelve stone weight each; and in ewes, when fat, from nine to eleven.

**Dartmoor, Devonshire, Hamp and Nott Breed or Variety.**—This is a breed of great fame, which is chiefly distinguished by having no horns; white faces and legs, thick necks, backs narrow, and back-bones high; sides good; legs short, and bones large; and probably without any material objection, being a variety of the common horned sheep. According to Mr. Culley, the weight of wethers on the average about 250 lbs. a quarter; in wethers, at two years and a half old, 350 lbs. Length of wool much the same as in the Romney-Marsh breed. It is a breed found to be prevalent in the districts from which it has derived its name. And it is supposed to have received considerable improvement by being crossed with the new Leicester or Dihiley improved fort within these few late years.

Besides the forest from which it takes its name, this breed is met with in some other parts of the county. The Dartmoor wethers at five years old will average about 160 lbs. per quarter, and produce from four pounds and a half to six pounds and a half of unwashed wool to the fleece. This breed of sheep, though they do not feed so quickly, when put to good keep, as the new Leicester fort, yet, when fat, they constantly prove the very best mutton, and never fail to command a superior price. They also stand the climate in a favourable manner, and the ewes are good nurses.

The old Devonshire dun-faced wethers were formerly held in high estimation, as a native breed of some parts of this county. It is, however, a crooked-backed, flat-sided, closely banded and woolled wool, but which has been much improved by crossing with the new Leicester fort, its principal defects are by those means improved, and greater disposition to fat at an earlier period given, while at the same time, however, the fleece, as well as the weight of the carcase, has been increased, the former from fifteen to eighteen pounds of unwashed wool to the fleece, and the latter from twenty-two to twenty-six pounds the quarter. In order to recompose which, the animal comes to market earlier; the wether at two years old, with advantage; that is, after being twice sheared as a wether, and once as a lamb, equals the average already stated. This influence is more created with the new Leicesters, will arrive, it is said, still earlier to the same perfection.

In the Hamp and Nott breed, the wethers will, at twenty months old, weigh twenty-two pounds the quarter, and shear six pounds and a half of wool to the fleece; also the same sheep, well wintered, and kept on for another twelvemonth, will average twenty-three pounds the quarter, and yield eight pounds of unwashed wool to the fleece. The price of the wool at present is about 10d. the pound.

The first cross of this breed with the new Leicesters is fast growing into great esteem in this district, in consequence of its improving the form, and bringing the animal three months sooner to market; but though so far useful and desirable, any more of that blood is thought disadvantageous, as rendering them too tender while young, and to require too much care and nursing.

The Hamp and Nott crossed with the new Leicesters is also a breed much approved of in several parts of the county, especially when carried to the fourth degree, or four parts of the Leicesters to one of the native sorts. This cross, it is said, comes earlier to market, and at two years old will generally average twenty pounds the quarter, and eight pounds of yarn wool to the fleece, which is worth about 10d. the pound. And the old Leicester crossed upon the Hamp makes a large and handsome animal, which feeds kindly and tailows well within. The wethers of two years old will average, with advantage, thirty pounds the quarter, and shear ten pounds of yarn wool to the fleece. It is valued in some places. But the new Leicester crossed upon the same sheep, will, in some situations bring forward wethers at twenty months old, weighing twenty-two pounds the quarter, with a shear of eight pounds of yarn wool to the fleece, both of which are at this time worth 10d. the pound, weighing, according to the custom of unwashed wool, twenty-one pounds for every score. This sort is highly valued by some in different parts of this county. The Hamp and Nott crossed is more hardy than the new Leicesters, and suits some places better.
Table of the different Breeds, Croffes, and Produce of the Sheep of this and neighbouring Districts.

<table>
<thead>
<tr>
<th>Character of Breeds</th>
<th>Age of Sheep when killed in Months</th>
<th>Average Weight per Quarter, in Pounds</th>
<th>Average Weight per Pecle, in Pounds</th>
<th>Condition of Fleeces</th>
<th>Price of Fleeces in Pounds per Pound</th>
<th>Value of Fat in Pounds</th>
<th>Rough Fat in Pounds</th>
<th>Kidney Fat in Pounds</th>
<th>Total inside Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exmoor, horned, white legs and face, moderately long staple of wool, pure -</td>
<td>30</td>
<td>15</td>
<td>7</td>
<td>Yoak.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Dartmoor, the same, the same -</td>
<td>30</td>
<td>16</td>
<td>8</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>8$rac{1}{2}$</td>
</tr>
<tr>
<td>South Devon Nott, brown face and legs, long wool, pure -</td>
<td>30</td>
<td>22</td>
<td>10</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Bampton Nott, white face and legs, short wool, pure -</td>
<td>20</td>
<td>22</td>
<td>6$rac{1}{2}$</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Neighbours.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dorset, horned, white face and legs, short wool, pure -</td>
<td>24</td>
<td>18</td>
<td>5</td>
<td>washed</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Same, croffed with Exmoor -</td>
<td>18</td>
<td>18</td>
<td>5$rac{1}{2}$</td>
<td>do.</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Distant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Down, pure -</td>
<td>24</td>
<td>18</td>
<td>3</td>
<td>do.</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Same, croffed with new Leicelster. -</td>
<td>24</td>
<td>30</td>
<td>10</td>
<td>Yoak.</td>
<td>0</td>
<td>10</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Leicelster, old, croffed with Bampton -</td>
<td>36</td>
<td>24</td>
<td>6$rac{1}{2}$</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Same, old, croffed with Exmoor -</td>
<td>18</td>
<td>22</td>
<td>6$rac{1}{2}$</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Same, new, pure -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, croffed with Dartmoor. -</td>
<td>24</td>
<td>18</td>
<td>6</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Same, new, croffed with Exmoor -</td>
<td>20</td>
<td>20</td>
<td>8$rac{1}{2}$</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Same, new, Fourth croffed with South Devon -</td>
<td>18</td>
<td>18</td>
<td>8$rac{1}{2}$</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Same, new, Croffed with fame -</td>
<td>20</td>
<td>24</td>
<td>8</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Same, new, croffed with Bampton -</td>
<td>18</td>
<td>19</td>
<td>7</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Same, new, croffed with Cotswold. -</td>
<td>30</td>
<td>25</td>
<td>9</td>
<td>do.</td>
<td>0</td>
<td>10</td>
<td>7</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Foreign.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merino, croffed with Rye-</td>
<td>24</td>
<td>15</td>
<td>6$rac{1}{2}$</td>
<td>do.</td>
<td>2</td>
<td>9</td>
<td>18</td>
<td>6$rac{1}{2}$</td>
<td></td>
</tr>
<tr>
<td>Same, croffed with fame -</td>
<td>24</td>
<td>15</td>
<td>5</td>
<td>do.</td>
<td>3</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Same, first croffed with Ex-</td>
<td>15</td>
<td>5</td>
<td>washed</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moor.</td>
<td>15</td>
<td>5</td>
<td>do.</td>
<td>2</td>
<td>9</td>
<td>13</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, second ditto -</td>
<td>15</td>
<td>5</td>
<td>do.</td>
<td>3</td>
<td>5</td>
<td>17</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The washed wool of all the long-coated sheep is sold from 14d. to 15d. per lb. These sheep are not sent to the forests.

In most cases of a cross with the new Leicelster upon long full fleeced sheep, a deficiency of wool is observable under the belly and breast of the animal.
Exmoor Breed or Variety—This is a sort of sheep which is characterized by having horns, white faces and legs; by being very delicate in the bone, neck and head, or what is sometimes denominatod deer-necked; by the form of the carcase being indifferant, narrow, and flat-sided. According to Mr. Culley, the weight per quarter in wethers at two years and a half old, is from 15 lbs. to 18 lbs.; and the weight of wool much less than in the Devonshire breed. It is a small breed of long-woolled sheep, principally produced on or in the neighbourhood of the moor from which it takes its name, which is in the northern extremity of the county. Mr. Lawrence supposes that in their present state they are by no means to be considered as a profitable sort of sheep-flock, either in what relates to flesh or wool; on which account it would be for the interest of the county to change them for the best fine-woolled breed. It is remarked by Mr. Billingley, that this breed of sheep is frequently kept two or three years, merely for the annual profit of their fleeces, which often do not exceed more than four pounds in weight; and that from their being kept upon very bare and indifferant pastures while young, they are suppos'd by many sheep-farmers to be a very profligate sort of stock.

This horned breed has a moderately long flable of wool, which formerly, before the cloth manufacture of the county of Devon fled into Yorkshire, was much in demand by the clothiers of several different places. The fattened wethers of this breed, at three years old, will usually weigh about 45 lbs. the quarter, and average 44 lbs. of washed wool to the fleece; which is worth at present about 5d. the pound. Attempts have been lately made in different places to improve the wool of this breed or sort of sheep, by a cross with the Merino or Spanish ram, and the results of the trials thus made are as below:

<table>
<thead>
<tr>
<th>Quantity and value of native fleece</th>
<th>44 lbs. at 11. 1d. per lb. 41. 10½d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>First cross with the Merino</td>
<td>5 - 2 2 - 10 10</td>
</tr>
<tr>
<td>Second cross on this produce</td>
<td>5 - 2 9 - 13 9</td>
</tr>
<tr>
<td>Third cross on same</td>
<td>5 - 3 5 - 17 1</td>
</tr>
</tbody>
</table>

In which improvement of the fleece the carcase is said to be rather advanced than the contrary.

In the crofs of the old Leicesther upon the Exmoor breed, the wethers, which are the produce at three years old, average about 24 lbs. the quarter, and carry 6½ lbs. of yoke wool to the fleece. The Exmoor sheep have also been crossed with the new Leicesther; the wether produce of which, at two years old, will weigh 18 lbs. the quarter, and yield 6 lbs. of unswaled wool to the fleece; the price of the two latter qts. the pound. Much lost is often, it is said, fulfilled in this left cross at the time of yeaning, in consequence of the great size of the shoulders of the lambs retardng or preventing their exclussion. This will, however, be remedied in the produce of this cross.

The Exmoor breed is a hardy sort of sheep on wet exposed land while young. The ewes under such circumstances, in lambing, are also superior to the Bampton kind.

Cornish Breed or Variety.—The true breed of this sort is said to have grey faces and legs, coarse short thick necks, standing lower than behind, narrow backs, flat-topped sides, a fleece of coarse wool, weighing about two or three pounds, of eighteen ounces each; their mutton, which is seldom fat, from eight to ten pounds the quarter.

However, from the various crofses which have been introduced into the county at different times, in consequence of the use of rams of the Exmoor, Dartmoor, North and South Devon, Dorset, Gloucester, and Leicester kinds, the pure breed of this description is said to be now become rare, but that, from the inferior nature and value of its properties the total extinction of it need not be lamented. The district is now capable of supporting a much better and more improved breed of this sort of animal.

Black-faced Heath Breed or Variety.—This is a kind or breed of sheep which, according to Mr. Culley, have large spiral horns, black faces and legs, a fierce wild-looking eye, short firm carcases, from 12 lbs. to 16 lbs. per quarter, covered with long, open, coarse-hagged wool, fleeces 3 lbs. or 4 lbs. each, wool worth at present about 6d. per pound. They are an active hardy sort, running with amazing agility, and best adapted, of all other breeds, to exposed, heathy and mountainous districts; seldom fed until three, four, or five years old, when they feed well, and make the finest mutton, having a high-flavoured gravy. The sheep of this wild-looking breed are natives of the north-west of Yorkshire, and are of that mountainous tract of country adjoining the Irish sea, from Lancashire to Fort William; they have been of late years introduced into the Western highlands of Scotland. And the writer of the "Treatise on Live Stock," supposes the black-faced Lintons, or short sheep of Scotland, to be a variety of the Heath sheep. They have been crossed with the Cheviot breed, and Mr. Culley, it is noticed, recommends a Dithley cross, meaning, a doublecross, for the use of the low lands. If he may be allowed to give an opinion, he would, for upland situations, recommend a Spanish cross, with good winter management, in preference to all others. It is disgraceful, he contends, to the rural economy of Britain, that so excellent a breed of sheep should be uselessly compelled to brave the rigour of the seasons, in such loose, ragged, and beggarly clothing, when they might, with a few years' pains, and without any deterioration of the carcases, produce a fleece of high value and consequent to the manufactures of the country. And he adds, that Mr. Henry King, fableman of Newgate market, and an eminent grrazier, informs him, that he once fed a lot of these northern heath sheep, and made excellent mutton of them, about 16 lbs. a quarter; but that their wool hanging down their quarters like goat's hair, was so execrably bad, that it could be sold only for mop yarn.

But what are termed black-faced, or short sheep, are said to have been originally short-woolled, the present length of it having proceeded from crossing; and it is not well ascertained whether they are a native Scotch breed, or have been introduced from the moor-lands of Yorkshire. Besides the objection to these black-faced sheep, on the ground of the coarse lofty nature of their wool, they are said to be subject to the braexy, a disease that was unknown in the Highlands before their introduction. And it is remarked, in the able Agricultural Survey of East Lothian, that the kind of sheep breed and moit generally kept in Lammermuir, is the black-faced, or more properly, what is called the bracken faced, a sort of dirty-looking mixture of black and white; they are for the most part horned; when they are fed, the wethers weigh from 10 lbs. to 12 lbs. per quarter, and the ewes from 8 lbs. to 10 lbs. on an average. It will take eight or nine fleeces of the ewes and hogs, and six or seven of the wethers, to make a stone of seventeen pounds (twenty-ounces to the pound); the quality, and consequently the price, vary much. The difference of quality may result from various circumstances; it is owing partly to the quantity of tar put upon the sheep in falling; partly, it is supposed, to the situation in which they pasture, as those fed on high grounds and coarse mossy herbage, are thought to have inferior wool; and partly to the general
general attention and care which farmers bestow upon their flocks, in which some are greatly superior to others. But the black-faced sheep feeds the writer thinks, to be capable of very considerable improvement; it does not, indeed, appear, that much has been done for improving that breed, which certainly places them in an unfavourable situation, when their merits come to be discussed in opposition to others which have received great attention. There can hardly be a doubt that the weight of the carcass and the quantity and quality of the wool might all be increased, by sufficient care to select the strongest, healthiest, and best feeding among them for the purpose of breeding. It has been observed, that those which feed belt have the greatest quantity of wool, and generally of the best quality; and it is natural to suppose that it should be the case, as they must be the healthiest and strongest.

**Herefordshire, Rofs, or Ryeland Breed or Variety.—** This is a sort of sheep which is distinguished by the author of the "Treatise on Live Stock," by the want of horns, and having white legs and faces; by being small in size; and the wool growing close to the eyes; by the carcass being pretty well formed; and by the excellence of the mutton. Weight per quarter from 10 lbs. to 13 lbs. Wool fine and short, the lean poor-fed sheep producing the finest. It is the true breed of this sort of sheep which is properly denominated Ryelands. In the Agricultural Report of that district, they are said, in symmetry of shape, and the flavour of the meat, to be superior to most flocks in the country. They lamb in February and March. It is a breed which, Mr. Knight says, is found to be remarkably easy in respect to food, but which, in its management, requires cotting in the winter season, and being fed with hay or pease-haulm. In some cafes they are hunted all the year round in the night-time. The cotes are low covered buildings, proportioned to the extent of the flocks. In the Herefordshire Agricultural Report, it is observed that the cotting materially contributes to the health of the animal and the fineness of its fleece. The quantity shorn from each of the small original breed does not average more than two pounds; but the quality is such as almost to rival that imported from Spain. The price has often been as high as thirty-three shillings the troy of twelve pounds and a half unstruck, when the coarse wool has brought but ten or twelve shillings. They are said, by Culley, to fatten the belt at four years old. The Auchenfield, or true Herefordshire breed, is said to afford the finest wool, except the Spanish. It is suggested by Mr. Knight, that the disposition of sheep to fatten in the north-west part of that district is in the proportion to the fineness of the wool; but he is not certain of its being so in this breed; however, it seems to him that where the wool is close and fine, there are many advantages; less nourishment is drawn from the body in its support than in the contrary case. The long coarse-woofed fleece admits the rain more freely, and by dividing on the back lets it down to the skin. It also takes in a larger weight of water, which muff more inconveniently the animal already heavily loaded. The fine close fleece of this breed admits the water with difficulty, even when immersed in it in washing, and is never wet through by rain. On account of the chafeness of the texture, it only lodges on the outside, and is easily removed by the animal shaking itself. Besides, a fleece of this kind is much more warm and light. For these reasons it is supposed that no breed of sheep in the island is capable of subsisting on so small a proportion of food as this.

This animal, in Mr. Knight's opinion, appears to be much more patient of hunger, and to keep itself in better condition on a less quantity of food than any other which he has had an opportunity of observing. To the great fineness of the pulture on which it is usually condemned to feed, is to be attributed the fineness of its fleece; for the quality of this becomes immediately impaired by a copious supply of food; and this circumstance should be attended to, in every county where these sheep are introduced.

Some attention has lately been paid to its improvement, and although the wool is somewhats less fine in its quality than it formerly was, it is still the finest in the island, with the exception of the Spanish fort recently imported; and the animal must be allowed, on the whole, to have been consideredly benefited. The quantity of wool afforded by the improved fort of Ryelands, although increased, is still far from large; a three-years old wether rarely yields more than three pounds and a half. But as a large number of sheep will fatten on a small portion of ground, and the wool is still worth two shillings and twopence the pound, its value, compared with the quantity of food consumed by the animals, is probably much greater than that afforded by any other breed.

And the Ryeland sheep readily acquires, on a very moderate pasture, that degree of fatness which renders its flesh more acceptable, but it is wholly incapable of being loaded with fat in the manner of Mr. Bakewell's. It appears to him to fatten somewhat more quickly than those he has seen of the South Down breed.

In the Agricultural Survey of Herefordshire it is suggested, that a cross between the Ryeland and real Spanish seems the most probable mode of adding to the fineness and value of the wool; and amongst many spirited breeders who are now making the experiment, colonel Scudamore of Kentchurch, fold the fleeces of a flock crossed at forty shillings per roome, in the fair at Rofs, m the course of last year. The first stage of the crosses materially detraets from the beauty of the Ryeland's form, but by continued crossing, this objection will probably be removed, and the flavour of the mutton is uninjured. Lord Soperville has found that they feed quickly, and that they weigh heavily, although their form be not attractive; but perhaps form in this animal is of little comparative consequence. An ox rarely fattens well, or has flesh of good quality, unless it be in one particular shape; but sheep fatten well, and the meat is of prime quality in those of very different forms. Two Leicesters which were fed by Mr. Hever, of Abergavenny, and slaughtered before the Agricultural Society of this county in March last, weighed no less than fifty-one pounds in each fore-quarter, and forty-five in each hind-quarter. But notwithstanding this great weight, the Leicesters are often found less heavy than they appear to be, while the half Spanish weighs more than is generally expected from its size.

A cross of the Merino on the Ryeland breed has been tried in some parts of Devonshire with an appearance of success. The three-years old wethers of this cross, when fattened to their frame, being, it is said, estimated to run from fourteen to fifteen pounds the quarter, and to throw off from three pounds and a quarter to four pounds of washed wool to the fleece. In experiments made by some on this cross in other parts, it appears that three-years old wethers of the first cross will weigh about fifteen pounds the quarter, and shear from fix pounds and a half to seven pounds of wool in the year to the fleece, which is worth 2S. 9d. the pound. The sheep are, however, greatly exposed to the foot rot.

The crosses between the Ryeland and the Spanish has been made in some other parts, which has completely succeeded as to fleece, as the produce of the third cross of this breed readily sells for 32. 6d. the pound; it is, however, objected to by many on account of its not affording an equal acreable proportion of mutton with the native sheep.
SHEEP.

In crossing this breed with the Dihiley, an useful kind of sheep has, however, been produced, both the wool and carcasse being increased in weight, but much injured in respect to fineness; and it is contended by some, that the breed is rendered much less hardy by it.

Warlike Cragg Breed or Variety.—This is a sort or variety of sheep which is principally met with in the district of the above name, and that of Silverdale, in the northern part of the county of Lancashire. These Craig sheep are greatly esteemed for the fine flavour of their mutton, their ready disposition to fatten, and the fineness of their wool. They are a close compact well-made breed of sheep, commonly with white or mottled black and white faces and legs. Their fleeces are short and close-in the wool, which usually sells high. Their nature is chiefly that of the poor short rocky lime-bone kind. They are devoring of more attention than has hitherto been bestowed upon them by the farmers of the neighbourhouds where they prevail.

The Shropshire or Mof Breed or Variety.—This is a sort which, according to the writer on live flock, has small horns, with speckled dark or black faces and legs; they have the full character of real fine-woollen sheep, and have been, for centuries, bred in Shropshire, Staffordshire, Worcestershire, and the vicinity. Their fleece is nearly all fine, and it is said, superior to the Ryeland wool, since the crossing which has taken place in that flock. Mr. Pitt, of Pendeford, in a letter to lord Somervile, dated 1759, estimates the extent of Morf commom, or wales, at 3600 acres, and the number of sheep nummered thereon, at 15,800, to the annual profit of fifteen shillings per acre in wool only, on a moderate calculation, eight fleeces and a half to the flock of 14 lbs. Nothing is reckoned on account of carcasse, as the sheep have some extra keep during winter. It is added, that the Shropshire commone produce good fine wool, but none equal to Morf by sixpence a pound.

The Dorsetshire Breed or Variety.—This breed is known by having the face, row, and legs white, head rather long, but broad, and the forehead woolly, as in the Spanish and Ryeland sorts; the horn round and bold, middle-sized, and standing from the head; the shoulders broad at top, but lower than the hinder quarters; the back tolerably straight; carcasse deep, and loins broad; legs long, not very fine in the bone. Weight per quarter in wethers, at three years, and a half old, from 15 lbs. to 20 lbs. Mr. Billinghame says, that the wool is fine and short. It is a breed which has the peculiar property of producing lambs at any period in the season, even so early as September and October, as to fit the carcase of the lamb-flockker. It has been found to answer well in some of the midland districts, and, from its close make, to be equally advantageous with almost any other. It is, however, supposed capable of improvement by being crossed with rams of a larger size. There are varieties of it met with in several districts. And it is said by some, that the Dorset breeders pay great attention to preserve the colour of their flacks from mixture, since white lambs are the most esteemed in the London markets, from a prefixed superior delicacy in the meat. It is believed this is one of the best breeds in England, if not superior to all others, considering its various qualifications. Their property of bringing twins, and making our highest priced house lamb, must be considered first; they are both good hill sheep and pature sheep, and their flesh is an excellent medium between the delicate mutton of the hills, and the rich and juicy meat of the best lowland sheep. The later Dorset lambs, when fattened, make the earliest grafts lamb. By the practice of this county, the lambs which the breeders retain are born at Mulfummer, having been taken from the ewes in May; produce of wool, one pound to a pound and a half each, the price a penny per pound nearly, under the price of sheep's wool. A three-fourth sheep may produce four or five pounds of middling fine wool, which it would be highly advantageous to improve to the utmost, on this excellent breed.

This is a breed, or sort of sheep, which seems to prevail among the generality of farmers in the high lands, and some other parts of the county of Devon, which borders on the above, in which they are found to answer very well.

And there is a breed or variety nearly connected with thee in the Mendip hilly district. They are smaller than than breed, having smaller horns, more deer-headed, the wool less in weight; the mutton excellent in its flavour. It has been observed by the author of the "General Treatise on Cattle," that in the West Riding of Yorkshire, and in the adjoining parts of Wiltshire, they have a breed of horned and white-faced sheep, bearing a strong affinity to the Dorsets; they are called Cranew and Wensleydale sheep, but more generally Penjilin, from the market town where they are sold. They are a good down or hill sheep, in their pure state, and give a fleece of coarse flart wool, weighing between two and three pounds, the carcasse good mutton, about fifteen pounds per quarter. They are variously crossed in that district, with Cheviot, Dihiley, and Northumberland tops; with the two last, for the purpose of making pasturage sheep, in which case the weight of carcasse is increased to twenty or thirty pounds per quarter. In the north, this breed is generally crossed with the Heather sheep, which gives them black or grey faces and legs, with sometimes a black spot on the top of the neck, the wool coarse and open, instead of being close and thick set upon the skin, as a defence against the severity of the climate of that hilly and exposed country in which they are fed; defects for which the remedy is obvious. Ryeland tops have been tried with the Penjilin ewes, a cross which made a considerable improvement.

The Wiltshire Breed or Variety.—This is a sort which has sometimes the title of horned-cros. The writer on live flock distinguishes the breed, as having a large head and eyes, Roman nose, wide nostrils, horns bending down the cheeks, colour all white, wide bofon, deep greyhound breast, back rather straight, carcasse substantial, legs long, bone coarse, fine middle wool, very thin on the belly, which is sometimes bare. He supposes, with Culley, that the basis of this breed is doublets the Dorset, enlarged by some long-woollen crosses; but how the horns come to take a direction so contrary, is not easy, he thinks, to conjecture; he has sometimes imagined it must be the result of some foreign, probably Tartarian, crosses. The old Hertforders were, he says, supposed a kindred breed with the Wilts, but at present, the few of this kind breed in Herts are of smaller size, longer and coarser wool. These large and leggy Wilts' sheep work well in the fold, and have always had the character of good thrivers at corn, oil-cake, and the beet meat, making very large mutton, and very deep in flesh, which is highly-flavoured, yielding the dark-coloured gravy. The breed is, he adds, every where on the decline, generally supplanted by the South Downs, of which the farmers find they can, on the same quantity of land, keep more than one and a half, for one of the Wilts, the former, moreover, producing both better mutton and better wool. The disease called the goggle, is said to peculiar to the Wilts sheep. It is stated, that this breed has been long used, more or less, in the counties bordering on Wilts, and in Surrey, Kent, Herts, Essex, and Middlesex. But that it is a breed not worth preserving; perhaps the only thing to be done with it to advantage, is to cross it with the Merino. The Hampshire variety of this breed is said, for what reason he knows not, to be more hardy. It is a breed, however, which is esteemed in some places.
SHEEP.

The Berkshire Breed, or the Variety called Notts.—This is a fort which the same writer describes by having considerable length and bone, straight made like horses, full fore-flank, Roman faced, with distinct black spots, high on the leg, thick fleece, of considerable length. He supposes them to clasp with the long-wooled breeds, and to bear some affinity to the breed of Oxfordshire, which is, he is told, a peculiar variety.

The peculiar qualities of the Berkshire nott breed seem to be its great size, height on the legs, and weight when fattened. It would appear, contrary to the opinion of some, that this breed is well suited for the strong low lands of its native district, though the South Down fort are fat supplanting it in many places, probably without sufficient experience of them in such situations. In contrasting them with the horned Wiltshire sheep, it is found by some that the polled Berkshire or nott fort are as certainly more properly adapted to the low and cold lands, as they are proved to be more hardy for the fold, to fat fooner, and to be less liable to injury from the fly, than the horned sheep. When fat, the sheep vary as much as from fourteen to forty pounds the quarter, in weight. These polled or nott sheep are, however, not of so large a size as the horned fort of the same district. The fleece of this breed of sheep is not fine, and on the average it will take eight of them to a tod of wool. The mutton is rather coarse, as in all large breeds of animals. The utility of crossing this breed is by no means decided. Some advice to breed from the bell of this fort, but to cross for fattening. Crosses are, however, very common between many different forts, as between the notts and the Wiltshires, the Cotwolds, the Leiceffers, and different mixed breeds.

The Berkshire nott breed is much valued in some parts of Oxfordshire, especially for regular breeding as well as landing the fold. They are strong, active, and able to travel, and hold unusually well; against which good qualities they are, however, long in fattening, &c. The crosses with the Leiceffler improves them considerably, still they are fast giving way to the South Down and some other breeds.

And it is observed in the Norfolk Agricultural Report, that the Wiltshire sheep have proved, in various trials, an unprofitable breed, as well as the Norfolks; but it is remarkable that for turnips, no sheep are said, by many practical and experienced husbandmen, to pay better, if so well. In Hertfordshire, many who turnip-feed adhere to that breed, who admit the South Downs to be a superior fort for grass-feeding.

Heath-Croppers or Wood for Forest Breed or Variety.—This is a small ill-shaped breed of little value, found abundantly in the parishes which lie within the precincts of the forest of Windsor in Berkshire. It is a breed which affords a very sweet kind of mutton. A quarter of it will weigh about twelve or fourteen pounds. And in regard to the wool, about thirteen fleeces will make a tod. It is of equal value with that of the South Down breed. The term heath-croppers is very commonly, though vulgarly, applied to sheep of this breed.

The South Down Breed or Variety.—This is a very valuable fort of sheep, which Culley has distinguished by having no horns, grey faces and legs, fine bones, long small necks, and by being rather low before, high on the shouder, and light in the fore-quarter, fides good, loin tolerably broad, back-bone rather high, thigh full, twist good, mutton fine in grain, and well-flavoured. Wool short, very close and fine, in the length of the staple from two to three inches. Weight per quarter in wethers at two years old 18 lbs. It is a breed which prevails on the dry chalky downs in Sussex, as well as the hills of Surrey and Kent, and which has lately been much improved, both in carcase and wool, being much enlarged forward, carrying a good fore-flank; and for the short legs fertile hilly pastures is an excellent fort, as feeding close. The sheep are hardy, and disposed to fatten quickly; and where the ewes are full kept, they frequently produce twin lambs, nearly in the proportion of one-third of the whole, which are, when dropped, well-wooled. The wethers are capable of being disposed of at an early age, being seldom kept longer than two years old, and often fed at eighteen months; which is a very valuable property. But according to the Suffolk Agricultural Survey, the ewes are commonly kept till between four and five. They are said to answer well to the graziers in the neighbourhood, as well as the farmers in Norfolk and the adjoining counties, in the place of home-bred sheep, as being more expeditious feeders, and equally adapted for the purpose of the fold. It has been observed, that it is in fact a breed of sheep which, from the compactness of their form, and their legs being stouter, considerably outweigh both the Dorfed and Norfolk breeds, in proportion to the size of the carcase, being heavy in a small compass. Their hardiness is estimated according to the darkenes of the colour in the face and legs; but as there is inconvenience in the produce on this account, from the wool, especially about the head and neck, becoming spotted with black, and thereby thrown aside by the flaker, as only of half the full value, a middle degree of colour may be best. As an open country breed, they are sufficiently gentle and tractable. They are capable of travelling well, and of refilling the effects of exposure to cold. The wool is scarcely, if at all, inferior in finenes to that of the Herefordshire kind; as the practice of forting, which is common in that district, is not in use on the Downs. The excellent properties of this breed have been brought fully to the notice of the farmer, by the great patrons of improvement in Bedfordshire and Norfolk, and its superior merits on trial have been such as to have induced the sheep-farmers in various districts to introduce them in preference to other breeds. It is stated, in the Annals of Agriculture, that they have been found to consume less food, in proportion to weight, than the Norfolks, yet keeping in better order. Young sheep produce the best lambs; the crones are of course constantly fold at four or five years old; and if it were done earlier, it is supposed, it would be more profitable. The author of the "General Treatise on Cattle" fuggets, that the most noted variety is that of Mr. Ellman, of Glynd, in Suffolk, who, he believes, first enlarged the Down breed, by the aid of polled or not Berkshire tups. From this enlarged crof, he underlines, originated the flocks of the duke of Bedford and Mr. Coke; the South Downs of Mr. Coke being generally acknowledged the largell and finest in England, a very pregnant proof of which was given at lord Somerville's cattle show, in a two-bear Holkham South Down wether, which weighed more than 40 lbs. per quarter. Although quick and early feeders, they tallow within remarkably. And in answer to the complaints of those who knew the old Down sheep, that their wool is become so much coarser than formerly, from the modern habit of feeding the sheep with rape, cabbage, and oil-cake; they seem totally to forget the middle and long-wooled crofs, by which the carcase of the South Downs of the present day has been enlarged, and their weight of wool increased, and rendered more coarse. The mutton is still excellent, although probably not so high-flavoured as the old Down mutton. It is also further fuggeted, that it would be difficult to point out any part of the illand for which this breed would be unfit, but extremely easy to name a vast number of districts where it would be a most advantageous substitue for the native Rocks. It is supposed, that all the South.
South Downs want is the noble covering of a Spanish fleece, and how little their carcase would suffer by the crofs, has, it is faid, been demonstrated by lord Somerville, in the exhibition of a very fine ewe, large enough for any purpose, half Spanish and half South Down. But in order to form a comparison between the Norfolks and South Downs, Mr. Overman of Norfolk, on March 27th, 1799, took from turnips twenty-four two-years old Norfolk wethers, and ten South Down of the fame age, having always lived together from the time they were lambed, and two hours afterwards they weighed as follows:

<table>
<thead>
<tr>
<th></th>
<th>ft. lb.</th>
<th>fl. lb. 0\t</th>
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<tbody>
<tr>
<td>24 Norfolks from the field</td>
<td>264 7\f</td>
<td></td>
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<tr>
<td>Ditto after fafting 28 hours</td>
<td>237 13</td>
<td>10 10 7</td>
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<td>Difference</td>
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<th></th>
<th>ft. lb.</th>
<th>fl. lb. oz.</th>
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<tbody>
<tr>
<td>10 South Downs from the field</td>
<td>109 4</td>
<td>10 13 0</td>
</tr>
<tr>
<td>Ditto after fafting 28 hours</td>
<td>106 2</td>
<td>10 8 9</td>
</tr>
<tr>
<td>Difference</td>
<td>0 4 7</td>
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One of each lot slaughtered.

Norfolk.

<table>
<thead>
<tr>
<th></th>
<th>ft. lb.</th>
<th>£ s. d.</th>
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<tbody>
<tr>
<td>Mutton</td>
<td>6 10 at 6d</td>
<td>2 7 0</td>
</tr>
<tr>
<td>Tallow</td>
<td>1 2\f at 5d</td>
<td>0 6 10\f</td>
</tr>
<tr>
<td>Head and pluck</td>
<td>0 10\f</td>
<td>0 0 9</td>
</tr>
<tr>
<td>Skin</td>
<td>0 9\f</td>
<td>0 1 0</td>
</tr>
<tr>
<td>Wool</td>
<td>0 3\f at 17d</td>
<td>0 5 4</td>
</tr>
<tr>
<td>Blood</td>
<td>0 6\f</td>
<td>3 0 11\f</td>
</tr>
<tr>
<td>Entrails</td>
<td>0 11</td>
<td></td>
</tr>
<tr>
<td>Lofs</td>
<td>0 0\f</td>
<td></td>
</tr>
<tr>
<td>Live weight</td>
<td>10 12\f</td>
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South Down.

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<tr>
<th></th>
<th>ft. lb.</th>
<th>£ s. d.</th>
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<tbody>
<tr>
<td>Mutton</td>
<td>6 8\f at 6d</td>
<td>2 6 3</td>
</tr>
<tr>
<td>Tallow</td>
<td>0 13\f at 5d</td>
<td>0 5 7\f</td>
</tr>
<tr>
<td>Head and pluck</td>
<td>0 10</td>
<td>0 0 9</td>
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<tr>
<td>Skin</td>
<td>0 10</td>
<td>0 1 0</td>
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<tr>
<td>Wool</td>
<td>0 7\f at 18d</td>
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<tr>
<td>Blood</td>
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<tr>
<td>Entrails</td>
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<td>Lofs</td>
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<tr>
<td>Live weight</td>
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Norfolk superior by

|                      | 0 3 11\f |         |

Besides these Norfolk sheep losing 11 lb. 10 oz. more of their respective weight (taken full and empty) is a strong circumstance against them. The Downs are run much thicker on the land than the Norfolks. And Mr. Hill of the fame district estimates the difference of flocking between Norfolks

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ing the fold well, and as requiring much expence in winter keep, an acre of turnips being the usual allowance for half a dozen besides hay, has lately given way to the South Downs, which are supposed by some to be harder, les nice in their food, sooner ready for the fold, and more quiet. This last fort has lately gained much ground. The wool might be improved by a Spanish crofs, but little other advantage would be gained. It has been remarked, in refpeft to the quick tainting of this mutton, by Mr. Vyle, butcher of Eaton college, that the Norfolk mutton certainly will taint sooner than any other, in very hot weather; neither is there any fort (that he knows) of a worse flavour at that time, though inferior to none in cool weather. Many very fine and fat Norfolks do not please on the table. The fat runs away in roasting, if they are laid to a hot fire; and they rarely are fo sweet as the South Downs. The latter are in hot weather worth a halfpenny a pound more than the Norfolks. When both are completely fatted, it is hard to lay, (fupposing the fat and cool,) which upon an average is fattell: the flavour too, in such a feafon, he thinks, is equal, and as to coarse meat, there is none in either fort. But if they are killed in cool weather, before they are very fat, the preference must be given to the Norfolks, because the meat will in that cafe eat better, and there is a probability of much more fat within. With refpeft to profit to the feeder, if they are fed entirely with grafs and upon good land, his opinion is decidedly in favour of the South Downs; or if they eat turnips in the winter, and after that are kept two or three months upon grafs in the spring, it is the fame; but if they are half fat against winter, and are to be completed at turnips, he believes no sheep are more profitable than Norfolks, perhaps none fo much fo. But both forts should be kept where there is both turnip and grafs land. These are varieties of this breed in Cambridge and Suffolk, with coarse wooll, and weighing about 18 lbs. or 20 lbs. the quarter.

Crofses of the Norfolk, with the South Down and many breeds of other kinds, are met with and highly valued in different situations.

A great diversity of opinion prevails, in regard to the superiorty of the Norfolk and the South Down, which has led an experienced sheep farmer, at Finchfield in Eflex, to make the very accurate trial which is detailed below. In September 1791, he purchased in Suffolk a lot of ewe lambs, at 6 l. 10s. the score; and in Suffolk, in the Otober following, a lot of South Down ewe lambs, at 13 l. the score. These lots of sheep were depauperated together, and received in every refpeft the fame treatment until the 25th of the fame month in 1793; when a single sheep, which was adjudged to be the only of each lot, was taken out, and after both of them had fofted twenty-six hours, they were weighed alive, the South Down weighing 96 lbs. and the Norfolk 95 lbs.; they were then killed, and the refults of the trial were as follow.

<table>
<thead>
<tr>
<th>South Down</th>
<th>Norfolk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcase</td>
<td>52½ lbs</td>
</tr>
<tr>
<td>Skin</td>
<td>8 ½</td>
</tr>
<tr>
<td>Legs cut off at the knee-joints, as usual</td>
<td>1 ½</td>
</tr>
<tr>
<td>Caul</td>
<td>4 ½</td>
</tr>
<tr>
<td>Blood</td>
<td>4</td>
</tr>
<tr>
<td>Head and pluck</td>
<td>7 ½</td>
</tr>
<tr>
<td>Gut fat</td>
<td>2 ½</td>
</tr>
<tr>
<td>Entrails and contents</td>
<td>12 ½</td>
</tr>
<tr>
<td>Lofs by killing, probably urine</td>
<td>2</td>
</tr>
</tbody>
</table>

96
95

In favour of South Down.

2½ lbs of fat, 4 ½ d. per pound | s. d.
---|---
1½ lb. of skin and wool | 5 0

In favour of Norfolk.

1 lb. of mutton | s. d.
---|---
1 flone colt | 6 6

Total difference in favour of Norfolk sheep 9s. 8d.

It is noticed, that neither of those ewes had any lambs, but at the time of trial, the Norfolk was more than half gone with lamb, and the South Down had but just taken the ram.

In short, the leading and characteristic qualities of the high and full-bred Norfolk and South Down sheep, seem upon comparison to be chiefly thefe, the wool of both is found to be of the firft clothing quality, but the larger quantity is produced by the South Down: the mutton of both is equally delicious. But the quiet gentle South Down in the paffure, must be oppofed to the wild impatient ramblings of the Norfolk, whose deftant exertions not only excites continual appetite, but at the fame time occasions considerable waste in the paffure, by treading down and unnecessarily spoiling a great deal of food they do not eat. For this extraordinary exertion on the part of the Norfolk sheep in thus, as it were, wantonly destroying a large portion of food which is prepared for its fubfiftence, there does not appear, from the trial already noticed, to be the smallest occasion at leaff, to put it on an equal footing with the South Down in that particular; for it is evidently demonstrated by that trial, that in an equally fized fheep, the heaviest, and most capacious stomach, and consequently requiring the greatest quantity of food, is found to appertaine to the Norfolk fheep. The hardinefs of the South Down, enduring wet and cold lodging, and a greater degree of abfence and fatigue than the Norfolk in the fold, is an superiority of much moment; and only to be equalled by another, which they poifefs in a very inferior degree, which is that of doing well upon coarse four paffures. These are fairly to be controlled with the delicate constitution, and the tender aromatic herbage, required by the Norfolk; to all which it may be added, that the South Down is an equally good turnip fheep; and for every poftible purpofe, whether for its flefh, for its wool, for breeding, for folding, or for the butcher, they demand a lefs supply of food, and of an inferior quality to that which, in every situation, would appear indispenfible to the well doing of the Norfolk. On the score of the firft cotf of thefe, an objection may, it is faid, be very juftly flated as to their general ufe; but when the South Down are more generally bred and increafed through the country, in that proportion will the prefent obfervation be done away; and though they may continue in equal estimation, they will nevertheless, by their being more generally distributed and increafed ev ery where, be brought to a more equal level, in point of price, with the Norfolk, Welsh, and all those breeds fo juftly held in reparation for the finenes of their wool, and the superior excellence in the flavour of their mutton.

The value of the crofses which have been made between the Norfolk and Welsh sheep, by the South Down rams, are far from being decided, some sheep-farmers thinking them
them highly beneficial, while others strongly reprobate them.

Dumnes Forest Breed or Variety. — This is a breed of forest of sheep, which is found about the forest of that name, in the county of Chester. In point of shape, the animals are said not to be unlike those of a diminutive Norfolk lot, having the faces and legs black, grey, brown, and white, generally with small horns. The breed is small, the wethers weighing more than from 8 lbs. to 12 lbs. the quarter, at four years old. The mutton is in common much esteemed, and the wool is valuable, telling about the year 1828 at 2l. 12s. 6d. the wool of 20lbs; the fleeces are, however, small, often not weighing more than 2 lbs. The wool is commonly purchased by the manufacturers of cluthe in Yorkshire.

Herwick Breed or Variety. — This is a breed which is characterized by Mr. Cullerby having no horns, and the face and legs being speckled; the larger the portion of white, with fewer black spots, the purer the breed; legs fine, small, clean; the lambs well covered, when dropped; the weight per quarter, in the ewes, from 6lbs. to 8 lbs.; in the wethers of four years and a half old, from 9 lbs. to 12 lbs.; the wool short, thick, and matted in the fleece. It is a breed peculiar to the elevated mountainous tract of the mountains of the British Isles, and Duddon in Cumberland, where they are let in herds, at an annual sum: whence the name. At present they are said to pollies the property of being extremely hardy in constitution, and capable of supporting themselves on the rocky bare mountains, with the trilling support of a little hay in the winter season; scratching down to the heat, during the snows, for their sufficiency; and by their constantly moving about, not being liable to be drifted over by snow. From the nature of the climate, the ewes produce their lambs late, and are generally kept as long as they produce lambs. But the wether flock is usually dispersed of from the mountains, without being put in the pastures, at from four to five years old. It is observed, that the fleece in this breed is finer than that of the Heath flock, but coarser than any of the short-woollen breeds. It is a breed that hands in need of a cross with some of the finer-woollen breeds, and the Spanih has beenoggled as proper for the purpose. The property of the flock, as well as of the mountains, is in Lord Muncaster, the lord of the soil; and the farmer of the principal flock is now Mr. Tyson, who family, it is said, have inhabited this wild and ferreterted spot through four centuries. Mr. Tyson is a tup breeder, and sells a number of Herdwick rams yearly, some at several guineas each, to the adjoining districts, where their known hardy qualities are desirable.

Cheviot Breed or Variety. — This breed of sheep is known by the want of horns; by the face and legs being mostly white, and the eyes lively and prominent; the belly long; little depth in the breast; narrow there and on the chin; clean, fine, small-boned legs, and thin pelts; the weight per quarter, when fat, from 12 lbs. to 18 lbs.; the wool partly fine, and partly coarse. Mr. Cullerby considers this as a valuable breed of mountain sheep, where the herbage season is chiefly of the natural grass kind, which is the cafe in the situations where these are found the most prevalent, and from which they have obtained their name. It is a breed which has undergone much improvement within these few years, in respect to its form and other qualities, and has been lately introduced into the most northern districts; and from its hardiness, it affords a portion of fine wool, and being quick in fattening, it is necessary well in such situations. The Spanish and South Down have been advised as proper crosses for this sort of sheep.

And it is observed by the writer of the Argyllshire Report, that the Cheviot sheep are in every respect incomparable to the black-faced kind, and found to be equally fit for a mountainous situation. They are hardy, fine-woollen, and well shaped. They are long-bodied and long-legged, which fits them for climbing steep mountains, and for travelling, either for seeking their food, or going to a distant market. Their fleece, too, is finer, closer, and warmer. They have every property that should be found in a mountain sheep, and accordingly they have been found to thrive in every part of the Highlands in which they have been tried, and are said to be less subject to diseases than the black-faced kind. Some of them have been lately introduced into the county by the duke of Argyll, and by Mr. Campbell of Auch, in the highest parts of Glenorchay, and found to answer exceedingly well. And Lord Breadalbane, a few years ago, made a present of some Cheviot wethers to several of his tenants in Glenorchay, in order to try how they would fare on the same pastures with the black-faced kind; and the writer was informed by some of the farmers, that they perceived no difference in their thriving. Indeed no part of this county is more inclement than that from which they came, where the hills are sometimes covered with snow for three or four months in a year, and where many of the lower walks consist of peat-bogs and deep morasses; so that with us their situation would be mended, a circumstance which will always ensure success.

It is likewise stated in the twelfth volume of the Statistical Account of Scotland, that the following experiment, made in the parish of Barr, in Argyshire, shews the comparative hardiness and value of the Cheviot breed. In June, 1792, a ram and two score of ewe hogs, of the Cheviot breed, were put upon one of the highest and coldest farms in the parish. The harvest was wet, the winter and spring stormy, and the lads of the native sheep, through poverty and distemper, was considerible; yet all these, through strangers, and in such a situation, did well. The wool of the native sheep, taking ten fleeces to the stone (24 lbs.), folded at 72. 6d.; the wool of the Cheviot kind, taking only seven and a half to the stone, folded at 97. The profit here was greater; but how much more, if the wool had fetched its real value of 20. the stone! And in "The Observations on different Breeds of Sheep," it is stated that in 1793, the Cheviot wool fold from 18. to 20. the furred, and from 20. to 22. the white; from five to eight fleeces of the first, and from eight to nine of the last, going to the stone. Some went as high as 25.; and it is thought it will soon be improved so as to fetch 30. if not 40. Draft ewes fold from 12. to 16., and three-year old wethers from 18. to 22. In Etterick, Eyrewdale, and Liddeddale, they are now converting their flocks as quickly as possible into the Cheviot breed. The Roxburgh Agricultural Report also says, that Liddeddale is the worst district, yet the Cheviot breed thrive in it. The writer of the first of these Reports remarks, that it is difficult for those who have already got another kind to change the breed; but new beginners ought undoubtedly to flock with the Cheviot kind. It is said that the Yorkshire graziers have a prejudice against this kind; probably because they would then have more rivals in the trade, which is now in few hands; as the cartage, and not the wool, is the principal object of attention. Whatever there may be in this, the introduction of the Cheviot, which would treble the price of wool, would more than balance it. And he adds, from the same volume of the Statistical Account of Scotland, that even they who have another flock, and cannot conveniently change it, might yet at least cross it with the Cheviot breed, which might
be done with little trouble, and to great advantage. In the years 1787, 1788, and 1789, an intelligent farmer, in the parish of Moffat, put Cheviot rams to his black-faced ewes. In 1790 he fold the wool of the sheep produced by that cross at 1s. the six fleeces; and the wool of his other flock of the black-faced kind, which went exactly on the same paiture, only at 6s. 3d. the seven fleeces. The sheep thus produced were as healthy as his other sheep, the car- cafe not materially altered, and the weight of the wool increased a fourth part, and its price more than a third. The farm on which they were as high ground as almost any in Scotland.

And the sheep which are at present known by the title of Long Hill sheep, by the northern farmers, are a hornless, white-faced, loofe-shaped breed, having a coat of ordinary short or fine wool, perhaps raised by crossing, through time, the old country breed with those of the Cheviot kind. They are said to be more tender than the short or black-faced breed, but to answer well with good care and keep. However, from the practice of milking ewes of this breed, for the purpose of making cheefe, being found to be pre- judicial, it has lately been much left off by the beet sheep- farmers in these districts.

The Dun-faced Breed or Variety.—This is a small breed which Culley says has no horns; the face in common of a dun tawny colour; the fize small; the tail short; the mutton fine in texture; the weight often only 6 lbs. or 7 lbs. the quarter; the wool variously streaked and blended with dif- ferent colours, some of which is very fine. He supposes it to partake of the Spanish breed, but it is not so hardy as the Cheviot breed. The mutton of this breed is excellent in flavour. They aresupposed by some to have had a Spanish origin; but they have been naturalized, for a great length of time, on the Grampian and other hilly districts in Scotland.

The Shetland Breed or Variety.—This is a small breed, and mofly without horns; but what more particularly dif- tinguishes it from other breeds, is the uncommon smallness and shortness of the tail; the weight per quarter from 7 lbs. to 10 lbs.; the wool very fine, and of various colours. The breed is very hardy, but much too wild in its dispo- sition to be confined in inclosed pastures, and of course lefs proper for the purpofes of the grazer. There is a fort of this breed of sheep, which, according to Mr. Johnfon, carries coarse wool above, and fine soft wool underneath; and the sheep have three different successions of wool an- nually, two of which seem long hairs rather than wool, and are by the common people termed fers and feuada. As soon as the wool begins to loofen at the roots, which is mofly about February, the hairs or feuada spring up; and when the wool is cautiously pulled off, the tough hairs con- tinue faith, until the new wool grows up about a quarter of an inch in length, then they gradually wear off; and when the new fleece has acquired two months’ growth, or there- abouts, the rough hairs, termed fers, spring up and keep root, until the proper season for pulling it arrives, when it is plucked off along with the wool, and is separated from it, at the time of dressing the fleece, by an operation called forfing. The feuada remains upon the skin, as if it were a thick coat, a protection against the inclemency of the season. But the native or kindred breed, that bear the soft cottony fleeces, according to Mr. Culley, are rather dele- cate; though the fact of their eating the tea-weed greedily, when the ground is covered with snow, and often during long and severe frosts, when they have little cloe to live on, seems to prove the contrary. Nature, he says, seems to have imparted to them a perfect knowledge of the times at which this food may be procured; for immediately upon the tide beginning to fall, they in one body run directly down to the sea-shores, although feeding on hills several miles distant from the sea, where they remain until the tide returns, and obliges them to seek their usual haunts. They are very hardy, and the wildfet of all the breeds of these animals.

But in respect to the wool of these beaver sheep, as they are sometimes termed, it is short and open, and deftitute of a covering of long hairs. These fine loft fleeces are liable to be rubbed off during winter, or early spring, which, it is supposed, might be prevented, by clipping the sheep in the usual way, instead of the absurd mode of pulling them off, which tends to weaken the sheep, and decrease the length of the blanket of the wool. In regard to colour this wool is various, as flaver grey, which is the finest and softefl; the pure white, which is mostly of the greatest value for all the purpofes of the finest combing wool; the black, and the mowrat or brown, which are very little inferior; the whole of the softest texture, fit for the finest manufactures, and in some instances rivalling even Spanish wool, than which it is somewhat longer in the blanket, and not so elastic. And it is flated to have been manufactured into stockings of ex- traordinary fineness; and that the fleece attached to the skin affords a fur of great value. This breed was formerly a native of the higher parts of Aberdeenhife, and in the districts to the northward of it; but it has been since much crossed, and it is now mostly confined to the Orkney and Shetland ifles, the purest breed being to be found in the latter. The number of the beaver sheep in these ifles amounted to ninety thousand, some years fince; and five or fix of them are faid to be capable of being fed with the food required for one English sheep. In the Weft Riding of Yorkshire, Mr. Beaumont is faid to have made a trial of these sheep; the result of which was, that they did not f rum, but grow, which fews that their size would improve with that of the fof; their wool also improved in length. But the original old breed of the Highlands are faid to partake of the nature of the goat and deer; their coat conftituting of a fort of fur or down, covered by long, straight, rigid hairs, like thofe of the beaver, rather than wool; tail short, slender, tapering, not larger than that of the deer or goat, and thinly covered with brown, fivery hairs; the face covered with fleck hairs, like the face of the deer, with his prominent eyes. They are tame, delicate of frame, and requiring to be houfed in winter; their fflf of high venifon flavour. The breed is found in its original purity, in the central Highlands, on the southern banks of Strath Tay, and between thofe and Strath Brand; and on the banks of Loch Nefs, in the northern Highlands, as well as in the Shetland iflands.

The Merino or Spanish Breed or Variety.—In this breed of sheep the males have horns, but the females are without them. They have, according to lord Somerville, white faces and legs; the body not very perfect in ihape; rather long in the legs; fine in the bone; a degree of throatiness, or production of loft pendulous skin under the neck; and the pelt fine and clear; weight, when tolerably fat, per quarter, in the rams about 17 lbs., in the ewes 11 lbs.; the wool very fine. It is a breed that is affected by some to be tolerably hardy, and to possess a disposition to fatten readily; but others maintain the contrary opinion.

His majefly took the lead in the introduction of the Merino breed into this country, and his firft flock was imported in 1793; but other nations seem to have got the start in this refept, as Sweden had them even in 1723, where they have fince greatly increafed; and in France, Germany, and some other
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other states, they were probably known long before. They have lately spread much in this country, and been greatly improved in different respects, by judicious crossing with other breeds. The horns in the true Merino rams are now of a middle size; the faces and legs darkish-white, the latter rather inclined to be too long. The wool is uncommonly fine, and weighs about 34 lbs. to the fleece, not being liable to deteriorate in this climate. The fleeces have a dark brown tinge in their surfaces, formed by dust sticking on the greasy woolly property of its pilus: the contrast between which and the rich white coloured wethers, and the rosy hue of the skin, is very striking on the first view.

Some crofs the Merino rams with Devonshire ewes, but the Ryelands are more commonly preferred. They consider five crofts as necessary for reaching perfection; and on that ground properly conclude, that the wool of the five crofts can only reasonably be supposed to be worth about 7d. the pound more than that of the maternal flock, on the idea that it will, in five crofts, be of the value of 3s. above that of the Ryeland ewe; making an improvement of about 7d. in each croft. And that if the wool, when this is mixed with the most valued native breeds, does not gain its necessary degree of fineness in less than five crofts, it is unreasonable to expect the full price for it at one croft. It is, however, certain that the animal is improved by a mixture with the Ryelands, and that the wool will not ultimately be found inferior to that of the Spanish flock. The Spanish crofs with the South Down and Ryeland, in several degrees, is diffusing itself in many districts with great benefit. With the latter, in Devonshire, the wether produce, at two years old, weigh 15 lbs. the quarter, and afford a fleece of 5 lbs. each, worth 3s. the pound. In other cases, the weight of mutton is greater in the five crofts; and the sheaf of wool from 64 lbs. to 7 lbs. in the year to the fleece, at the same age. Crofts with some other fine-woollen breeds are likewise made with great utility.

But according to Dr. Parry, who has had great experience of this breed, they are, as rated in a late work on Live-stock, entirely enveloped in wool, which grows under the jaws, down the forehead to the eyes, under the belly, and down the legs to the very feet. It is astonishing to see how thickly it covers the skin; it will scarcely give way to the pressure of the hand, but yields as it were by flairs, like the close short hair of an extremely fine clothes-brush. In washing them, the waters penetrate to the skin with great difficulty. This fleece is heavier, in proportion to the carcass, than that of any other known breed in Europe. In the raw state (unwashed on the sheep's back or afterwards), the fleeces of the two-years old ewes average at 45 lbs. avoirdupois, and the weight of the living ewe being about 66 lbs. the proportion of wool to that of carcass is about 11b. to 12lbs. The fleece of a fat wether of the same age will be from 66 lbs. to 71 lbs. In eight shearing rams, weighed alive, after having been clipped, the weight of the fleece to that of the living animal, was as one to about twelve and three quarters. The wool from the head and behind the ears, and the rest of the refuse, generally called daglocks, had been previously taken away. It is added, that had sheebe been washed before shearing, their fleeces would have lost about a ninth part. And that the length of the staple or filaments varies. In a shearing ram, thorn when a lamb, a sample of the wool cut close to the skin above the shouldcr, was three inches and a half in length; and that of the breech, or middle of the back part of the thigh, three inches and three quarters; of an ewe of the same age, about a quarter of an inch shorter; the average according very exactly with the specimens taken from newly imported Spanish sheep. An instance of the extraordinary length of staple, of four inches and three quarters, is related, which from the current fleece produced a sample more than five inches long. The proportion of fine wool in the fleeces of the Spanish sheep is much greater than those of any pure English breed. Thus, while in the Ryeland, which is probably divided into four or five farts, the least wool from the neck and shoulders does not make above one-eighth part of the whole fleece: in that of his majesty's flock, the fine wool formed near four-fifths of the whole.

It is farther observed, that of Dr. Parry's wool, consisting of whole fleeces taken from fleece which had not more than three or four crofts of the Spaniard, and divided into three farts (R. F. T.), according to the Spanish method, 155 lbs. produced of R. or Rambous, or superfine, 104 lbs. more than two-thirds of the whole. And the uniformity of fineness in the improved wool is such, that in shearing specimens from these different parts of the same animal, (the shoulder and the breech,) which are generally considered as producing the belt and the worst wool; the doctor never met with any three persons who could agree which was the finest, and many good judges actually decided in favour of the latter. This wool contains a great deal of yolk, or oil, which is apt to entangle the dust of the fields, so as often to form a kind of mat of nearly an inch in thickness; it is remarkably, or rather wholly free from felts, or kernels. Brown fleeces in the wool of any particular sheet is an indication of inferior fineness (and such was the colour of the ancient fine-woollen sheep, and we need not look for the cause in any peculiar quality of oil or composition mixed with the wool); it will nevertheless fibric white. But according to lord Somerville, this dark-brown tinge on the surface of the belt fleeces amounts almost to a black, which is formed by dust adhering to the greasy woolly properties of its pilus; and the contrast between it and the rich white colour within, as well as that rosy hue of the skin, particularly denoting high proof, surprise at first sight. The harder the fleece is, and the more it refits any outward pressure of the hand, the more close and fine will be the wool. Here and there a fine pile may be formed with an open fleece, though but rarely. And in Mr. Tulloet's Spanish flock, purchased from lord Somerville, the average weight of each Spanish fleece in the grease was 5lbs. 13 oz., and the lightest ewe fleece 5lbs. 4 oz., and the heaviest ram fleece 6lbs. 12 oz. of very good quality. This ram was twelve and a half or thirteen months old at shear day, and was adjudged to weigh 20 lbs. per quarter. Mr. Tulloet declined the price of two hundred guineas for them, likewise that of one hundred for the use of him during the tappning season: he does not wash his Merino sheep before shearing, since, from the closeness of the fleece, it is not much liable to the intuuction of dirt: as it does not lose quite half its weight in scouring by the manufacturer, an ultimate may be made after that rate of the value of the fleece in the yolk. The fleece of the young ram produced upwards of 35r. and the average produce of the whole unwashed Merino wool 18s. 9d. each fleece. The price of the superfine more than four-fifths of the whole, 6s. 3d. and 6s. per pound of the third part, or free, which was but about one pound in the whole quantity. Mr. Bartley has somewhere mentioned, that four wethers of this breed produced the quantity of 352 lbs. of wool; and of several ewes which produced 8 lbs. each, and of a wether which gave 12 lbs.

In the introduction of this breed his majesty, as has been seen, has taken the lead, and from his flock a great number of the improvers of it have been supplied in the different
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Different flocks that have been made since its first establishment. In the sale of 1803, in Kew Lane, under the direction of sir Joseph Banks, the numbers sold, according to some, were twenty-four shearing rams, which produced the sum of 402l. 6s.; seven full-mouthecl and four toothed rams, 17l. 13s. 6d.; fourteen ewes, 118l. 8s.; amounting in all for the forty-five fheep to 662l. 10s. 6d. The highest price of the shearing was 42 guineas, the lowest 6d. 7s. Of the full-mouthecl rams, 28 guineas were the highest, and £1 3s. 6d. the lowest price. Of the ewes, 11 guineas the highest, 6d. the lowest. The rams were put up at fix guineas, the ewes at two guineas; the former prices at which they were allowed.

The wool has been sold this year unsorted at 4s. 6d. per pound. The size of the ewes somewhat under our pure Ryelands, but above several of our small breeds; heads sharp and well-shaped, with occasionally a black spot or two; wool externally having a dirty tinge, but without that red-brown hue which has been before mentioned; ears pendulous; perfect ewe-neck, with the linking or cavity both before and behind the shoulder, the top of which is generally higher than the rump; capacious belly, the animal flanding wide and well upon the legs; the rams generally of a good size, some of them large enough for any purpose whatever, and of a great bone, but flat and symmetrical; several of them were of as good and useful form as need be feen, having compact loins and shoulders, and straight backs. Two or three individuals remembled very strikingly our Dorset and Hampshire flock; the characteristic velvet or silk-en glofs on the thorn faces of the rams was remarkable, and their countenance put one in mind of the fair-haired human complexion. Mouths by no means fine.

And it has been observed, that the large tuft of wool covering the face of Merino sheep is extremely inconvenient in northern countries, where they have frequent heavy drifts of snow. And that it is lord Somerville's practice to clip this and the leg-wool two or three times a-year, beginning about fix weeks after shearing. But that in winter, and in very rigorous climates, it may not be proper to leave the head too bare and exposed, as it may produce disease. These clippings may be proper for inferior purposes, and the fleece be rendered more pure and valuable without them. The tuft on the head, and even the throating, or protruberance in the throat, characteristic of the Spanish fift, are, as it is affirmed, discoverable, in degrees, in some of the native breeds, particularly the Ryeland, shewing its origin. And a good judge, Mr. Knight, contends, that the produce of a crofs with this breed, and the Archenfifd or true Ryeland fift, is extremely ugly, and, according to his information, subjéct to the foot-rot. On some rich pastures in Middlesex this has also been found to be the case in both the true and crofsed breed.

The Mugged Breed or Variety.—This is a singular breed of sheep, which formerly prevailed throughout all the low lands of Northumberland. They had a short, coarse, curled wool, covering their heads, faces, and legs, and grew down to their feet; in form they resembled hill sheep; their shoulders low and sharp; faces flat; back rather arched; loins thin. It has been suggested, that this mugged appearance may have been the refult of a Spanish crofs. This fift of sheep has extended to Yorkshire; and traces of them are still visible; although they have long since given place to thep of the long-woolled kinds. They are now chiefly met with in the northern counties.

The Welsh Sheep or Variety.—These, which are the most general breed in the hill districts, are small-horned, and all over of a white colour. They are not compact sheep. There is likewise a polled short-woolled fift of sheep in the parts of the country, which are effecled by some. And the genuine Welsh mutton, from its smallness and delicate flavour, is commonly well-known, highly esteemed, and sold at a high price. But the fattening of the small Welsh sheep has not in general been found to answer in the southern districts of the kingdom. In short, this is a breed which flands in need of much improvement, and which is capable of admitting of it with much advantage to the sheep-farmers of that district.

The Woolly or Variegated Breed.—This breed is described in this way by Culley. These sheep are supported by very long, thick, crooked, grey legs; their heads long and ugly, with large flagging ears, grey faces, and eyes sunk; necks long, and set on below the shoulders; breasts narrow and short, hollow before and behind the shoulders; flat-sided, with high, narrow, herring-backs; hind-quarters drooping, and tail set low. In short, they are almost in every refept contrary to what he apprehends a well-formed sheep should be. The spirit of improvement in sheep-flock has however extended itself to Ireland, and there can be no doubt, therefore, that they will soon improve this as well as other forts of live-stock.

Indeed, since the period in which the above account of Irish sheep was given, many useful and important alterations and improvements have been produced by judicious selection and crossing in this fort of flock, in several different parts of that country. However, independent of these numerous breeds or varieties of sheep, which are inhabitants of this island, there are in other countries many other kinds, which may be just noticed for the sake of curiosity, as they are occasionally seen in parks and pleasure-grounds in this intention. The more cold districts of Iceland and Russia afford a many-horned breed of sheep, molly from four to seven or eight; having a coat of dark-brown coloured hairy wool, weighing about four pounds, and covering an interior one of short soft fur. Also in Russian Tartary, a large lop-eared, polled aquiline-nosed breed of sheep, somewhat resembling the Wiltshire and Dorset breeds in their shape, are produced, and which have a long thick wool, of a black and white mixed or roano colour, and in the place of a tail, a large cushion of fat occupying the rump; hence some naturalists have called them fat-rumped sheep. This and the broad-tailed breed are sometimes called the Kalmuck and Altchan breeds. The projection of fat, in this, has an exquisite delicate marrowy taste. Some lay the wool is rather short, not coarse, but having hair growing through it. They are said to be so prolific as to bring two or three young at once. And in Walachia, Crete, and through most of the Archipelago islands, there is a breed of sheep which have singular horns, twilled in a spiral or screw-like manner, standing in a perpendicular or diverging extending manner from the fore-part of the head, to some height. In size and shape tolerable, bearing a long flabby but not coarse coat. Likewise in the extended districts of Persia, Syria, Egypt, and Barbary, the broad-tailed sheep are met with, the tail in some of which grows to the breadth of a foot, and to a length to bring them to the weight of from twenty to fifty pounds, on which account the shepherds are sometimes under the necessity of support-
Sheep.

ing them on a carriage to prevent them from galling and exhausting the animal. These appendages are mostly also esteemed as a great delicacy, being of a nature between fat and marrow. Further, some of this breed of sheep, especially those of the mountainous parts, have a wool of extraordinary length and fineness, from which are made the expensive Indian shawls, and some other fabrics.

And the Guiana breed of sheep, said to be common in tropical climates, is large, strong, and swift, and though domesticated, are often found in a wild state; having coarse, hairy coats, short horns, pendulous ears, and a coat of development at the chin.

What is called the Madagaascar breed of sheep, is also of a good size, and well covered with a close pile of smooth glossy hair in the place of wool.

The Bucharian breed of sheep is also hairy, and kept in large flocks in Great Tartary. The island of Antigua has likewise a breed of the same kind. Sheep of this sort were imported from Spain by Sir Joseph Banks, with coats as sleek and smooth as those of a horse, and which never, at any season exhibited the leafy appearance of wool or down, or any thing of a similar kind.

It may be noticed, that it has been well flated in a late practical work, that in the breeds of sheep there are evident differences in their fizes, forms, flesh, wool, and other properties, that admirably adapt them for different sorts of pastures, situations, and uses of the farmer. And that the large long-wool'd breeds, from their being more flowy, heavy, and tame in their dispositions than most other kinds, are in general the most proper for the rich inclosed pasture districts: the breeds which possess greater length in the legs, more activity in walking, and a lefs burthen of wool, are suited to the more elevated lands, such as the downs, moors, and heaths in different parts of the island, where the pasture is lefs fertile and luxuriant; and that the small light caracol'd hardy breeds are most adapted to the exposed mountainous situations, where the food is more sparing, and obtained with greater difficulty and expense. And in the Rural Economy of the Midland Counties, it has been observed that a very long-wool'd breed of sheep, as the old Lincolnshire or Teeswater body, is necessarily also in the view of our fknell wrought manufactures; and another, such as that of the new Leicester, for the inferior kind of grasslands, and the rich inclosed arable lands, where the folding system is not in use; for the supplying the materials of the coarser sorts of worsteds, stockings, coarse, coarse cloths, blankets, carpets, and other articles of the same kind: while a middling-wool'd breed, as the Wiltshire, the Norfolk, or the South Down, is wanted for the well-soiled arable lands, where the practice of the fold is in ufe, in the view of making cloths of the narrow medium kinds; a very fine-wool'd breed, as the Herefordshire Ryeland, for the finest cloths; and the Shropshire, or some of the more hardy breeds, for the hearty mountainous situations. The Spanish and Cheviot breeds may also be proper in the last intentions. What is therefore chiefly necessary to be regarded in the introducing of new breeds of sheep, is to consider with attention the nature and situation of the pastures on which they are to be supported, and to carefully avoid making use of larger or finer breeds than can be properly sustained: as upon due management in this respect, much of the success in the improvement of sheep-flock must necessarily depend. Where bettering the form of the animal, and improving the quality of the wool or coat, are the principal objects, they may be effected by judicious crossing with proper breeds for the particular purpose, on the principles that have been explained in speaking of the care of breeding, and which is farther shown below. (See Breeds, Breeding, and Lives of Men.) Indeed this last circumstance is one which should particularly engage the notice of the farmer in the business of flocking his lands with sheep, as it is seen from numerous statements, that wool of the best quality may be produced in this country by means of Spanish sheep, and then being properly crossed with the crossed breeds, which is a matter of the greatest national importance, as affording a probable means of rendering us independent of the foreign supply of this expensive but indispensable article. The breeding sheep farmer should therefore be particularly interested in promulgating this sort of improvement, in all situations where the nature of his land will admit of it, which lord Somersville has shown may be the case in most instances where the short-wool'd breeds of sheep can be properly kept, or probably on more than one-half of the pasture-lands of the island. And he has remarked that there is one inducement to this, which is that of its not interfering with the production of the most valuable sort of mutton, a point to which the sheep-breeders of this country have till lately been particularly attentive, almost without regarding the quality of the wool; as it has been found that the quality of the sheep is the different qualities of wool; as it has been found that the quality of the wool is the different qualities of sheep inclines to the nature of the wool, the short-wool'd sheep being close in the grain of their flesh, of course heavy in the scale, and in the tale high-flavoured; while the pulled long-woool'd fort are more open and loose in this respect, larger in size, and the mutton more coarse, and in general less saleable in the different markets in the kingdom.

In sheep there are certain good or bad qualities, properties, or dispositions which mark their value and importance in the view of the farmer, grazer, and breeder. That such certain peculiar properties and dispositions prevail, is well known to experienced persons of these descriptions, by sheep in exactly similar circumstances in every respect becoming more or less quickly in the taste of fatteners, &c.; as an improved disposition in them signifies an aptitude to convert their food or nourishment into flesh and fat. Thus, in a number of sheep of the same kind and age, under the very same management, when handled, a vast difference will be found in their condition and state of fatness, &c. Some will be in a flate to go off many months before the others are ready, although put on the same land in equal fles; and others, though kept far beyond the usual period of time, will never get into sufficient condition. The disposition of the former must, of course, be very beneficial and desirable to such sheep-farmers, as well as advantageous to the community, while that of the latter is quite the reverse. This is likewise the case in the breeding of ewes, as those which have it well and in the bell rate at the lambing time. But there are, it is supposed, some influences of exception in this and other dispositions of sheep, which poffefs good qualities, that have been improved, that such sheep improves as the above should also be careful in detecting, otherwise they may be liable to suffer considerable injury and loss; and it is frequently seen on killing different kinds of sheep, that there is great difference in individuals of the same breed and variety.

There are several circumstances which are supposed to form or contribute to this goodness of disposition in these animals; they must be well bred, or come from such as have good properties; they must not be permitted ever to be in a state of want of food, or be reduced in flesh; they must have constantly good food in sufficient abundance, the richer, to some extent, the better; they must have their...
frame or bone not too large for the quality of their keep; they must have a due relative proportion of parts; they must handle free and mellow in their flesh; they must have a peculiar appearance of countenance; and they must be perfectly tame and quiet. There are also other causes which in some measure conduces to this end, but they are of less certainty in their operation, such as the stature and action of the blood in the system, &c. The external forms and qualities of sheep which shew a good disposition are, a smallness of the head, a thinness and shortness of the neck, a deep wide breast, a wideness over the shoulders, a broad, straight and deep carcase or barrel, a smallness of bone and feet, the joints moderately short, the muscles or flesh plump and full, with a thinness about the infection: the skin middleingly thin and mellow, of a fine texture, and a clear red and white colour; the wool of a yellowish-white appearance, a curly nature, and neither too long nor too short, but thickly set, the fat and flesh soft, with some sort of firmness in handling, and the countenance pleasant, and inclined to quietness.

The improved disposition or quality of sheep is promoted by taking them from poorer or inferior keep or foils, to such as are of a better and more rich kind, as in the case of fedds: but the removing of them from rich soils or keep, to such as are of a worse nature, has directly the contrary effect. The quality of the flesh, in one case, becomes soft and mellow, while in the other it gets more close and hard.

The nature and quality of the land or foil, when any breed of sheep are kept upon it for a length of time, will, it is believed, throw out the suitable size for it, and certain accidental qualities will occur according to its fort, which, when properly managed by the breeder, will afford an improved disposition in the animals. In such a case improvements may have a probability of being produced, by having the male smaller in size than the female, and by changing him from too good or rich keep, so that his constitution may be in some measure delicate, by the female having her nourishment regular, and so as at no time to be lowered in flesh; and when a more full supply of food may be wanted, by the increase being moderate, so as to preserve rich keep for the young, in its advancing growth; by breeding from such sheep as are the most kindly, th' the bell disposition, and allow the fullest profit, on the particular foil or land on which they are bred and fattured; by choosing and selecting the middle-sized sheep of the flock to breed from, and not the largest, as it is favourable to be rather under than over the quality of the foil or land for forming good disposition; by restraining to breed from sheep displyasing a bad disposition, or which have defects; and by cautiously using for this purpose ewes which have had lambs, and are not too old, as disposition is supposed more likely to be produced from the second than the first lamb: and lastly, by the mode of breeding that is called in and in, or in the same line, which greatly contributes to form disposition.

In the degenerated form of sheep, the reverse of all this will, of course, mostly take place; they will have thes qualities or properties in a larger or smaller degree; their heads will be generally short and thick, though occasionally rather long, and of a coarse nature; the neck, for the most part, long, thick, and concave in the higher part; the carcase long and thin, and the ribs flat, usually termed "flat-fided," while in improved sheep they bow out almost at right angles with the spine, in somewhat the barrel manner. Narrow shoulders, the loin not wide, the back not straight, and the belly gutty; the breast or chest contracted, without being deeply set down; the legs long, and thighs not full or fleshy; the flesh thin, of a close texture, and thick about the infection of the muscular parts; the feet large and coarse; the flesh hard in handling, or what is sometimes denominated "flicky;" the countenance far from pleasant, and the nature wild; the wool coarse and hampy; but capable of improvement by attention; difficult, or requiring time in fattening; the mutton often of good quality, for eating, of a firm grain, sweet flavour, and abounding in gravy.

Sheep of this kind in general require a much greater quantity of food for their growth and support, and for fattening, than the improved fort, which is a circumstance that must evidently be disadvantageous to the breeder, grazer, and the whole community.

All such persons as are in the habit of breeding and fattening sheep, and have sufficient experience, find that they depend on the qualities or properties of their breeds for growth and improvement: some will not fatten at all, or be as long again in fattening as others, and this moit commonly occurs in such as are not of the individual's own particular breed or kind. The degeneracy of sheep is readily seen and easily proved in the management of them. And once confider almost the whole of the breeds or varieties of this country to be more or less in this state, or that there is not probably more than one which can be said to be truly in an improved condition, on the exact principles of improved forms.

This degeneracy is in a great measure the conquence of neglect or error in the breeders and managers of sheep, as when they thrive and fatten well, that is to be attributed to proper selection, suitable keep, and a due regard to the true and exact principles of management; but when, on the contrary, they do not go on to fatten well, but decline into a state of degeneracy, it proceeds from neglect, starvation, and the want of such true principles in their regulation and management. As though a lamb may pooffes good proportions, yet from neglect and other caufes, it may be reduced to a state of poverty; which, when it takes place, its degeneracy may be dated from that period, as its constitution is injured, and an unfavourable action is given to the system. The longer it is kept in this state, and the more frequent the changes it may undergo, the more confpicious will its degeneracy be. Nature, then, it is supposed, will throw out indications in conformity to this: the head will increase in size in a greater proportion than the other parts. The body will become thin and long; the bones will be irregular in their growth; and there will be a want of symmetry in the whole system. The caufe which are the foundation of such degeneracy are believed to be these; the rams being too large in size, and kept in too high a manner; these and the ewes not being well adapted to the foil, but too large; the lambs being kept in an occasional state of want or starvation; the neglect in not breeding a proper number for the purpose of selection; the ignorance of breeders in regard to the true principles, in respect to the forms of sheep or their management; the frequent crossings of varieties of the same breed; the presence of dry summers and hard winters, which tend to incline the constitution to an unfavourable action, and consequent degeneracy; and the want of good water, which is very prejudicial to sheep.

It is fuppofed, that it is to be lamented, that almost all the breeds, in every situation, are found to have one or other of the bad properties or qualities already noticed. However, of all sheep, the shape or form of that of the Indian fort is probably the worst which is produced; and the Wiltshire, the Welsh, and many other breeds, are not without partaking of too many of the properties and imperfections of the same kind, in addition to
It is to be hoped, however, that a more active exertion, and investigation of the matter, in sheep-farming, will in a short time be productive of the requisite improvement in the art of live-stock, and that by having recourse to superior modes of breeding, rearing, and management, an equal pace will be kept in the advancement with that of any other branch of the farmer’s art.

It may be noticed, notwithstanding what has been already said, that it is hard to be almost universally and unanimously the practice of the breeders on the South Down hills, to exchange the rams every third, fourth, or fifth year, as it is conceived essentially necessary to the preservation of the health, the fize, and the bone of the flocks, though quite contrary to the maxims laid down by some eminent sheep-farmers, who are frequent promoters of the method of breeding in as, or in the same line, continually, when there is a good breed or sort of sheep. Flocks that are rated to have been nearly ruined in constitution and habit by this means, are said to have had a wonderful improvement by the change of the rams. See Breeding.

The question concerning the best and most profitable fize of sheep for the purpose of the grazing farmer, and for producing the largest acreable quantity of food and other products for the use of the community, is a matter of very great interest and importance. Though it cannot probably be disputed but that different fized animals of this sort must be had recourse to for different situations, forts, and qualities of land, &c. yet the considerate sheep-farmer will, perhaps, most properly perceive the property of having his ground stocked with not too large a sort of sheep. It will most likely be the best way for such farmers to fully consult the nature and properties of the soils of their pasture or other lands, previously to their fixing upon the fize of their sheep-flock, which will be the most suitable and advantageous for them, as where their pasture or other grounds are inferior in their nature and richness, the fize, of the live-stock of this sort, which is admitted, cannot with propriety be so large as in the contrary circumstances, even where light flocking is practiced, for hard and pinching feasons will reduce the flock to the quality of the land. Though many are advocates for very large-fized sheep, probably from want of sufficiently considering the nature of the subject, it is never found that those who flock with fuch large animals, ever produce so much mutton on the acre, or gain so great a profit on it, as those who make use of a middling-fized stock. Some indeed think that four small-fized sheep may be kept on the same extent of land which is required for three large ones; and that in some cases, allowing the sheep to be equal in disposition, the same number of small ones, of about nine ftons each, may be fattened on the land that will barely be sufficient to feed three of from ten to twelve ftons. Small-fized sheep-flock have also many other advantages attending them. Many make complaints against sheep with improved forms, such as the new Leicesters, as being too small, from the mistaken idea of their close form, as although they may be short and compact, there is a greater width and depth of carcass in them; by which they do not come much, if any thing, short of the weight of the more apparently large breeds.

It is unquestionably a great error to think that the fheep-grazing principle to choose sheep of too large a size for the constitution of the soil, and the quality of the keep which it affords. The nature of keep will indeed itself be the cause of different fizes in sheep-flock, if they be readily maintained on the same sort of land for some length of time, and this in some measure has produced the differences of fize in the different breeds of this animal.

The particular advantages of the different fizes of sheep may be summed up somewhat in this way. Those of the largest sort are humped capable of being kept in equal proportions, on the same quantity of land, and of bringing a more profit at the market, than the smaller breeds; they are likewise conserved to fatten in a more kind manner. If the bulk of these considerations were true, they would certainly have a decided superiority, but the result of well-known trials shows that equal proportions on the same pastures, shew the contrary to be the case. And in regard to the latter, it has probably proceeded from its being noticed that the large sheep are mostly the strongest and best shaped, without considering that they are always below the quality or constitution of the soil or land on which they are fed or fattened; hence it is by no means in favour of large sheep on all kinds of land. And though it is from what generally allowed, that two small sheep of the same breed will equal in weight one large one, yet the latter will have less offal in proportion than they, which is certainly a desirable property in large flock of this kind.

Small sheep-flock are however more active, and feed clover, than large sheep; as well as on food which is of an inferior quality; they are capable of being folded in the proportion of three to two on the land; they will produce more meat on the acre, and be more hardy than large breeds; they injure pastures less than large flocks; they will, where the proportions are the same in relation to the fizes, soonest become fat in the smallers, in any two sheep. This may probably be concluded as always the case, where the regularity of form and proportions are equally good and exact; as small sheep reach the rate of maturity sooner than large ones, the smaller breeds are ready for sale five, six, or more months before the large, which is beneficial in every way; the smaller breeds of sheep are almost constantly preferred by the butchers, as the mutton is more fuitable, faleable, and desirable at particular fasons, and as having two and five quarters instead of one, where the weights are equal. It may, therefore, upon the whole, be considered as the interest and advantage of grazing farmers in general to breed, rear, and fatten sheep which are of the middling fize, however they may have hitherto been led away by other circumstances, such as great fize, extreme fatness, &c. without sufficiently taking into the account the expense at which they are produced.

What regards the proof of sheep is more the interest of the butcher than the grazing farmer; but it has much to do with the difference of breed, as all the more thin-fledged breeds of sheep, as the South Down, the Norfolk, the Welsh, and several others, mostly die well for the advantage of the butcher, while those of the fleety sort, which have improved dispositions, such as the new Leicesters, &c. commonly die to his disadvantage; so that where the great object is proof, such breeds must be chosen as approach the mott to the former. It is not, however, probably the breed simply, but the form of the sheep that gives the proof. But as such sheep as afford great proof mostly require a longer time in fattening, the grazing farmer should be careful not to breed or purchase such sheep as are not formed to convert their food into tallow, in the place of enlarging the size of their muscular parts, and producing meat of a sufficiently fat quality.

The age of sheep has also much to do in the proof which is afforded by them, as the older they are, in general, the better they die in this particular, as their full growth allows the nourishment to go for fat & tallow, according to the nature of the sheep, as where the form is inclined to be bad there will be more tallow, but where the disposition has a tendency to be good, more fat produced on the outside. Keep has likewise some influence on proof as the belt pastures, and such
as are the closest flocked, are found in common to afford sheep that give the belt proof, but it has probably left effect in this way than is generally imagined, as particular breeds give a superiority of proof on poor lands, to that of others on very rich. Time has considerable effect in giving proof to sheep, as by its fat is enabled to be collected and formed internally; but if the proof of the animals at short periods constitutes the great advantage of the grazing farmer, and he has no reason to breed and fatten his flock for the benefit of the butcher and other dealers in tallow. The management in regard to breeding and cropping, as well as the nature of the wool, are said to influence the proof in these animals, as where the more ordinary forms are adhered to, the proof will be greater than in the contrary circumstances, as they have a greater tendency to form tallow and lose in fat. And though some think long white warty wool favourable to proof, others suppose it the contrary, as denoting a disposition to fatten quickly, and as preventing inside fat by taking away the nourishment, thereby concluding fine short-woolled sheep more disposed to afford good proof. The good or bad forms and feel of particular parts, as of the head, the neck, the breast, the back, the barrel, the bone, the skin or pelt, and the flesh, often afford indications of proof, though not always such as are certain; 'as when the first is large, the second long and thin, the third narrow, thin, and high, the back thin and straight, the carcass thin and not well rounded, the bone long and large, the hide or skin flaky and hard, and the flesh hard. But these different indications of proof cannot, it is evident, always be wholly depended on, as sheep may have one or more of the marks or properties which denote good proof, but which may be counterbalanced by others that favour disposition and other similar qualities to the contrary; consequently where two sheep are similarly formed, that which has the largest head and firmest flesh may most likely be concluded to give the best proof. The opinions on proof ought, in fact, constantly to be formed from the greatest combination of the marks of it met with in the particular animals examined.

Perhaps, so far as proof is capable of being judged of before the animals are killed, it may be known by the feel of the fat glandular part, which extends from the bottom part of the neck to the shoulder, which in lean sheep is so very small as scarcely to be felt, while in those that are properly fattened by sufficient time, or fatted, as it is sometimes termed, there is a different sized cushion or projection of the same fat glandular part extending to the thick portion of the shoulder; by the feel on the ribs and tail or dock, which, when it is thick, fat, and mellow, the sheep will commonly, be thought, die well for proof. A thick loin is sometimes also thought a mark of proof in the kidney and weight. The feel of the fore dug of barren ewes and the cod of wethers, likewise shew, it is thought, proof. Many of these marks must, however, be allowed to be precarious and uncertain.

It cannot on the whole be doubted, from what has been flated on the subject of proof, that the interrelents of the butcher and the grazing farmer are at variance as matters stand at present, as what is the gain of one must be the loss of the other, where the thing is well understood.

In the Agricultural Survey of the County of Norfolk, lately published, it is noticed, that the South Downs breed is getting rapidly into the possession of all the country from Swaffham to Holkham; but that from Brandon to Swaffham many Norfolks remain. However, same mixture was observed even in that district. And it is flated that Mr. Coke was well satisfied of the advantage of the breed from Leicester eves and Bakewell tups. His flock of 160 new Leicesters eves produced, in 1802, 100 lambs; his flock of 630 South Downs produced 830 lambs living in June. The farm, it is added, yields a moat interesting competition between Norfolks and South Downs; his former flock was 800 Norfolks, selling all the produce; he planted 700 acres, and now has 800 South Downs, keeping all the produce. Further, that his new Leicester hogs and heaves produced 8lbs. of wool each in the same year, yet they had been hard kept on feeds fed very bare. And it is flated, that though he had a high opinion formerly of the crosses between the new Leicesters tup and Norfolk ewe, now (1803) his opinion is changed from much experience; so that he prefers the crosses of a South Down ram on a Norfolk ewe to that of a Leicesters ram. And it is added, that Mr. Holf has had the same crosses, and they come to 32lbs. a quarter, at two-hear.

Mr. Coke put a Norfolk tup and a Bakewell tup at the same time to the same parcel of Norfolk eves, and at St. Ives' fair fold the lambs fat at six months old, and the Bakewells brought a double the price of the Norfolks. In April 1799, Mr. Coke, on sending Norfolk, South Downs, and new Leicesters three-hear wethers to Smithfield, that had been fed together, the return was:

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<td>Norfolk Leicellers</td>
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<td>Ditto, fleeces included, the others being in their coats</td>
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And in May following above 100 going, the South Downs beat the new Leicellers by 2s. a-head. It is also observed, that at Waterden, Mr. Money Hill, with about 500 acres land and large and at present, kept 27 score breeding Norfolk eves, and fold the produce of lambs: now he has 35 score South Down eves, and keeps their produce, selling his wool at 5s. a more than the Norfolk. And further, that Mr. Bevan, in 1792, had a South Down flock, of 32 score, on one farm, and having a flock of Norfolks on an adjoining farm at Knattishall, he had an opportunity of comparing the wool exactly: 34 score of Norfolks produced 43 toad at 21s.; and 34 score of South Downs produced 61 toad; which 61, kept till November, became 64, but the summer very wet.

<table>
<thead>
<tr>
<th></th>
<th>lbs.</th>
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</thead>
<tbody>
<tr>
<td>South Downs</td>
<td>1708</td>
</tr>
<tr>
<td>Norfolks</td>
<td>1204</td>
</tr>
</tbody>
</table>

Superiority, jilt 4lb. each | 504 lbs.

Also that in 1791, the shepherd would not let his own Norfolk ewes take the South Down ram; but in 1792 he was ready enough. He said they would eat harder than the Norfolks; and would eat what the Norfolks would not; that they are more quiet and obedient than the Norfolks; so that he has done with them what he could not do with the Norfolks; folded them almost to an inch without hurdles. And that a neighbouring farmer bought three rams of Mr. Bevan, at 5s. 5s. each; but afterwards repenting, because they would fleece his flock, Mr. Bevan offered him 6d. a-head, for all their lambs, more than he folding his Norfolks, for, in the same flock, at Ipswich fair. The offer was accepted; the price proved 6d. 3d. for the ewe lambs, and 9d. for the wethers. Mr. Bevan refolded the ewes 9d., and the wethers for 10d. 6d., or 2s. 1d. a-head in favour of the half-breeds. Further, that when his sheep were Norfolks, he kept 500; but in 1794, he had 960 South Downs. That the produce
duce of 116 ewe-lambs, bred by Mr. Bevan at Riddleworth, 1792, was:

<table>
<thead>
<tr>
<th>Breed</th>
<th>Flock</th>
<th>D.</th>
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<tbody>
<tr>
<td>Wool</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>48 Lambs, fold for</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>5 Ram lambs, ditto</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>6 Refute ditto</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2 Refute shearing ditto</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10 Good ditto</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>1 Ditto</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>87 Ditto</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

105
2 Died
2 Duro

116 Actual profit 120 1 0

Farther, it is also added, that he was early in trying South Down sheep, but finding them tender at lambing, went into a new Leicesters crofs; these he abandoned, and got back to the South Downs, but still eftorts them a tender breed, and that they ought to have yards sheltered and litted for lambing in bad weather; remarking, that all the farmers he knows on the South Downs have these yards for that purpose. It is likewise slated, that Mr. Bircham, at Hackford, declares against having any favourites; he has generally bought Norfolks, and half-bred lambs; some few South Downs, but they did not answer; has had some Leicesters; any fort he can get worth his money. Little farmers, who keep a few sheep, find the polled breeds very convenient from their quietness, and therefore prefer them. Norfolk lambs bred near Cromer, bought by Mr. G. Jones at 14s., were run on flusses in the autumn, and put to turnips at Christmas, then to layers of the first year, probably at the best food for sheep, and fold shearing wethers at Michaelmas at 5s. each; 25lbs. to 24lbs. a quarter. And colonel Butler, at Haydon, is said to be convinced that Norfolks answer better than South Downs: shearlings sometimes amounting 20lbs. and 25lbs. a quarter, and 15lbs. of tallow; he has a breeding flock of 400, and fold his wether lambs at 26s. and his ewe lambs at 24s. Mr. Johnston, of Thurings, has 40 score of South Downs, which he has been rearing these six years, having bought many ewes, and got good tups. He has, however, a good opinion of Norfolks, and will not be surprized to see them come into fashion again. In May 1792, he sold two-score Norfolks at Smithfield for 3l. each. He admits their rambling disposition, which is much against them; and he is clear that he cannot keep so many on his farm as of South Downs. The South Down wool is not, on good keep, so good as Norfolk wool, but the fleece is heavier. Five years ago he got a lot of Yorkshires from the Wolds, white faces, polled, and the wool very coarse, but they throw wonderfully; never having had any sheep that did better, infasmuch, that he was heartily when he parted with them. Norfolks, he thinks, will bear folding better than South Downs. The latter will, however, come to hand rather sooner, but not on ring: has had three-score South Downs of 28lbs. a quarter. Also at Snattisham, Mr. Staleyman, the writer affirms, keeps 2000 of various breeds, South Downs, new Leicesters, and half and half; in number considerably more than when, on the same land, he kept Norfolks; his farm may, and probably does, produce more sheep-food than it did at that time; but he is perfectly clear in the great superiority of the number, this circumstance deduced, and that the profit is considerably greater; and he is clear also in the superior hardiness and kindliness of feeding of the new breeds. Of all other breeds, he thinks the first crofs of the Leicesters tup on the Norfolk ewe the best, and that wool now (1822) sells at 46d. a tod; fleeces 40s. And at Hilligdon, all are either Norfolks or half-breds, a Leicesters tup on a Norfolk ewe. Captain Beachér thinks there are no sheep in the island which the Leicesters will not improve. He has grazed many Whithares, and thinks them the best of all for coles-grazing in the lanes. But Mr. Beck, of Castle Rising, has had South Downs thirteen years, beginning with some from Mr. Tyrrells, of Lamporn, and has imported three or four times since. He has now 800, and is quite convinced of their superiority to Norfolks: when he was in that breed, he had not half the number; but after abating fully for improved husbandry, and every other circumstance, he is clear that there is a superiority of four to three. His fences are and must be bad, and in such a farm quietness is a vast object; his farm 460 acres. He gained the first prize for ewes, both the last and this year at Swaffham, and also at Holkham. The surveyor examined his flock attentively, and it certainly is a very beautiful one. His wool now averages eight to a tod, equally of hogs and ewes; his Norfolks topped twelve; he is clear that, take the country through, they average half as much again as Norfolks. Before he took the farm there were fifty sheep on it, and a dairy of cows. What an improvement! However, in the vicinity of Downham are found all sorts of breeds; towards the river, Lincolns and Leicesters; higher up, Norfolks and South Downs. Mr. Saffery likes the South Downs best, but thinks that as much care and attention had been exerted to improve the breed of Norfolks as the South Downs have experienced, they would by this time have been a very different sheep. Norfolk three-score wethers sold in April last at St. Ives, at from 47s. to 47s. 10d. each. At Brethenham, Mr. Twisits keeps 68 score of breeding Norfolk ewes on 1800 acres of poor land. He had a South Down tup some years ago from Mr. Crow, but he could not perceive that the breed did better than Norfolks, though they flood the fold to the full as well.

In the district called Marshland, Mr. Dennis, of Wigenhall, St. Mary, grazes only the best Lincoln wether; he buys from May-day to Midsummer; keeps them over-year, clipping twice, average price 50s. to 60s. and sells at 65s. to 75s. getting 15lbs. in the two fleeces: his good land will carry fix per acre, on an average, in summer; in winter, two to three acres; and these will quite preserve their fleeces; if the season be favourable, will get something: he thinks that there is no other breed so profitable here; even a fan of the new Leicesters is hurtful, as they will not stand the winter so well. Sheep the chief flock, though some Lincoln bullocks. He never gives hay to sheep, nothing but grass; 32lbs. a quarter his average of fat wethers. But Mr. Swayne, of Walpole, prefers the crofs between Lincoln and Leicesters; he buys them shearing-wethers, about Lady-day; last year 37 to 37. 10d. each, but has had them at 36s. and 13s. He clips the bell twice, three to a rod, which he likes better than heavier fleeces of sheep demanding more food. Some give 17lbs. or 18lbs. of wool. At Michaelmas he pulls the worst, or buys cole for them, if reasonable; sells all by Midsummer, making 6s. or 10s. a head, when bought in high, besides the wool. Very few sheep are kept.

Also in Hertfordshire, some prefer the South Downs to Wiltshires as the latter are the poggles often, but the South Downs never. But the long-legged Wiltshires suffer less in folding on wet land. But in other places the result of the comparison seems to be, that South Downs do better on...
grafs land than Wiltshires, and will in that cafe thrive more, and better support the hardships of short food; but on arable land with plenty of turnips, clover, rye, tares, &c. in ample provision, the Wiltshires are more profitable than the South Downs. The Wiltshires are large sheep, and consequently require to be well kept. In the trials of Mr. Hale, of King’s Waldon, for five or six years, nothing beats South Downs, where there is much grass; but on artificial grass and turnips, without a breadth of natural grass, they will not do like the Wiltshires; for which reason Mr. Roberts, on his own farm, keeps Wiltshire ewes, and crocloses them with South Down rams; so that they lamb in March. When put to grass they are folded, and some lambs are fold at 3/4 in the beginning of harvest; some twins at 3/1.6d.; and the belt are kept. He approves so much of them, that he intends to continue them. Mr. Hale’s flock is a capital one, and the wool remarkably fine. And between thirty and forty years since, Mr. Calvert of Albury had Lincoln sheep, but fold them, from conviction that they did not answer: he was then, for about twenty years, in the Wiltshire breed; and lastly, he changed thee for the South Downs, which he has had for the last seven or eight years, and prefers them to all. He has no other but lord Peham’s breed, both lambs and ewes, and considers the modern better, to evade a finer race, as likely to prove mischievous: he will not have any thing to do with them. His fix-toothed wethers weigh eleven stone and a half. He finds the breed extremely healthy: they very rarely die; and are subject to much fewer ailments than the Wiltshires. And Mr. Smith has changed Wiltshires for South Downs. He has about 400 in all, some of them Wiltshires; they are fed and worked together, and folded on wet lands. The South Downs in exceeding good order, but the Wiltshires very inferior. But about Barkway, South Downs are not yet introduced; Mr. Whittle, however, gave it as his decided opinion, that fed and worked Wiltshires and South Downs together in the same manner, and the former will prove to be the most profitable; the latter are much injured by the dirt, as they are too short in hair and legs; it was tried at Kimpton Hoo, and such was the result. He has fold Wiltshire wethers three times, at 7l. 14s. each. And Mr. Doe, of Bygrave, keeps Wiltshire ewes, which he crocloses every year by new Leicelcer rams; but goes no farther than the first cros. Thes3 ANSWER greatly, whether the fale be fat lambs or shearlings. He does not approve of South Downs, on account of their inferior weight.

However, from the high character which South Down sheep have lately attained, it may not be uninteresting to give Mr. Young’s account of their first introduction into Norfolk. He remarks, that when once an improvement has spread so much as to become an object of importance, there are generally many claimants for the merit; and if such claimants are only heard of many years after, but little attention is due to them. With regard to the neighbouring county of Suffolk, he can speak with some accuracy, but should not mention it on this occasion, were not the fact connected with the introduction into Norfolk. In May, 1785, he published an account of an observation he had made in 1784, the year he brought them into Suffolk from Suffolk; and it being printed at the time, the fact will admit of no doubt. He recommended them strongly to every gentleman and farmer he conversed with on the subject; and at his persuasion, as many well know, the late Mr. Macrafo, of Barrow, purchased that flock which the earl of Orford, after his death, bought and established at Houghton. Mr. Macrafo died in 1789. And in a paper printed in the Annals, in 1790, he (Mr. Young) remarks, “I have had six and twenty years’ experience in Norfolk sheep, and once thought fo well of them, as to carry them into Hertfordshire; but in the advance of my practice, I began gradually to doubt the superior merit of that breed. I thought that of all the sheep which I had examined particularly, none promised fo answcr so well for the general purpose of the counties of Norfolk and Suffolk as the South Downs. I began the import in 1784, and in 1790 had 350. I had too much friendship for the late Mr. Macrafo, to advise him to try any experiment that I was not clear would answer to him. I repeatedly urged him to try the South Downs; he listened to me with attention for some time, but would not determine, till having seen the number I kept proportionately to the quantity of land, and at the same time with some Nor- folks, it proved to him that the South Downs were worth attending to; and the journey I persuaded him to take into Suffolk, giving him an opportunity to converse with various noted sheep-masters there, he determined to make the experiment; he went over, previous to Lewis fair, and bought a flock of them. The lambs fold well at Ipswich fair. Mr. Le Blanc, at Cavenham, also turned South Down rams to 700 Norfolk ewes; he found no difficulty at Ips- wich; and his shepherd, after three years’ obfinate preference to Norfolks, gave up his old friends, and actually fet South Downs for his shepherd’s flock. Whether the breed should or should not, in the long run, eftablish itself, I have the satisfaction of feeling that I have done no ill office to my brother farmers by introducing it. From the daily accounts I receive, I have good reason to believe that it will be eftablished.”

The farmers in Oxfordshire employ many different sorts of sheep, as the Wiltshire, Berkshire, and some others; but the South Down and new Leicelcer, and their crocloses, are fall driving the other sorts out of the county, as being more profitable in the number that can be kept on the fame extent of land, in fattening more expeditiously, and at earlier periods of their growth, in folding equally well, and in the value of their wool. Some, however, think, that the espoused sheep are very profitable on farms of the flem-brath kind, and have large flocks of that fort. In this diftribut, in general, the quantity of sheep that is kept is large, in proportion to that of the extent of the farms.

In Berkshire, the large Wiltshires and the breed of the county are giving way to the South Down, and other small- fixed breeds, as yielding more profit, fattening quicker, and doing better in general. The new Leicelcer, so far as they have been tried in proper situations, have also answered well. Some crocloses of these smaller breeds have likewise been employed with considerable success.

In the county of Essex, several forts of sheep-flock are made use of by the farmers, as the Norfolks, Wiltshires, Lincoln, new Leicelces, South Downs, and different crocloses kinds; but the superiority and advantage of the Downs are now almost evety where admitted. The Dihiley or new Leicelcer fort is also held in much elmination in many places, efcpecially where the soil is of a dry light nature; as the wether lambs of this breed, and that of the Downs, on being conftantly kept together on the fame land, until they became fat, the former were invariably drawn off the firt, and were the fatter and heaviest. Besides, rams of this fort are preferred for being put to Norfolk ewes, to those of the other breed; as the produce is larger, and fooner fat. The new Leicelces are by fome, however, thought inferior to the South Downs, as being fuch bad breeders; one hundred of them only producing eighty lambs, while the fame number of the Downs will bring one hundred and twenty.
Here, however, it is necessary to pause, it is true, as the experiment is already decisive of the point, that at this age of six months, a raised inسوف, these two breeds were so much more advanced than the others, that they might be profitably crossed from the land, and a third breed sent in. It will remain, it is said, for the future progress of the trial, to ascertain whether such fresh breed would not pay better, than continuing the old; and for this purpose it may be calculated, that the sheep new fold at the above market at 34s., with the addition of 32d. for wool; pay for sixty-four weeks 7s. the pound from the time of their being lamb'd. This is noticed to be a very considerable profit; and that if it should turn out, that keeping them much longer is not attended with an advantage, it would not be the most advantageous of all to succeed in the half-bred. The following is a specimen of the superior advantage of that breed, which may be got rid of at early an age. And it is thought worthy of remark, that not one of the true New Leicesters being in any condition in to be drawn off in the full lot for market, is a circumstance most strangely contradictory of all others; it was the amount of the natural peculiarly a characteristic of this breed.

To proceed with the trial.

<table>
<thead>
<tr>
<th>Weighted</th>
<th>Ten Weeks' Gain</th>
<th>Per 100 lbs</th>
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<tr>
<td></td>
<td>lbs.</td>
<td>lbs.</td>
</tr>
<tr>
<td>Sept. 7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Downs</td>
<td>279</td>
<td>33</td>
</tr>
<tr>
<td>Leicesters</td>
<td>258</td>
<td>40</td>
</tr>
<tr>
<td>Half-breds</td>
<td>294</td>
<td>34</td>
</tr>
<tr>
<td>Romney-Marnies</td>
<td>270</td>
<td>34</td>
</tr>
</tbody>
</table>

It is noticed, that this result is not very different from what might have been expected; for as the Romney-Marnies and new Leicesters were very much behind the South Downs and half-breds ten weeks before, it was natural to suppose, that when they did begin to thrive, they would do it in a more rapid manner.

<table>
<thead>
<tr>
<th>Weighed</th>
<th>Losses in 12 Weeks</th>
<th>Loss per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbs.</td>
<td>lbs.</td>
</tr>
<tr>
<td>Dec. 1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Downs</td>
<td>264</td>
<td>9</td>
</tr>
<tr>
<td>Leicesters</td>
<td>251</td>
<td>7</td>
</tr>
<tr>
<td>Half-breds</td>
<td>282</td>
<td>12</td>
</tr>
<tr>
<td>Romney-Marnies</td>
<td>269</td>
<td>1</td>
</tr>
</tbody>
</table>

It is considered as very material, in all trials of this nature, to note the losses, as making such attempts of, not by not only weighing when the sheep thrived, but by considering, by marking when they go backward, and which breed is most capable of withstanding those circumstances which operate against them all. In the above scale, the difference is not very material. In that lot which did the world, the losses, it is said, amounts to about 1d. per week; but that it is unsuitable to every lot, that in a period including the best part of the autumn, as sheep should thrive, when the weather suitable, deep into the month of November, and some of them should have gained, which they ought to have done considerably. Their pasture, however, though good in quality, was bad. The result being found, the sheep were ordered to be sheared for twenty-four hours; and after which, to be turned out for other twenty-four hours; allowing, by thus weighing them, to ascertain the quantity of food eaten, and the quantity voided: it being rightly conceived, that if, upon the repetition of such trials, there existed any remarkable superiority, or any material difference, between the respective breeds, it might throw some light upon the general inquiry.

South
SHEEP.

Weighed and Lbs. by Starring. Lbs. per 100 lbs.
South Downs - - 8 3 0
Leicesters - - 11 4 0
Half-breds - - 17 4 6
Romney-Marches - - 5 0 14

The sheep were then turned out, and twice weighed, after twenty-four hours eating each time.

Gain in the Gain in the Total Gain
1st 24 Hours. 2nd 24 Hours. per 100 lbs.
South Downs 1 6 7 2 10
Leicesters 6 6 12 4 13
Half-breds 10 9 19 6 12
Romney-Marches 0 5 5 1 13

The result of these weighings shows that the half-breds lost most, and gained most; that the Romney-Marches lost least, and ate least; that the Leicesters lost more than the South Downs, and ate more. It is suggested, that such trials must be repeated many times, before conclusions can be fairly drawn. How the Romney-Marches, in the first twenty-four hours, could gain nothing, is not to be accounted for, as the weighing was performed with accuracy.

Weighed again in the succeeding month of March, in the next year, which, as it will mark the loss sustained by the severer part of the winter season, deserves particular attention. They were at grafts the whole of the time.

Weighed Lbs. in 4 Months. Lbs. per 100 lbs.
South Downs 253 11 4
Leicesters 214 37 14
Half-breds 253 29 10
Romney-Marches 254 15 5

The result here shows that the Leicesters, which is remarkable, suffered the most; from which it is thought, that it may fairly be concluded, so far as one trial goes, that the great peculiarity of that breed is not by any means what has been contended for, a capability of supporting itself on little food; but that, on the contrary, it demands a very plentiful nourishment, and will bear the want of it worse than any of the other breeds.

The half-breds are the next in the order of merit: the South Downs are the best of all.

Weighed Gain in Gain
12 Weeks. per 100 lbs.
South Downs 299 46 18
Leicesters 275 61 28
Half-breds 310 57 22
Romney-Marches 317 63 24

The period from the 30th of March to the 19th of June necessarily forms another interesting portion of the trial, as it takes in the whole flush of the spring growth of grafs. Here the result, it is said, is also remarkable, and strongly in confirmation of the preceding observations on the Leicesters; for when in favourable circumstances in regard to food, as in the present cafe, from feafoin, they exceed all the rest. The Romney-Marches, however, approach near to them; and as there had lost, in pinching circumstances, much lefs, their superiority upon these two weighings seems to be clearly ascertained; and which will appear the plainest, by comparing the weight of December 1st with that of June 19th.

South Downs 204 299 35 13
Leicesters 251 275 24 9
Half-breds 282 310 28 9
Romney-Marches 269 317 48 17

The merit of the Romney-Marches, in this stage of the trial, is, it is said, conspicuous. The South Downs are next, the Leicesters and half-breds being equal.

Weighed Gain per 100 lbs.
South Downs 316 5
Leicesters 312 8
Half-breds 310 8
Romney-Marches 337 6

The Leicesters here, it is observed, continue to take the lead throughout the summer. So long as the food is plentiful, they beat all the others; and this part of the experiment goes to prove a most important point, which has indeed been long suspected, that in good situations no breed is to profitable to the grazer. The half-breds are found the next to these.

The five remaining Romney-Marches were sent to Smithfield on the 4th of July, and brought 45s. each; and on August 7th, ten of the remaining Leicesters went at 48s. each, also seven at 42s. each; so that the profit for two years and two months food, added to the value of the wool, is, it is said, 5d. and a fraction per week for the Romney-Marches, and from 4d. to 4½d. for the Leicesters, from the time of their being lambed.

The former part of the experiment will shew that the South-Downs and half-breds in 64 weeks age gave 7½d. per week profit; and that the Romney-Marches and Leicesters, kept until they were nearly twice the age of the others, namely, 108 weeks the former, and 117 the latter, only gave a profit of from 4d. to 5½d. per week. This is, it is said, a most intersting cirkumstance, which manifestly tends to ascertain how much better it would be to the grazer to get rid of these sheep at an earlier age, and relodge his land with those which are most faleable at the earliest period.

November 21st to December 25th. Weighed again.

Weighed Gain Gaine per 100 lbs.
South Downs - 320 4 1
Leicesters - 326 14 4
Half-breds - 346 6 1
Romney-Marches - 331 60 6

This, it is supposed, is perhaps the most striking period of the experiment. By the last weighing, if turned to, it will be seen that the Leicesters had outstripped all the rest, and that the superiority is still maintained.

The above details of the practises of different districts, experiments, and remarks, must place the profits and advantages of different breeds of sheep for the purposes of the sheep-farmer, in a clear, satisfactory, and striking point of view. With respect to the wool of different sheep, we refer to the next article, and Wool.

Different Kinds of Sheep-Management.—In the practice of sheep husbandry, different systems are had recourse to, according to the extent and nature of the farms on which they are kept and the methods of farming that are adopted on them; but under all circumstances, the best sheep-masters constantly
constantly endeavour to preserve them in as good condition as possible at all seasons. With the pature kinds of sheep this is particularly the case; and with the view of accomplishing it in the most complete manner, it is useful to divide them into different parcels or lots, in respect to their ages and fortes, as by that practice they may be kept with greater convenience and benefit than in large flocks together, under a mixture of different kinds; as in this way there is not only less waste of food, but the animals thrive better, and the patures are fed with much more ease. The advantage of this management has been fully experienced in many of the northern districts, where they usually divide the flock into lambs, yearlings, wethers, and breeding ewes; and in this method it appears not improbable that a much larger proportion of flock may be kept, and the sheep be preserved in a more healthy condition.

The nature of the management with a breeding flock is that the sheep-maister must act according to his circumstances, situation, and the capital which he possest, either selling the lambs to go to keep, fattening them for grazs-lamb, flocking them for house-lamb, or keeping them on to be grazed and fold as flore or fat wethers; the ewes being fold lean, as they are called, or fattened, as circumstances, profit, and convenience, may point out. Another practice, but which requires much capital, as well as knowledge, experience, and attention, is that of breeding and fattening off all lambs, both wethers and ewes, especially where markets for their sale, when fat, are conveniently situated. But where this system is too extensive, it may be partially acted upon, varying the plan according to capital, circumstances, and the nature of the times. In which case, whenever flock becomes extravagantly high, it is mostly a good way to sell. But a method which is attended with the least trouble and hazard, is that of purchasing a store flock, as lambs, wethers, and what are termed crones, or old ewes; some of the last fort often proving with lamb, may be fattened off with them to good account. It is likewise often the case that ewes are disposed of in lamb, or with lambs by their fides, in what are termed coupled, in which circumstances it is frequently a good practice to make annual purchases of them, in order to the fattening of both, and selling them in that state within the year. The system of breeding can only be had recourse to with effect and advantage in situations or on farms, where there are extensive tracts of land fit for the patureing and support of these animals, but not the fattening of them; the more rich deep grases-lands being adapted to their fattening, and thereby affording a better profit, especially when quickly performed with a proper fort of this kind of flock, as that of good wethers.

But in the purchasing of sheep, which is often done from very distant fairs and markets, much care and circumvention are necessary, whatever the fort or intention with which they are bought may be. In these cases much advantage, especially when at a considerable distance, may be derived by employing a saleman upon the spot.

And the appearances which shew the sheep to be in a proper sound state of health, are a rather wild or lively briskness, a brilliant clearness in the eye, a fluid ruddy colour on theinside of the eyelids and what are termed the eye livers, as well as in the gums, a fatness in the teeth, a sweet fragrance in the breath, a dryness of the nose and eyes, breathing easy and regular, a coolness in the feet, dung properly formed, coat or fleece firmly attached to the skin, and unbroken, the skin exhibiting a florid red appearance, especially upon the brisklet. Where there are discharges from the nose and eyes, it indicates their having taken cold; and should be attended to by putting them in dry sheltered situations. This is a necessary precaution also in bringing them from one situation to another while on the road.

It may be noticed that, with sheep-farmers, the common practice, except in particular instances, has been to leave the ewes for the purpose of breeding without any selection; but where good sheep-flock is the object, much attention should be paid in choosing such as are the most perfect, and that polletts, in the highest degree, those qualities or properties which are wanted, whatever the breed or variety of sheep may be; as is only in this way that a good flock can be raised and preferred. And it is a business that should always be performed at the time they are turned to the ram, if it has not been done before; and this is equally necessary in regard to the rams, that they may be adapted to the ewes.

The author of the Farmer's Calendar has observed, that the late duke of Bedford, in attending to this subject, had every ram with the lambs got by him the preceding year put in different pens, that he might not only examine them but their progeny, previous to his deciding "what ewes to draw off for him," which is certainly a method highly deserving of imitation by sheep-farmers in general. Such attention, united with a careful selection of suck lambs, must, the writer thinks, keep a flock in a state of progressive improvement, proportioned to the accuracy of judgment, eye, and hand of the farmer who practises it. And it is observed in the Agricultural Report of Norfolk lately published, that Mr. Coke readily affirms, not only his tenants, but other neighbouring farmers, in fortifying and selecting their South Down ewes, &c. and distributing them in lots to the rams according to the shapes and qualities of each. He puts on his shepherds'smock, and superintends the pens, to the sure improvement of the flock; his judgment is superior and admitted. The writer has seen him, and the late duke of Bedford, thus accounted, work all the day, and not quit the business till the darkens forced them to dinner. See Sorting Sheep-Stock.

Further, it has been remarked in a late practical work, that the most advantageous and proper age for ewes, taking the ram in the different breeds, has not been fully known; but from a year to a year and a half old may be sufficient, according to the forwardness of the breed and the goodnes of the keep. Some judge of this by the production of broad or sheep's teeth. It should not, perhaps, be done while too young in any case. And in regard to the season of putting the rams to the ewes, it must be directed by the period at which the fall of the lambs may be most desirable, which must depend on the nature of the keep which the particular situation affords, but the most usual time is about the beginning of October, except in the Dorsetshire ewes, where the intention is for flocking for house-lamb, in which case it should be much earlier, in order that the lambs may be sufficiently forward. But, by being kept very well, any of the breeds will take the ram at a much earlier period. Where the rams are young, the number of ewes should seldom exceed sixty for each ram; but in older rams a greater number may be admitted without inconvenience, as from one to two hundred; but letting them have too many should be cautiously avoided, as by such means the farmer may sustain great losses in the number of the lambs. It is found that the ewe goes with lamb about the space of five months, consequently the most common lambing-feast is March, or the early part of April; but it has been observed, that in many of the more southern districts, where sheep-breeding is carried on to a considerable extent, some parts of the ewe-stock are put to the rams at much earlier periods, so as to lamb a month or two weeks sooner; a practice which is attended with much profit and advantage in many situations where early graze-lamb is in great demand. It is usual for the
the rams to remain with the ewes for a month or fix weeks, and in some cases longer, in order to complete the business of impregnation, which in some districts is ascertained by smearing the fore-bows of the rams with some colouring substance. The method formerly in practice, and which is too commonly the case at present, of turning a number of rams among the flocks, is highly exceptional, as tending to prevent the main object, and injure the rams. A better way is to let each ram have a proper number of ewes, and with very choice flock to keep the ram in an inclosed small pasture, turning a few ewes to him, and as they are served replacing them with others. By this means there is more certainty, and more ewes may be impregnated. In such fort of fine flock, it is likewise of great utility to keep the rams during this season in a high manner. In this view a little oats in the straw, or a mixture of barley and pea-meal, are excellent. Where ewes are backward in taking the ram, the belt means to be employed are those of good stimulating keep. The rams should always be continued with the ewes a sufficient length of time. It is staled in the General Treatise on Cattle, that the ewe will breed twice and even thrice a year, if it be made a point to produce such an effect by attention and high keep, since the will receive the male indifferently at any season, and, like the rabbit, very soon after bringing forth. And that Little gives an instance of three of his ewes, well kept, lambing at Christmas, fattening off their lambs at Lady-day, and producing lambs again the first week in June. It seems they stole the ram immediately after lambing, but brought the second time only single lambs, although of a breed that generally produces twins. The former writer thinks there is no doubt but the sheep would produce young thrice a year, were the bad practice reftored to, which has so frequently recommended with the rabbit, of allowing the male immediately after parturition; the ready way to render both the female and her progeny worthless. Could the lambs be advantageously weaned at two months, sufficient time would, he conceives, remain for the ewe to bring forth twice within the year; for example, suppose the young ewe tapp'd in August, the lamb would be dropped in the middle of January, and might be weaned in April. In March, the ewe again receive the ram on the turn of the milk; the ewe, perhaps in or before April, she would then bring forth within the twelve months, or in August. This plan would, he thinks, at least injure the dam infinitely less than fulfilling during gestation.

And it is necessary, that during the time the ewes are in lamb they should be kept in pastures, and as free from disturbance as possible, being carefully attended to, in order to prevent accidents, which are liable to take place at this time, such as those of their being caff in the furrows, &c. Where any of the ewes flip their lambs, it is advised by Mr. Bannfier that they should be immediately removed from the flock. They also require, under these circumstances, to be kept as well as the nature of the farm will admit, in order that there may be less loss at lambing-time, from the ewes being stronger, and the lambs more healthy, and better capable of contending with the state of the season at which they may be dropped. At lambing-time every possible attention is to be paid. The shepherd should at this period be particularly careful and attentive to afford his assistance where it may be necessary. He should continually have regard to the suckling of the lambs, and to see that the udders of the ewes are not defaced. His attendance will often be required in the night as well as the day. At this season covered sheep-folds are often of very great advantage, in keeping and protecting both ewes and their lambs. And in respect to the number of lambs, it is remarked by the author of the work on Live-rock, that the ewe brings most commonly one, next in degree of frequency, two, rarely from three to five lambs at a birth. This property of double birth is, he says, in some instances, specific; the Dorset sheep usually yielding twins; and the large-poled Belgian sheep, with their descendants, our Teffwater, doing the same, and producing occasionally more at a birth. Other breeds bring twins in the proportion of one-third of the flock, which is supposed to depend considerably on good keep. A certain number of ewes per centum prove barren annually: the caufe very rarely, natural defect; sometimes over-fatness, a morbid state of body, from poverty, or neglect of the ram; in other words, want of yflem in the sheep.

Further, it has been recommended, that where rich pastures, or other forts of good grals-lands cannot be reftored for their support, turnips, or other kinds of green food, should be provided for the purpose, and given them in a suitable manner, but where it can be done, it is always better to leave this fort of food untouched till about the period of lambing, when it should be regularly supplied, in proportion to the necessity there may be for it. The ewes also demand at this time much care, to fee that they are put upon a dry sheltered pasture, free from disturbance, and that neither they nor their lambs suffer injury from the too great severity of the season. Whenever this is the case, they should be carefully removed into a proper degree of warmth and shelter, until perfectly restored. It is likewise a necessary, as well as a useful practice, as they lamb down, to take them and their lambs away from the common flock, putting them into a piece of turnips, or fresh dry pasture, where there is shelter when necessary, as by this means much fewer lambs will be lost than would otherwise be the case. It is also found, that by a proper supply of turnips, or other similar green food at this period, the milk of the ewes is much increased, and the growth of the lambs greatly promoted; which is of much future importance, as when they are flinted at this early period of their existence, they never turn out to be as well forwards for the farmer. With the green and root crops, and preferred after-gras, hay, straw, corn, and oil-cake, are in some cases made use of in the winter support of sheep-rock. With turnips, where the soil is not sufficiently dry to admit the sheep, it is the practice to draw them and convey them to a found firm pasture, that the ewes may be kept upon them once or twice in the day, as there may be occasion, care being taken that they are eaten up clean, as the circumstance of their being thus eaten may serve as a guide to the farmer for the supply that may be daily necessary. In this way this fort of food will be consumed with the greatest economy. Where the land is perfectly dry, and the intention is to manure it for a grain crop, eating the turnips on the land, by means of portions horded off as wanted, is a good practice. And with this fort of food, especially where it produces scouring in the ewes, green rnen hay, cut straw, or pea-halm, should constantly be given, and also with rape, &c. Mr. Young has staled, that in some parts of the kingdom, the bell farmers give their ewes and lambs bran and oats, or oil-cake, in troughs, while they are feeding on turnips; but he fuggefs, at the same time, that it must be a good breed for such a practice to repay. And it has been advised, when the weather is very wet, stomy, or there is much snow upon the ground, that the ewes and lambs should have hay given them in rafts as may be necessary, which is readily done in covered moveable racks, a portion being given fresh every day. It is, however, much better to have it cut up to stuff, and given in troughs, as much less waste is made. There is still a better practice of feeding made use of by some farmers, with ewe-rock of the
the more improved kinds, and which is said to have been found to answer better than the common kind in particular cases; which is that of employing parishes or cottars with hay of the green reenk kind, or a portion of peas, beans, or barley meal. In such cases, a malt comb, with pastures and hay, &c. These sorts of sheep are, however, obviously much too expensive, except under particular circumstances, and for the more improved breeds.

It is evident, that where shelter can be provided, it will always be of much benefit to the sheep. But it has been observed, that the practice of letting them to the haysicks, which is common with some farmers, is slavishly and wastefully, and which, though it may afford a degree of shelter, should never be attempted when the other methods can be had recourse to. It has also been suggested by Mr. Young, as an excellent method, though not effectually necessary, to allow the sheep, whether the weather be bad or not, a small proportion of hay daily while at turnips. And it is supposed that by this careful management, and the use of fluffable turnips when necessary, the ewe and lamb-flock may be well supported through the severity of the leasen, and be brought on in the best possible condition until the turnips are finished in March, which should always be the case when the preferred grass or roun be ready to receive them; which is considered by some as the most to be depended upon through the same period, with which, the first week in May, is the most difficult period of the year to the flock-farmer. On dry meadows and pastures it is invaluable in this view, though at first sight it may have an unpromising appearance, from the covering of decayed autumnal grasses that is upon it; but which, when removed, presents a new growth of fresh green grasses, five or six inches in height, brought up by the shelter and warmth afforded by the covering of old grasses. This is found to agree remarkably well with the sheep, as they consume both together, having, as it were, both hay and grass in the same bite. It is, indeed, supposed impossible to keep a full flock of sheep so cheaply in April by any other method as by this. Tolerable roun will carry ten ewes an acre, with their lambs, through the whole month. Such roun may be worth in autumn ten or twelve thillings an acre; in April it is worth thirty or forty thillings; and if it be a backward season, a farmer that has it would not be tempted to fell it for much more. But in the support of his sheep and lamb-flock, if the farmer be provided with a sufficient extent of watered meadow, he may fully depend upon that without any other provision for this period.

But in cafes, however, where these cannot be fully depended on for the support of the sheep-flock at this difficult season, the more improved practice is, in place of depending on turnips and hay with rye fown for the purpose, young wheats, and the run of the pastures, to let the turnips continue, so as that their floots may become an object of sheep food, and to have annually a portion of tolerable good land, sufficient to the extent of the flock, under rye-gras and clover, so as to be ready in the spring to take the sheep from turnips, and support them till the time of turning upon the pastures. The same writer remarks, that this method is an improvement on the other, as it gets rid of three great evils: depending on rye, which is soon eaten; feeding on wheat, which is pernicious to the crops; and turning too soon into the general pastures. But at the same time that it effects this advantage, it is open to some objections, which make further improvement necessary. Keeping the turnips long in the spring is very bad husbandry. It damages greatly the barley crop, both in robbing the land, and preventing it from being in proper tone; nor is the food of great consequence, as many sort of turnip-tops are not equal, the number of which used to be proportionate to the flock of sheep, and the same may be multiplied with help of the clover mixed with it; ellings are the same as before, though at the season, and a great loss in a field to be given and not be allowed; the lamb won't be feed much by the sheep. A turnip should never be seen on the ground after March. For the month of April the farmer should have a field of cabbages ready, which, yielding a great produce on a small breadth of ground, reduces the evil of a late spring fowing; and, if he manages as he ought, totally excludes it. The turnip-cabbage, and ruta bag, will last as long as wanted; and though they run to feed, yet the bulbs will not be fanny. The green borecole may be fed off several times: it is impenetrable to frost, and will make shoots in the winter. And another crop, continues Mr. Young, for feeding sheep in spring, which is of particular merit, is burnt. An acre of itmanaged properly, will at this season yield much more food than an acre of clover and ray-gras. It should be four or five inches high in November, and left so through the winter. Burnet has the singular quality of maintaining its green leaves through the winter; so that, under deep snows, you find some luxuriance of vegetation. From November to February the crop will gain two or three inches in growth in the young leaves, and then be ready for feed. It will be better in March, and if kept, ready in April, not only for sheep, but horses, cows, or any other flock. These symtoms of feeding and management are, however, in practice much varied according to the nature of the farm and the kind of sheep that are kept. In Norfolk, with Mr. Bevan's flock, which consists of forty-five score of the South Down kind, the following is the arrangement. The clover are put to the ewes about the 10th of September, for two months, being fed on the layers and pastures, and are folded on the old layers for wheat: after wheat-fowing they are folded on the pastures and layers till the time of weaning, during which they lie on the pastures without fold, and have turnips thrown to them, with plenty of good hay. The fattening sheep are on turnips and hay, from Michaelmas to the end of March, follow'd by the hoggets. In April the couples go to cole-feed in hirdles; from cole to rye; from rye to the new layers, if forward enough, otherwise to the water-meadows, till the beginning of May; and from thence to the new layers, being full in hirdles, with a good deal of room to fall back, and continue so on the layers till about the 16th of June, when the ewes are ready for clipping; and until the lambs be weaned; the ewes then go to fold with the sheardings on the fellows intended for turnips, and the lambs are put to fresh grass reserved for that purpose: all the sheep on turnips and cole having hay, they consume about twenty-five tons. The general winter provision is 30 acres of turnips, 20 of cole, and 50 of rye, for the spring. Mr. Bevan ploughs his rye-elblubes before the stocks are carried to turn in the scattered feed, harrowing in half a peck of cole-feed for sheep-feed in the spring, and finds it of very great service. The latter, after feeding, stands for a crop. He values his turnips on the average at 32s. per acre, and cole at 27s. After turnip-fowing, the stock
flock is folded on old layers for rye, till the end of August, when the ewes intended for breeding are put to good pature till the consequent are let in. But in 1802, the rups now put to the ewes were a week later, and the lambs not weaned till the latter end of June. Provision this year, 100 acres of turnips, 30 cole, 30 rye, for 25 score breeding ewes, 15 score hoggets, 20 tups, 10 score fattening flock; 51 score in all.

Turnips, as a holding-out winter food for sheep, are unquestionably excellent, particularly when not given in too large quantities, and with some sort of dry food with them, as saffron hay in this season, common hay, cut pea, bean, or wheat-straw. There is also said to be an advantage in having them drawn one or two days before they are used, in some districts, and even in having them forked. But potatoes are thought a much better food than turnips in other parts where sheep are a great object, as being more fully and regularly to be depended on, and as preventing the diseases to which the animals are liable in a more effectual manner. The Swedish turnip come into use the latest, as in the early spring.

It is stated in the Corrected Agricultural Report of the County of Suffolk, that general Murray fed 5000 sheep with potatoes and hay, 1651 of his breeding ewes ate 51 builths every day, giving a quart to each; and which, for 120 days, is 121.20 builths; while the Norfolk flock-farmer provides for 720 sheep, 80 acres of turnips, 16 tons of hay, 20 acres of rye. The following is the comparison of the value, &c. of the provision.

It is said, that if 720 sheep require 80 acres of turnips, 2240, the upland flock at general Murray’s, will require 248 acres of turnips; but they have only 50. That if 720 sheep require 16 tons of hay, 10 acres, 2240 should require 40; instead of which they have 120, which is 71 surplus, or, at one load and an half the acre, 48 acres. And that, if 720 sheep require 20 acres of rye, 2240 should require 62, instead of which they have none at all.

Winter food of 2240 sheep, as provided for in Norfolk.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnips</td>
<td>248</td>
</tr>
<tr>
<td>Hay</td>
<td>10</td>
</tr>
<tr>
<td>Rye</td>
<td>62</td>
</tr>
<tr>
<td>Potatoes</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>320</td>
</tr>
</tbody>
</table>

Winter food of 2240 sheep, as provided for in Suffolk.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnips</td>
<td>50</td>
</tr>
<tr>
<td>Hay</td>
<td>80</td>
</tr>
<tr>
<td>Rye</td>
<td>0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
</tr>
</tbody>
</table>

Value of crops, as applicable to each county, without regard to the expences.

<table>
<thead>
<tr>
<th>Crop</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnips</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hay</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rye</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Which is, it is said, a difference of 63 per cent. This vast difference is to be attributed, it is supposed, in a great measure, to the distinction between the breeds of the flocks, as one being the Norfolk, and the other the South Down, as all the circumstances are in favour of it; but it may be partly owing to potatoes being a cheaper food than turnips. As to the feeding of sheep with potatoes, however, it is, though ascertained on the above farm on a very large scale, a more disputed and doubtful circumstance; and for this reason, they are allowed, limited, or limited in their consumption, which is not the case with turnips: these, on the Norfolk farm, are fed off on the land, and, of course, in the greatest plenty. The other accidents and objections to which they are constantly liable, are also not to be overlooked; while potatoes are a regular certain crop, and subject to few accidents or inconveniences. When these circumstances are therefore well considered, in the pinch of a severe season, it will be readily agreed that the introduction of this root, and the proof of its advantage by the above extensive trial, as a winter and spring provision for sheep-flock, is really important.

The quantity of a quart every day of this root for each sheep is probably, however, much too small, as in fattening them with it in suitable yards for the purpose, a far greater quantity has been found necessary. But lean sheep certainly do not require the same proportion for keeping them as for requisite in the fattening system, as may be seen below, in speaking of that fort of management.

Cabbages, as a food for sheep, are of great importance and utility in many situations, particularly in those where the land is suitable for raising them, though it may not be of the very rich quality. They are of vast service in carrying on improvements in sheep husbandry, and as the means of keeping a greatly increased flock, where good management is followed.

The artificial grasses, such as ray-grass and red clover, are of much consequence as spring food for sheep; the first is early, and comes in after common turnips, when much wanted. It may be cultivated to advantage when the latter will not succeed. The clover comes into use in this way at a later period, and on stronger descriptions of land. Many other grasses of this sort, as well as some of the natural grass kind, might be very beneficially grown in this intention, as the cock’s-foot in some cafes, fainfoin, &c. on soils of the calcareous kind, and some of the poas and alopecurus, in other circumstances; by which means earliness, quantity, and quality of keep might be secured.

Tares,
Tares, rye, and cole, are in great request as spring food for sheep-flock, the first being raised on the stouter parts of land, the second on such as are of a lighter quality, and the last on many kinds, even the lighter calcareous sort. They are all sufficiently early for being fed in April, or the following month, when turnips are done. These crops are likewise often put up to be fed off at the close of the autumn. The practice answers very well; but mixed crops of tares and rye never do well for the purpose of sheep-feed, as they do not by any means come well together, or course there is much loss. These and other mixed crops are, however, frequently had recourse to in his sort of management, with evident benefit.

The bulbous turnip system of food is very good in this sort of husbandry, for late spring or other feed; whereupon such kinds take well in succession to those of other sorts.

The plan of preferring grasses for the purpose of sheep-feed is certainly very useful, especially for the support of ewes and lambs in the early spring. It provides well for the time of scarcity.

The practice of converting young wheat crops to spring sheeps-food is seldom good. It is mostly the business of necessity and want of forethought in the sheep manager. On light and dry lands it may occasionally be useful, but it often does much harm.

Winter barleys, and some other sorts of crops, have also been tried as sheep-food, but hitherto only by particular individuals on a small scale.

Whatever the nature of the food which is raised with this design may be, it should always be provided in ample abundance to the quantity of sheep-flock which is to be kept, as no sort of pitching ever answers any good purpose in this management. Good water should likewise be constantly attended to in this practice.

By thus cultivating proper quantities of proper sheep-food in connection with the keeping and managing of flocks of this sort, many important benefits and advantages would necessarily result, a far greater quantity of sheep would be kept on the same extent of ground, they would be preserved in a much better state of condition, and they would be in a much more favorable situation for the purposes of breeding or being fattened, and consequently be in every way greatly more profitable to the sheep-farmer; while the growth of such sorts of food would prepare admirably for grain crops, by which little expense would be incurred. Besides these, it would contribute in several other less important ways to the benefit of the flock-farmer, in many cases and situations.

And it is observed that, by the means which have been detailed above, the sheep and lambs are capable of being continued in good healthy condition, a matter of great consequence to the flock, until the period of turning on the pastures, when they should be separated, where the land is inclosed, into proper divisions, in proportion to the quantity each pasture can support, care being taken not to over-fill the fields. Though hard flocking in some cases may be beneficial. With some farmers they are put upon the richest pasture of the farm, while with others it is the custom to let them have thence of the inferior kinds. This must depend much upon circumstances; but whatever mode is adopted, the point of having the flock preserved in good condition is never to be lost sight of. It is advised, that in keeping sheep on inclosed pastures, particularly where the lands are much occupied with wood, constant care is necessary, in order to guard against the mischief of the fly, as its effects are often irreparable in the course of a very short time in such situations, if not attended to, in hot seasons. With the view of fully preserving, all this, a very frequent and particular attention must be made by the sheep-farmer.

Further, on this subject it may be noted, that the next consideration is the management of the land so that we may have the land, which is a subject that has been visited when they are three to four months old, and also yearly, but it is some of great importance and distinct from others. And to effect in the land, it must be a general matter, a proper reserve of some good pasture grass, when there may be a good feed for the young feed upon, should be had recourse to, as it is of much consequence that in the summer provision of the land be made, in order that the growth of this young flock may not suffer by any check in being taken from the mother. When they have been continued to long as to graze with the dams, they will be fattened in their separation, it turned upon such good food. Some advice in this matter is, as the flock taking for food in this instance, and with others fawneth rouch is highly valued for the same purpose. When good feed is not provided, of some of these kinds, the lambs soon decline in flesh, or in the technical language of the shepherd, the flock are said to pitch; and when once this happens, they never afterwards thrive so well, however good the management may be.

With regard to the ewes, they should be removed to such distant pastures or other places, as that they may not be heard by the lambs, which would cause them to be disturbed in their feeding. And where the ewes are fed on any convenience from their milk, as by their udders swelling, it should be drawn once or twice, as by this means bad consequences may be prevented. And as soon as the lambs have been removed, the ewes are returned upon the pastures defined for their summer support. There is, however, one caution to be attended to in first turning the lambs upon rich keep, which is that of letting them be in some degree satisfied with food previously, that they may not be fretted by too quick and full feeding, and leave or leave, as it is termed; keeping them gently moving about the fields has also been advised in this intention. In some places where the lands are of the more poor kind, it is a custom to feed the lambs to the more rich vale or marsh districts, to be brought forward in condition, or fattened. In those cases, where the lambs of the male kind are reared on the home lands, as wethers, they are usually returned to the flock in the latter end of the year, but which is not by any means a good practice, as they often suffer for want of proper keep in the winter, and lose what they had previously gained in growth and condition.

And in the usual management of sheep-flocks, it is the common practice to remove a certain number of the old ewes or crones every year, replacing them by the belt lambs, in order that they may be kept up in the greatest perfection; it is, of course, a matter of considerable importance to have this done in a proper manner. And in almost all the sheep districts of the southern part of the land, this festering, or setting of the land-flock, is performed about August, at which period the fairs for the sale of lambs mostly take place. And as at this time the whole are collected together for drawing into different lots, it is a very sufficient period for selecting or choosing those that are to supply such deficiencies in the breeding flocks. In his Calendar of Husbandry, Mr. Young has well remarked, that in making this festering, the farmer or his shepherd usually (whatever the breed may be) rejects all that manifest any departure from certain figures of the true breed: thus, in a Norfolk flock, a white leg, and a face not of a hue sufficiently dark, would be excluded;
however well-formed; in the same manner a white face on the South Downs; in Wiltshire, a black face would be an exclusion, or a horn that does not fall back; in Dorsetshire, a horn that does not project, &c. &c. And where the produce is annually fold lean, there is, he maintains, reafon in all this; for customers who have been bred to and prefer certain breeds, as having paid them well, are apt to be fatisfied when they purchase. Some farmers in this fection look chiefly at size, always keeping the largest frames; but this is probably erroneous, unless they keep very high. It connects with a queftion by no means accounted, whether sheep do or do not eat a quantity of food proportioned to their weight? In general it is a safer rule to choose a well-formed lamb, or that indicates the probability of making a well-formed ewe, rather than to felect for fize. The attention that is to be paid to wool in the breeds that produce the carding fort, will depend on the price to be received: if the farmer lives in a diftrict where the price of the year is given equally to all flocks; there is little encouragement to refrain from quantity for the fake of quality; retaining, however, the idea, the fact that both are attainable, that it is very common to fee coarse, bred sheep with light fleeces, and thofe of a fine quality heavy in weight. The Spanifh fleeces, which are finer than any other, are heavier than thofe of our finest woolled sheep. With combing wool the importance of the fleece depends still more on price; we have seen it at £5, a ton; and it has lately been £60. Quality is of very little confideration indeed, comprifed with quantity. When wool falls high, no prudent breeder will let his flock without being governed considerably by this objeft. And it is added by the fame writer, that the high prices at which new Leicelfer and new South Down rams let and fell, has opened a field of fpeculation in fheep-breeding. It is fufficient to remark, that this spirit of breeding, whether it shall prove durable or not, whether much money shall or fhall not be made in it in future, is not what any prudent man beginning buifinesf will adventure in, but with great caution: men of fuch immense fortune are now taking a lead in it, and are in many repects doing it on fuch liberal principles, that the fwife conduct of fuch farmers as he may be fuppofed to address, is to take proper opportunities of converting their experiments to their own advantage. In feeding a flock of lambs, therefore, you may mark a fcore of the bell, for a future ram to be picked up when opportunity offers; or, better still, to fend to the top of fome ram-letter that takes them in at a reafonable price per head. By every year feleeting five or fix per cent. and by every year covering that number by a ram better than your own, the flock must be on the improving hand; and this may be done at a very small expence. Alfo at this period, besides filling up the deficiencies in the ewe-flock, the increasing or diminishing the quantity of flock usually kept, by referring a larger or smaller number than that of the old sheep which are disposed of, is also a point that demands particular notice. Mr. Young has given the following ufeful directions on this fubjeét in his Calendar of Husbandry.

On a farm, fays he, with a given stationary fheep-walk, it is probably regulated by circumstances that rarely change; but on inclosed farms, where the fheep are supported by fields alternately in grafs and tillage, variations may eafily be fuppofted, and the quafion of hard or light flock-fod, that is of clofe feeding or a head of grafs, then comes in to decide the number kept. If the produce or profit per head is looked to, the conduct to be pursued is evidently to flock lightly; but if the return is looked for in corn from fields laid down for refrehment by reft, then clofe feeding is a very material point, and the number kept will depend on it. With all graffes, &c. that do not decline from age, the more fheep you keep the more you may keep, and the more corn you will reap when fuch are ploughed; a circumftance too important to be forgotten. But the young farmer will remember, that upon this fyllem he muft not have a fhow flock, or let the variety of a farm have the lead influence with him: if in this way he will have a fomething to talk of, a fcore or two of pampered favourites, the fewer the better, for they may cost him more than they are worth. And as foon as this has been properly executed, the ewe and wether lambs that are left are moltly fen to the neighbouring famb-fairs to be fold off. But where the fairs for this purpofe happen later than the above period, as in the beginning or latter end of September, as is the cafe in fome circumftances, it has been advised by the writer firft mentioned, that great care be taken to keep them in forcing food, as in fpring fares, early fowm rape, good grafs of the right degree of bite, &c. &c. in order to promote their growth and increafe their value; but to fell in August is more beneficial.

It cannot but be obvious, that in the management of breeding flocks, the lambs come to be difpoled of at different periods; frit those that have been bucked or fattenfed in the houfe, in which fyllem of fattenfed, much attention is required to have them early, to their being well, regu- larly, and very cleanly kept and fuckled, as well as to the ewes being of the right fort, and the bell milkers that can be provided, and to their being fully fupplied with food of the moft nourifhing and fucculent kinds. Their tails and udders should have the wool well clipped away from them in order that they may be preferred in a perfectly clean flate. The lambs also require, especially towards the clofe of their fattening, to have regular supplies of barley, wheat, and peas, meal ground together in combination with fine green rouen hay, &c. See Lamb-Suckling.

And as foon as thefe have been fold off, the lambs which have been fattened on the belt grafs-land will be ready to fucceed them at the markets, in the fpring and fummer months, and thefe will be followed by the fale of the fore- lambs at the different autumal fairs.

Further, there are different local practices also adopted in different counties, to fuit the particular methods in which their fheep husbandry is conducted, as well as the particular objets of it. The following is given as a hint from Joseph Banks, by the writer of the Lincolnshire Agricultural Survey, on the fheep fyllem of that ex tend e f dist r i f e d: that as tups are there always bred by the breeders, the lambs may be faid to be purchased before they are born; a year’s credit, however, is given on this occasion, they are not paid for till the actual value can be fairly estimated; if, therefore, any one who has hired a tup at a confiderable price, finds the lambs he has got not sufficiently above the ordinary fort to pay him the difference, with intereft, he complains to the tup-man, who generally views the lambs with him, and makes a fair abatement, which is generally settled by the price of the hire of the next year’s tup; this regulates the price of letting, and makes the tup-men a molt ufeful fet of people. The great maps of breeders in Lincolnshire fell their heeder lambs about old Michaelmas time, or a little after: a fuccesion of fairs for that purpofe are held in a village called Partney. These lambs are rebold in the fpring at Lincoln fair, under the name of hogs; at Midsummer their owners clip, and then winter them; the fucceeding fpring they are carried to Bolton, where, in a long fuc- cefion of markets, they are old to the graziers, with their wool
wood on, under the name of shearlings, and immediately turned into the marsh to fatten; the graziers take their fleeces, and having wintered them, get the kindled to Smithfield in the course of the preceding spring; thence they are sent to Middx, are got, and are sold there in the course of the next autumn. Here you see a well-formed flocks of sheep culture, for as the animals are usually either on grazing hands or yielding fleeces, they make a return of some kind or other to their owners, nearly half-yearly; on the time of their birth, to that of their final dilution at Smithfield. See R. 31a.

In the sheep system of management which is practiced on the large rich tracts of the Romney, Wotton, and Donze marshes in the county of Kent, there is also a local peculiarity and difference which is worthy of notice. The usual practice with the lambs in those marshes, is that of selling them the beginning of September to be kept by the neighboring upland or hill farmers during the winter. They go in separate lots, being received at certain appointed places by the farmers, and driven to the houses, or taken to the farms by their servants. They are then commonly put upon the stubbles or graminious, as they are called; but in some cases they have also pastures to run upon, though too little attention is, in general, paid to the changing of them, by which they suffer much, and are often greatly injured, especially such as are weakly and delicate. Much advantage would probably be gained by having them put, in separate lots, in different fields, and by giving them in wet fields, once a day, some sort of dry food, such as hay, or those of better kinds to particular cases. It is not improbable, indeed, that lambs might be safely kept in those marshes through the winter, by the use of such food and proper care. It is found that there is a prodigious benefit in keeping the lambs in winter, in such situations, in having the grounds dry and warm, instead of being of a cold, wet, clayey nature. Lambs should by no means be flocked along with the ewes, as the old sheep will constantly take the feed, and fleece the land, by which the lambs may be greatly hurt. They should always be flocked separately, and the pastures be frequently changed, circumstances which are little regarded here. Some think that lambs do not thrive well on being put to grass, after having been fed on luxuriant food, such as turnips, old tares, rye-grass, &c.

The price of the keeping of lambs in these cases is very different; some paying only 2. 6d. the lamb, while others pay 5.; and where no flock are kept, they charge as high as from 6. to 6. 6d. the head, for the space of about six months. This is but a late advance; however, it makes the price of keep a serious subject. The lots of lambs in this system of winter management, is occasionally considerable, but depends much on the nature of the feason, as to mildness or severity, amounting in some cases to four or more in a hundred.

The tegs or one-year old lambs, in this system are brought from the uplands, where they have been wintered too often a low state of condition, for the supply of the marsh graziers, which enables them to keep more ewes and fattening sheep on the marsh lands. This is done about the beginning of April, when the upland farmers are indulged with a feast or treat at the expense of the graziers, as a compenence for their care and attention to the lambs, in which liberality has a great effect. As the flocks reach the marsh, they are put upon the poorest pastures, at the rate of five to the acre, their old sheep being just field to make room for them. These are commonly the bell conditioned legs, in which there may sometimes be lots from the hidden transition from poor to too good keep, though they are not, in general, to suffer in some sorts of disease at the old ones, or such changes being made in their food.

The marsh sheep graziers have lately been much in the practice of prevailing on the farmers to keep such flocks a fortnight, or even double that time, on our pastures, which has the advantage of enabling them to double the stock on the same pastures during the summer; while on the other hand, it is evident, that when they are too hard worked early in the spring, they can neither have luxuriant growth, nor be to full of grass. The pastures are likewise raised gradually, as the fat ewes or wether-s are taken off, and their places supplied by the wether-tegs, while the ewes are furthered to remain on their natural pastures, until they are selected, or set for going to the races.

In the ewe management of the marsh system, which is by no means well regulated, the ewe-tegs, one-lamb, two-lamb, and three-lamb ewes, are all mixed together, so that they cannot be distinguished by the grazier, as they are not marked until turned off for fattening. A better and more convenient way would, however, probably be to keep the different kinds separate as much as possible, as many advantages would result from it. In winter the land stocked in proportion of from two to three ewes on the acre, as it may be of a more or less good quality, and in summer with from three to four and their lambs. In ease of twin lambs, with not ever more than three to the acre upon the belt pastures. The farmer flocking with ewes is here supposed to have too much uniformity in it, though it may perhaps be proper in the winter, yet that feeding is mild more might certainly be kept than under the contrary circumstances, for which no sort of allowance is made. It is conceived, that it would be a public policy, when there is the probability of plenty of keep, to increase the number of ewes on the breeding pastures, though there should be a necessity, on that account, to provide an additional pasture field or two; however, so prejudiced are many sheep-farmers in favour of the common practice, that they do not even make the necessary additions of flock to keep the grass properly under, by which means it is apt to become bony, the pusture injured, and considerable waste sustained. The old sheep, or those which have had the third lamb, are commonly cast off for fattening, and the others marked for fiores, and weaned from their lambs, by putting them into one of the pasture fields for some days; which not only improves the field, but prevents the ewes from receiving injury by the flow of milk. This is a practice which in the marsh management termed bleating the ewes. Some reject this mode, and put the ewes immediately on the fattening ground, from the conviction that more injury is likely to ensue by keeping them in a starved condition, for even a short time, than by throwing them at once into fresh keep. Whichever of these is the most eligible practice is not attempted to be decided, but the most general one is that of bleating; aged sheep are not so liable to be ill used with disease as young ones in such cases, or the season of the year for favourable.

The system of the marsh for the management of the wethers, and the time of drawing them for the market, is thus; the wether-tegs are in the general practice put upon the fattening land for the winter about Michaelmas, in the proportion of from two to three upon the acre, as may best suit the designs of the grazier. Those who intend to keep them for a whole year, commonly put three on each acre of the belt pastures for the winter flock; but those whose intention is to make a second or third return, are satisfied with two upon the same extent; in which case, however, it is necessary that they be put more early upon the land, in order that they
SHEEP.

may get properly fat before winter, and go off sufficiently early, which would otherwise not be the case. The latter method is thought unquestionably to be the most profitable; but those who have not a sufficient supply of funner pasture, conceive that it will pay them better to keep three to the acre, in barely a thriving state, and fatten them in the following spring and fummer. However, though they may continue to increase in size, it is most likely they will not be of more value at Michaelmas than they were in the spring; so that there is a clear loss of the whole fummer keep; as mutton may often fall for 6s. or 7s. the Roome in the spring, and not bring more than from 4s. to 5s. at that period in the autumn. It has been a question, whether other sheep or old barrens fatten the most quickly, on which it may be noticed, that any incease in the food of full-grown sheep must have a tendency to the formation of fat, whereas in wethers or other young sheep, it must be partly expended in the evolution and development of their frames, and, of course, less fat be produced. Much, however, will depend upon the size and disposition of the sheep.

There is great difference in the practice of different graziers, in regard to the time and manner of drawing the sheep for the market, some beginning much earlier than others, though the sheep were all put into the fattening pastures at the same time. Some draw the worth of the sheep first, conceiving that the prime sheep pay the belt for keeping; while others fend them to market as they get fat, by which means, time is given for the advancement of the more common ones. Which of these methods is the most to be preferred, it is not at all attempted to determine; but the fending of inferior mutton to market, it may be remarked, is only giving it away, while, on the contrary, the retaining of such sheep as are deficient in disposition to fatten, is a complete loss of the keep of them. Towards the end of the fummer, keep, however, is of but little value, and, of course, their remaining a little longer is not of any material consequence. It is therefore thought, perhaps, the belt not to part with them until the approach of autumn, when inferior mutton often falls well in the vicinity of the marsh, or to dispose of them to lamb butchers at a somewhat reduced price. This inconvenience would, however, be much removed by a better and more proper selection of the sheep than that which at present is the case.

In fending the sheep to market, care should be taken to have them as nearly as possible of the same size and condition, as a few inferior ones are apt to lower the value with the butchers. In this intention they are by some divided into two or three lots, while others send them in one only; the former, however, in general obtain the highest prices. By more attention to the regulation of size and keep, a greater equality would be met with in the wether sheep on the fattening pastures of the district than that which at present prevails.

In the fystem of these marshes, the ewes which are designed for breeding ram-lambs from, are selected and drawn before the riding time, as directly upon the weaning season, or a few weeks previous to giving them the ram; there being great differences in the forms and sizes which are thought the belt calculated for this purpose, in the notions of different graziers; some preferring large, others middling sizes, while many esteem mott, such as have long legs and bodies. There is here, however, much too little principle in the management of this business: Such ewe lambs as come from ram-lamb ewes, should be so marked as to distinguish them, and be constantly preferred for breeding ram-lambs from. The ram-lamb ewes are mostly lambed by themselves, and have superior keep. Those which do not suit the intention of the grazier are castrated; while such as are to be faved have a small part of the tip end of the ferom cut off, and two marks fixed upon them, one on the shoulder and the other on the hip; being constantly indulged with the belt fattening keep, as it is the common opinion that they cannot be too large. They are sent to particular situations on the neighbouring hills during the winter seafon, where they are tended with the utmost care and circumspection, having hay and turnips occasionally given them. On being brought back to the marshes in the spring, they have the run of the belt pastures, being focked so lightly upon them, as to be in every way adapted for the breeding farmer. Another selection sometimes takes place for the same object, by which the fummer, in which, those which do not fuit are either sent to market, or netted, while those which are approved are employed in the ensuing riding time. These young rams should only have a few ewes, as thirty or forty, as more greatly injures their growth, &c. They are usually sold or hired out, by which much money is often made.

It is the practice here to keep too many rams together in the same pature, as much loss is sometimes sustained by it. The usual time of putting the rams to the ewes here is about the middle of November, though some prefer a month, and others a week or a fortnight sooner, as their notions may be in regard to the conveniences of lambing and other matters. A week or two before the riding time the ewes are prepared by being put into the larger fields; only one ram being admitted in each, unless it be so large as to liband in need of two, when with the old ram a young one is admitted. This management prevents fighting and all inconveniences of that kind. The rams commonly remain with the ewes a month, care being taken that they perform their business properly; some change the rams occasionally, as after the first fortnight, and at other times according to circumstances. Sixty ewes are usually allowed to an old ram, and thirty to a tug ram in this marsh system. See STOCKING LAND.

It may be observed that there is some difference in the method of managing heath, down, and mountain flocks of sheep, from those which are purfued on the inclosed pature lands, though in the selecting and providing the rams and breeding flock, the same practices are followed by the belt sheep-masters. The principal difference consists in the manner of keeping them, by putting them as early as possible in the spring months, as in the beginning of April, upon the downs, heaths, and commons, and keeping them upon them until the approach of the autumn, as the beginning of October; the fine soft sweet herbage in these fefs preferring them in a state of tolerably good condition. And where it begins to grow scanty and decline in goodnes, other ferts of feed which have been previously provided are had recourse to, such as turnips, clole, &c. on which they are ffold during the autumn and winter till confumed, when hay has been focked for the purpose in fuch situations, is employed until the graft has again advanced to a proper bife. In these fefs the fystem of folding is generally recurfed to during the whole year, in the fummer and autumn chiefly on the ground in a flate of preparation for the wheat crops, but in the winter feafon often on the ftrubbles, though more extensively upon the downs and pastures; while in the fpring feafon the lands under preparation for the barley crops receive them. This fystem is confidered as very benefical by the farmers in those districts where it is in use. And in the more hilly and elevated situations in the northern parts of the kingdom, other methods of management with this fort of flock are employed. In Argyleshire the principal circumstances attended to by the molt intelligent heep-farmers are these: to fock lightly, which will mend the fize of the sheep, with
with the quantity and quality of the wool; and all tapers on their age. In part, I refer to disease. In all these respects, it is allowed by good judges, that those kept well, will return to impress that they kept red, nearly. To test the heif, lambs, and flocks I have the test, called, and when a good wood, for the part, and breeding ewes, and to eat and play the world. To test a change of the feed, etc., and of breeding ewes occasionall.

It may be noticed that it is, however, only in the Lamer-muir district that sheep husbandry can be said to be regularly practised, the management of which is this, according to Mr. Hay of Hopes. All fleur-farmers of any extent keep two fleurs, or one ewe and one yearling of yield 3, or 4, and 5, and onwards in number, and has and 5 at what ages had, for the year old and 1 year old, and upwards, starts are made to break for a week, down to the first of July, and then they are started again.

The lambs, after being reared to full pelt, called the lam, which has been kept for breeding, is run till the end of August, when they are fitted to the heif, sheep, called the heif, and are laved from the water, the year, and kept in winter. The sheep at the March market, called the weeding, which is kept for breeding and them, are put with the lambs into the field, for the winter. All sheep are featured, that is, laved, in dry or the barren, at the rate of two to three each. They are laved to a Scotch part of tar, which they are six to ten sheep, at the expense of about 10, or 12 each. The wool at from five to nine, and the iron, lime, and the wool may amount to from eight to ten to 25 to 30; deducting the expenses of his family, the rent, pay up the wool, and in a few at 30 per head, sometimes a little more or less, very resembling the price of wool. Upon dry heathy grounds, the ewes are drafted, and held to green past, in the month of March; but upon wet grounds, which are dangerous, and such as the shepherd called the east, they are carried, and kept in October. Few fleur-farmers (whence) in Lamer-muir breed as many sheep as keep up the trade; they have to buy yearly a parcel of sheep which are usually weeded. Linton, in Tweedside, is the great market for these weeder hopes. These weeder sheep keep for two years, and sell them to the feeders. Some of the most judicious fleur-farmers have totally given up the practice of milking the ewes, after weeding; and others milk for a shorter space than formerly; and they now allow the lambs to suck longer, which considerably improves their bone, and is thought not to prevent them from the wool as the milking. This practice, however, still prevails in Wales; the fleece made from ewe-milk being highly esteemed, such milk being said to be four times as rich as that of cows. The sheep are lated to give a quart of milk per day each, and being milked three months, the return is lated at ten tinnings per ewe.

It is also further lated by the writer of the above Report, that the method of managing the arable land in that district has been changed much for the better, within these few years. When in grass, it is sowed; and when taken up, it gives three crops; and is then followed, and town out, the first crop with grass-seeds; and they generally follow the same practice with the new grounds taken in by fellow and lime, which has now become a general practice through Lamer-muir; and lime, when applied to dry ground, is certain of making a lasting improvement upon the grass, which is, and always ought to be, the great object upon fleur-farms. However, since this account was given, much improvement has been made in this sort of husbandry, which is now carried on in a very systematic manner, it is said.

It is worthy of notice, that the practice of cutting or salving is now, even in these situations, much on the decline; and in the more northern parts of the island, not at all employed. See SALTING & SHAPE.

In the sheep districts, in the more elevated and exposed northern parts of the island, a still better practice is had recourse to; the sheep being mostly left to provide for themselves, even in the most severe and inclement feasons, when
when the bleak tracts on which they live are deeply covered with snow. According to the writer of the Perthshire Agricultural Report, in these cases the sheep have their chief dependence for subsistence on their own habits, which lead them to remove the snow by their feet with great facility, till they reach the heath or withered herbage. But when the snow is falling, or blown by a storm, the sheep drive their flocks, without intermission, round the top of a hill in a circle, in order to keep them from lowering, and being drifted up or smothered. It has been the practice, in some districts, to erect a fort of circular folds on the tops of low hills, for the same purpose; and when the heath is all covered, they sometimes rake or harrow the snow, in order to bring up the heath, with a fort of long-toothed rake or small harrow. With some sheep-farmers it is the mode to have recourse to feeding with hay, or unthreshed oats, which is depotted in handrails upon the snow. Mr. Marshall has suggested, that cultivating plots of furze, broom, juniper, &c. by sod-drying, and rippling the surface, or by other more eligible means, could not fail of proving beneficial upon the wintering grounds of a sheep-farm. By means of these, as a resource in the deepset snow, when the herbage of the bracken was buried too deep and too evenly to be uncovered by the raking of the sheep, by keeping the most exposed parts of the bracken in full herbage for feeding the sheep, and by reserve of rape for the feaston of lambing, even ewe-docks might be supported through the winter with some degree of certainty, without dry fodder, and without being left to the uncertainty of the feasons, and the mercy of the winds and weather, as they are at present.

The practice of herfelling, where no more lambs are kept than what is necessary for drawing the flock, is now much objected to by some, though it may be beneficial in rearing wether hogs; as they are found not only to do much better, when at large with the ewes, but there is much less destruction of grass by trampling, and the pastures are fed down more properly, and with less injury to, and loss of, the sheep. Besides, the sheep thrive better, and are kept in far better condition, while much less herding is required, by which there is a considerable saving of expense.

There are several different modes of rearing the lamb hogs in these situations; as by laying them, when lambs, upon a certain part of the ground, and keeping them separate from the old sheep, through the whole winter and spring, until they are clipped, and then blending them again with the old sheep, putting more lambs upon the same ground, &c.; by allowing the hog lambs, when gimmers, to remain upon the same land on which they were bred, and breeding the hogs on a different part of it, and continuing them on that also until they are gimmers or dimonots, and then introducing them among the old sheep, the lambs being every year laid on the land where such gimmers or dimonots had been the previous year; by keeping the hogs and dimonots or gimmers together, and putting the gimmers or dimonots only among the old sheep, and the lambs among the hogs, in the same place, &c.; and by breeding the hogs among the old sheep. The three last of these modes of management are supposed the most useful, but the last the most powerful in preventing disease; though the first and second probably afford the most equal flock of this description, in such exposed situations.

Profit of Sheep Management.—It is evident that there is a variety of circumstances in the practice of sheep husbandry, that must affect any statement that can be made, in respect to the profit that may be derived from it; the nature of the system of management pursued, and that of the breed of sheep employed, must operate so much in this way, as to leave the profits of no two sheep-farmers scarcely the same. But our limits will not allow us to introduce any particular statements on the subject.

In all sorts of sheep-grazing management, it should be the constant aim of this kind of farmer to regulate his pasture or other land so flocked and provided, as to derive the greatest possible profit from it; as where this is not the case, he not only injures himself, but the whole community. Where fyllems and practices of this nature are followed, which are not sufficiently profitable, they should be given up, and changed for such as are more fully beneficial. The same plan cannot, however, be always equally productive of advantage, as the fluctuation in the value of stock in different places, and from the ease or difficulty of providing it, at different times, as well as the nature of the feason, must be the causes of much diversity in it, which are invariably to be well attended to by the sheep-grazer, and turned as much as possible to his own account. See Grazing, and Stocking Land.

The practices and profits of different sheep-grazing farmers are often very different in the same situations, as scarcely any two farms of this kind are conducted exactly in the same manner for the whole of the same years, or probably the same farms for two succeeding years together; as farmers of the same fort will be fetched and regulated in their management by times, circumstances, and seasons, so as to have their lands flocked according to the growth, or the probability of the growth, of grass on them; taking care to have them always provided during the early summer months. Peculiar local circumstances, and the difference in the conduct and management of individuals, as well as capita, may also have great influence on the profit. On these grounds, the ordinary profit may amount, in favourable cases, to one pound the acre, and from that to two or three, as they are less or more favourable. The difference of practice which is had recourse to, as it relates to the forts of flock, may likewise further increase it.

The employing sheep-flock wholly is probably the most profitable plan of all others, where such flock can be readily and reasonably procured, at all times, in the lean flate; but which is not always the case. And where the grazing farmer, as in the Romney-Marsh practice, can either feed them readily to the uplands for the winter, or feed them on turnips, and have their lands well kept, and fend out a sufficient number, as well of them and the legs or their management by times, circumstances, and seasons, so as to have their lands flocked according to the growth, or the probability of the growth, of grass on them; taking care to have them always provided during the early summer months. Peculiar local circumstances, and the difference in the conduct and management of individuals, as well as capital, may also have great influence on the profit. On these grounds, the ordinary profit may amount, in favourable cases, to one pound the acre, and from that to two or three, as they are less or more favourable. The difference of practice which is had recourse to, as it relates to the forts of flock, may likewise further increase it.

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fuch pastures be improved; which should be the constant aim of the sheep-grazing farmer, whenever the expenses will allow of it. Further, the expenses of labour and keeping such pasture-lands is proper order, loaves of flock, &c., must take greatly away from the profits of this kind of farming. It is, on the whole, thought, that through the profits of the breeding flocks may fluctuate considerably, it will not be so great as in some other modes of sheep-grazing. The breeding sheep-farmer may, it is said, have a large or a small crop of lambs; he may lose a great many, or only a few ewes. There may be an increase or decrease in the value of the lambs, old sheep, or wool; there may be a profitable or faulty crop, an increase or decrease of rent; which circumstances cannot fail to alter the profits of a breeding flocks. But that lately, for many years, the great demand for lean sheep and wool has contributed greatly to the profits of farmers of this kind. The profits and advantages of the fattening fylle of sheep management, which is more varying, will be afterwards particularly considered, and in some meafure compared with the breeding practice.

The original differences in the value of lean sheep, for the purposes of the breeding sheep-farmer, and as they may happen to be in a better or more reduced condition, must have a further effect on the profit of this fylle of management, as often amounting to not less than from three or four to eight or nine shillings the head.

**Fattening-Management of Sheep.**—In the business of fattening flocks sheep, there are many circumstances that should be carefully attended to, as well as that of managing the breeding and other flocks. The kind of sheep that are most advantageous under the different forts of keep, situations and kinds of land, must be well considered; the differences in the forts of food, in regard to the improvement of the sheep; and the most benefical methods of employing it in different cases; and lastly, the markets. And as the sheep under this treatment should never be suffered to have any fort of want of fresh food, they should never be kept too long upon any inclosure or gras-piece, or any other fort of keep, so as to be compelled to feed upon the fullled or trampled food, as it always greatly retards the fattening of the animals, or what is termed proof, which is conflantly the most promoted by the allowance of only the prime fresh food.

There are many different forts of food made use of in this busifnes, such as the different forts of turnips, which are very extensively applied in this fylle, and some use them alone; but it is probably a better practice to give some fort of dry food with them, especially where the common turnip is employed, as it is more watery and less nutrient than that of the Swedish kind. Cut hay, chaff, bran, corn, oil-cake, all answer well in this intention; and of the first two or three forts they should have a pretty full supply; but the latter, from their expense, should be more sparingly given; several pounds of oats will however be required for each sheep per day, according to the kind and fite. It is stated in the Norfolk Agricultural Survey, lately published, that captain Beach having 700 fatting sheep, and turnips running short, put 200 of them to oats (out ground); he found that the practice would not answer if oats were not allowed to them, so as to cover the sheep's heads and neck, &c., at a defter rate, as wet is not only prejudicial to the sheep, but spoils the cake. A rack for hay, fixed over the trough, might probably be made to answer in this intention, when it would be very convenitent for holding that material, and preventing waste. The whole should be hand on wheels, and be made adjustable, and a sufficient number for the quantity of sheep be always ready.

Steamed or baked potatoes, cheap convenient, continues for the preparation of which have been lately invented, have been supplied by time to be preferable to turnips as a food in this intention. And they have been employed raw in the proportion of eight or ten pounds per sheep in the course of the day or night; but they are certainly a much better food in their prepared state. The quantity of common turnips consumed by each sheep in the same length of time, is usually about eighteen or twenty pounds. Where this last fort of crop is good, an acre is supposed to support about five score sheep in the field, six or seven weeks in the winter season: an acre of good grass supporting at the rate of one hundred couples from five days to a week.

In the fattening of wethers, the use of barley meal, with grafs or some other fort of green food, has likewise been found highly benefical, and when it can be procured at a reasonable rate, should not be neglected, as it is quick in rendering them fat, and the mutton is excellent.

Different other articles are occasionally made use of as the fattening food of sheep, such as peas and beans, or pea and bean meal in the winter season, and some substances of other kinds. It is not known that any fort of pure farinaceous matter has ever yet been tried in this intention in sheep, but it is probable that it could not fail having the effect in a very expeditious manner, if the expense of it would allow of its application in such a way; and it might be conveniently given, in small quantities at a time, in mixture with chaff, cut hay, bran, or any other similar fort of material, in covered troughs or bins for the purposes, suitable other forts of food being had recourse to at the same time.

On the most usual fort of food for this use, that of turnips, sheep are very apt to go backward, unless fattened out before the winter feaon sets in. Indeed the losts from keeping fat sheep through the winter is often so considerable, that it is advisable to have them ready to fell at the close of summer, to prevent the winter keep from being thrown away. The most benefical application of this fort of food in fattening sheep, has, however, probably not yet been fully shown, as some kinds of sheep are said to pay well in winter fattening.

In fattening sheep in yards with potatoes, some take them in towards the latter end of the year, and keep them until they are ready for sale about the beginning of March. They have the potatoes sliced, and put into covered sheep-troughs, a gallon being sufficient for a sheep in a day. They mostly prove well, and the fort of food, so that if a fair trial be made, the potato fylle will probably be found the most expeditious of any in fattening these animals. When compared with different forts of grain, oil-cake, &c., by means of accurate trials with sheep in every way the same, it has been proved to be the most ready in effecting the busines. A little hay is mostly given with the potatoes, morning and evening. A vast mass of excellent manure is likewise raised by this practice, where due care is bestowed in the preparation of the yard. Many other substances tried in the same way, may possibly be equally benefical in this intention, though they have not yet been made use of by sheep-farmers.

In regard to the profits of the fattening practice of sheep, a number
management on the more rich lands of the marsh kind, they must vary much according to the nature of the methods which are pursued by different sheep-grazing and fattening farmers, as some will make their land carry nearly one-third more flock than others, though the quality of it may be the same, while such flock will do equally well, if not better. Such commonly make the largest profits as have constantly the best supply of additional sheep-flock to succeed such as are taken away, and who regard the number more than the quality of them. The fattening practice may likewise be carried further than is proper and beneficial, by which the profits of the individuals will be lessened, and a loss sustained by the nation at large. The nature of the breeds of this fort of flock will have some influence, as they make a more or less quick return, and as they may come to a more sheep or dear market. The belt way in general, is to fill the fat flock of this fort when ready, without waiting, but which is not always the case. Where more returns than one are made in the year, there is commonly the most profit made to the sheep-farmer; and the practical management which has had recourse to in such cases, will have a great effect on the profits, as different rich sheep-fattening districts have many different practices, which are more or less profitable, as that of flocking the land with sheep, at the rate of three to the acre, from the beginning of one autumn to that of another, and having recourse to mixed flock of other forts during the summer for producing the profits: that of flocking with barren ewes which have had lambs, at the same time, but only at the rate of two to the acre, so that the keep may render them in a great measure fat by the beginning of the new year, and they may be fold off in March or the following month, in their wool, so that the advance in their price may more than compensate for having it, by keeping them on until May. And after these are gone, by again flocking the same land with sheep brought in from the markets, fairs, hills, or neighbourly high grounds, or the two years old wethers that have been kept out, or, which is perhaps the belt flock in these cases, with such tugs as have been well kept through the winter, and which are equal in weight with flaved or tilled two-yearlings. This is a most profitable sheep-fattening fytlem, where it can be carried into practice, that of putting, what are denominated made bars, or such ewes as have missed going to lamb, upon the fattening land; but as these will not form the necessary supply of flock, other shee or mixed flock must be provided to produce sufficient profit. It is never a good practice to turn poor lean sheep directly upon the rich fattening lands, but to keep them some time on the inferior pastures, as they are in danger of becoming diseased by the former method. But half-fat shee may be put immediately upon them without danger, and be fed out, often in the course of two months or less, by which the sheep-grazing farmer is enabled to have another return, which may contribute greatly to his profits.

In the sheep-fattening fytlem, it is often of advantage to have a portion of land, of a superior rich quality, for the purpose of finishing them out upon; as by such means not only more sheep can be fed out and returned, than if the regular quantity of flock was kept upon the different fields, but the less rich pastures be flocked in a more clofe manner, and as the more quick feeding sheep advance, be taken into the rich finishing portion.

There are several other circumstances which have much effect in this fytlem of sheep management; but the profits will materially depend on the proportion, the richnels, and the quality of the farmer's fattening to his other lands, on the judgment which he posesses in the buying in lean flock, the nature of the season, the state of the markets, the looses sustained, the expenses of the management, &c. as already feen.

Though the size of sheep is by no means a point of much consequence in the breeding practice, it should not on any account be overlooked in that of fattening.

The average profit of middling-priced fat rich pature sheep may be stated to be from about one pound to one pound four or five, or even ten shillings, or even more in some cases.

**Folding-Management of Sheep.**—In the management of sheep there is a practice made use of in some districts, which requires to be noticed; and which is that of folding. It was formerly thought to be indispensably neccesary to the successes of the farmer in different districts; but of late a different opinion has prevailed, except in particular cases, and it is considered as merely enriching one field at the expense of another. The practice may, however, be beneficial where there are downs, heaths, or commons. The ideas of farmers are not, however, uniform on this subject, as will be seen by the following details from the Norfolk or Hertfordshire Reports on the agriculture of these districts.

In the former it is remarked, that near Brandon there is a practice, introduced about ten years ago, paid to be from Kent, which is, to fold their flocks for five or six hours in the middle of the day in hot weather. And that, in laying out the inclosures of the farm at Waterden, from fifteen to fifty acres each, much attention was paid in the arrangement to have every field of the farm open into a lane, that leads through the whole, so that by dividing the flock for flocking, according to varying circumstances, Mr. Hill can keep at least one-fourth more than when all the breeding ewes and lambs were in one flock, and the food dried by driving to fold; by this means there is not a bent on the farm, the flocking being equal. He is not, however, entirely without a fold: when the lambs are weaned (usually about old Midsummer) the ewes are folded for about two months, principally to prevent their breaking pature, when the lambs are taken from them: and while thus folded, he finds that it takes one-half more land to feed them than if they were left allotted, as since the rest of the year. That folding lessens the value of the lambs he has not a doubt, and that conferably; they do not bring so high a price as others not folded. This is not opinion, but fact. The ewes are also in doubly better condition, from lying still and quiet. That the teat will, in certain cases, be unequally given, he does not deny; but it is not difficult to remedy this by the dung-cart; to fold a lot in its own lay, is also a remedy, and is the only sort of folding he can approve. In regard to the effect on wool, he is clearly of opinion that folding does not render it finer, it makes the fleece lighter, but never finer. And folding is generally given up by all who have South Downs; not because they will not bear it, for they bear it better than any sheep in the illand; but because the flock is so valuable that it is worth the farmer's attention to contrive, by every means, to keep as many as possible. And it is added, that one circumstance, though a small one, deserves mentioning, for the use of those who form separating sheep-pens: which is, that Mr. Hill has sliding-gates from one to the other; the writer remarked that when a pen is full of sheep, the gates cannot be opened with convenience; but by their sliding in the fence, this is avoided in a very easy manner.

Further, Mr. England, of Binham, does not fold. When not folded, he thinks, they do with less food; and as to the common objections, of their drawing under hedges for shelter, in forms, &c. so much the better; it is what they ought not
not to be prevented from doing. The task is much more than left as mutton. And Mr. Reeve, of Wighton, never folds: it being from layers, upon fallow, is only robbing one field to feed another. He is clear in this point; and also in the fact, that if sheep (whatever the breed) are driven by foul weather to a hedge, there is the proper place for them, and not by penning left to abide the beating of the storm. Mr. H. Blythe, of Burnham, sometimes folds, but never from choice, but solely by reason of the openness of his farm; nor does he approve the practice. And he explained a point in his management for wheat, which, the writer fays, comes home to the question: he never saws tempered land with wheat, without either oaken, or muck, except as pieces from which the sheep were not folded while feeding the layers. And Mr. Durbridge fays, that, folded sheep certainly demand more food than those which are not folded; a quarter of a ton of rapeseed is equal to the fold; and the flock, without any doubt, fuffers more than that value by folding. In short, folding is to gain one shilling in manure, by the loss of two in flesh. Some, however, fold with large flocks. But Mr. Beck, of Rivington, does not fold; and he is very certain that if he did fold, he could not keep any thing like the number of his present flock. It is added, that as the writer rode across a layer of forty or fifty acres, on Mr. Overman’s farm, he observed a great difference in the verdure, to a line across it, the appearance of one side of that line being so much superior to the other; and on his remarking it, he was informed, that it was an accidental experiment, which was well worth attention: there was no other difference in the management, to make one part of that layer better than another, except the sheep that fed it being from one part of it folded on another arable field during the summer, but from the other part they were not folded at all, but left in the layered night and day. The difference was very considerable, and might have been discerned half a mile off. This experiment made that farmer give up folding, except when his flock was in a half-marsh; and Mr. Tottle, a neighbour, averted, he would never fold at all had he no marshes. Nor does Mr. Etheridge, of Stanhow, fold. These facts shou’d, the writer fays, be combined with another, that of heaths and sheep-walks that have been fed with sheep for centuries; but those sheep constantly fed on other lands, are so far from improving them, that they are to all appearance as poor as they could have been at any former period. It is further stated, that Mr. Styleman, at Snettisham, turned his flock loose, and without folding, in twenty acres of all land every night, for the fame period that would have folded it in the common manner. The sheep did much better than they would have done had they been folded; the land of the herbage materially improved during the period, and upon ploughing it up for wheat the crop was equal to what it would have been with folding, and foweded by a regular verdure, that they had distributed the manure equally in every part. He conjectures that lambs fell 32. a-head lower on account of folding, than they would do without it; but this is only his opinion. He thinks also that the ewe is much injured.

But Mr. Pitts, of Thorpe Abbotts, finds that no muckin, on his burning grasses, will do so much good as the fold, and especially on a white clover and trefoil layer for barley. And in the clay distrat of the county of Hertford, Mr. Byde remarks that sheep have been too much lefiened. Of all the common manures, he considers the fold as the best; and he has observed in many farms the general appearance of the crops decline, as the number of the sheep kept has lefiened. That at the Hadhams, every man folds the sheep which he keeps; a little farmer will even let four hurdles, if he has not sheep for more. But that of the manure of the field is, Mr. Chapman has found by trial in the fame field, for turnips, that yard-dung was much better than both fold and mulch together. However, Mr. Roberts, of King’s Walden, thinks nothing is equal to the fold; he never reckoned it worth less than 42. per acre, corn being cheap; but of late much more; he folds two poles of ground with twenty sheep. And Mr. Siddons, of Rickmanworth, solemnly in favo’re of folding on all farms.

See Remarks on Sheep.

It has been observed by Mr. Ellman, in the Annals of Agriculture, that the lower South Downs sheep (in a large part, a hard number) will fold one rod per night; three thousand two hundred will fold one English acre per night.

We value the manure at from 35. to 50. per acre, the good of which depends on the manner in which the sheep are kept; if kept on artificial food, such as turnips, rape, clover, turnips, &c. they will drop more foul than if fed on grasses only. Supposing we estimate the folding at 40s. per acre, it will amount per year to 42.- 63d. per sheep; 251.- 16s. 3d. per hundred; or 325.- 2s. 6d. per thousand, supposing the sheep folded throughout the year. If it is a breeding flock, it might be well to omit folding for five or six weeks immediately after lambing, as the young lambs might suffer from being trampled upon, and from driving to and from fold, would often lose their dams, and suffer in that way more than if they remained quiet. There is, however, another method of folding, by which all the advantages may be obtained during winter on all folds, without the inconveniences of the former plan. This is to fold them at night in a sheep-yard, well and regularly littered with straw, rubble, or fern; by which means you keep your flock warm and healthy in bad seasons, and, at the same time, obtain a surprising quantity of dung, so great a quantity, if you have plenty of litter, that the profit will be better than folding on the land. A great improvement in this method would be giving the sheep all their food (except their pasture) in such yard, viz. hay and turnips, for which purpose they may be brought up, not only at night but also at noon, to be bated; but if their pasture be at a distance, they should then, instead of bating at noon, come to the yard earlier in the evening, and go out later in the morning. This is a practice which cannot be too much recommended; for so warm a lodging is a great matter to young lambs, and will tend much to forward their growth; the sheep will also be kept in good health, and, what is a point of consequence to all farms, the quantity of dung raised will be very great. If this method is pursued throughout the months of December, January, February, March, and April, with plenty of litter, a hundred sheep will make a dunghill of, at least, sixty loads of excellent illuf, which will amply manure two acres of land, whereas one hundred sheep folded (supposing the grass dry enough) will not in that time equally manure one acre.

And in Norfolk, Mr. Bevan finds a yard well fenced for standing fold for littering and for one fold in bad weather convenient; and it is generally of the great advantage of it. He intends in future to have his flock in it for yearning, whether the season be good or bad. And in Hertfordshire, the earl of Clarendon has a fold which contains good room for three hundred sheep, the number kept in it: an open field surrounds it, except on one side, where a barn is the fence; the outside of the field is formed of wattled hurdle-work, without straw or other materials, for coolness, left a greater coolness should make the yard too hot: it is all kept well litted with rubble, and yields, from three hundred sheep, eighty large cart-loads of manure. This system agrees perfectly well with the sheep, and keeps...
them more healthy than when they were left in the fields in the common manner. His lordship has another yard for lambing, which has also a field. These sorts of yards, from their beneficial tendency in different views, should be more generally made use of by sheep-farmers in all situations. See Sheep-House.

This practice is had recourse to on arable land for raising different sorts of crops of the corn and green kind, as well as on graps-lands. It is suppos'd by some, that a flock of about five hundred sheep will be sufficient to pen twenty-eight square perches of land each night, which will amount to about fifty acres in the year, where the practice is discontinued for two months in the course of that time. The value of this is different in different districts, as from above thirty to more than forty shillings the acre, which, for five hundred sheep, would be from 87l. to 10l. for fifty acres, which, taking the average at 9s. for that amount of flock, the annual advantage of the fold may be set at 32. 9d. a-head, or rather more; taking it at 10l. it would be 4r. 2s. 6d., or rather more. This shews the great utility of it in some places. All sorts of sheep, except the fattening ones, and those disposed to that flate, are mostly folded. It forms a sort of moving dunghill, which enricles the land at but little expense, and which may probably be rendered further useful by a greater division of the flocks. It is also beneficial in preventing the waste of food on graps-lands, as well as in confuming particular sorts of crops. See Sheep-Fold.

Hurdling-Management of Sheep.—It may be noticed, that the great utility of hurdles or different kinds of green crops, in confuming them by sheep, has been long known and practis'd; and equal advantage may be derived in many cases, by having recourse to the fame method on rich graps-lands in large inchofures, so as to let the animals have a fresh face or bite every day. The sheep are found to thrive better, and the fame extent of land to support considerably more in number, while the land is at the same time much improved. And it is not improvable, but that other sorts of flock may be managed in the fame way with similar advantage. In these cases the hurdles must be fit according to the nature of the graps; where it is bare and thin, larger pieces should be folded, than in the contrary circumstance. See Hurdles.

Washing-Management of Sheep.—From the fleeces of sheep becoming much loaded and filled with dust and dirt of various kinds, in the hot summer season, by way of preparation for shearing, it is necessary to have recourse to the operation of washing. It was formerly the method of performing this busines to have the wafhers flandering up to the brat in the water; but from the inconvenience and danger of it, the men requiring a large supply of spiritufl liquors, and being liable to be attacked with colds, rheumatifs, and other diseases, as well as being apt to dispatch the work with too much expedition, fo as to leave the wool insuficiently clean; it has been propos'd by Mr. Young, in his Calendar, to roll off a portion of the water (in a stream or pond) for the sheep to walk into by a flope mouth at one end, with a depth sufficient at one part for them to swim; and to pave the whole: the breadth need not be more than six or seven feet; at one spot to let in on each side of this passag[e, where the depth is just sufficient for the water to flow over the sheep's back, a calf other fixed or ledged, for a man to stand in dry; the sheep being in the water between the sheep, they are washed in perfection, and pulling them on, they swim through the deep part, and walk out at the other mouth, where a clean pen, or a very clean dry pature, is to receive them; of course there is a bridge railway to the tubs, and a pen at the first mouth of the water, whence the sheep are turned into it, where they may be soaking a few minutes before being driven to the walkers. But other more cheap contrivaces may be provided where there is clean water at hand for the purposes. And sheep should on no account be driven on dry or dulky roads after this operation.

But in all cases before this work commences, the lambs should be separated from the ewes and other sheep, and each be put in separate pens. With these it is seldom necessary to do much more than just fwill them through the water, without their being touched by the walkers. As soon as they have been washed, the sheep should have a clean hard pature for a few days, until they are perfectly dry, and in a proper condition to be florn. The lambs are generally florn, especially in the northern districts, a few weeks after the old fheep, and the operation is termed flerefling. The lambs that are sold in Smithfield market are, we believe, seldom or ever florn. See Sheep-Shearing, and Sheflfing of Lambs.

The practice of washing the sheep before they are florn is a custom that prevails over most part of the kingdom, especially with the long-woodied breeds, and pretty generally with those of the short-woodied kinds also, but which is performed with more difficulty in them from the close-lined nature of the fleeces. It is said, however, to have been the custom in Devonshire, for a great length of time, never to wash the short-woodied sheep, but to shear them dry, as is confantly the cafe in Spain.

The practice of washing the sheep before shearing now, however, begins to prevail in some parts of it, according to the writer of the Agricultural Report of the county. This has at length been enforced, it is suppos'd, by the difference in the price which the wool-buyers make between wool in the yolk and washed wool, which is no less than 50 per cent. even in the Dorset fort of wool; and though it is not so much, it is greatly more than proportionate in the coarser fleeces, besides the over-weight of 5 per cent. The wool of the Dorset fat wether sheep, which is about five pounds each when washed in the yolk, rarely sells for more than 1s. the pound, but when washed, it as commonly commands 1s. 6d. The weight of a fleece in the yolk, is to the same fleece when washed, it is said, as fix and three quarters to five, and the consequent value is as 6s. 9d. to 7s. 6d. the fleece. This has, at length, been made evident to the sheep-farmers of this district, who now willingly agree, that it is advantageous to wash short-woodied sheep before shearing, but to sell the long and coarse flaped fleeces in the yolk.

Good clean wafehing is a matter of great confequence to the wool; and it is of much advantage to it as well as the sheep to have the weather fair and fine at the time it is performed, as they are much less liable to have colds.

Shearing-Time.—In respect to the proper period of clipping or shearing sheep, it must be directed by the state of the weather, and the climate in the particular district; and by this means the danger of injury by cold, from depriving the sheep of their coats at too early a season, and from heat, by permitting them to continue on them too long, may be avoided in the best manner. But another circumstance, that should likewise be attended to in this busines, is to that of the wool being fully grown, or at the state of maturity, at which the clipping proceeds that period, it is said, in the Annals of Agriculture, to be weak, and fearedly capable of being spun; and if protracted later, it is yellow, failed, and of an imperfect nature. It has been flatsed, that for the more warm sheltered situations in the southern parts of the kingdom, the beginning or middle of June, when the weather is fine, may be in general the most proper; but in the more exposed districts, in the northern parts
parts of the island, the middle or latter end of the same mount may be more suitable, provided the season be favourable. But with the fattening sheep in the meadows, it will mostly he necessary to perform the work at an earlier period, in every situation; as the great increase of heat, from the setting in of the summer weather, added to the warmth of the fleece, becomes very oppressive and injurious to them, in their feeding and other properties.

It is an excellent practice with many good sheep-farmers, to clip off all the coarse wool, as well as the larger quantity of wool, some weeks before the usual time of washing and clipping the sheep; as by this means the sheep are kept clean and cool, when the season is hot, and with ease, the udders are prevented from becoming sore. This practice is common with some South Down sheep-masters, as well as in Yorkshire. In the former situation, Mr. Ellman tells his flock, as locks, at 3½d. per pound, having about four ounces from each sheep.

By some it has been proposed to shear sheep two or three times in the course of the year, with the view of having finer wool, as well as a larger quantity of wool; but it is probable that such a practice can never be of any general advantage, though the trials that have been made in Northumberland in this way seem to have shewn that advantages may be derived in both these intentions; but the disadvantages in respect to the sheep do not seem to have been sufficiently attended to. And with the same view, the clothing of sheep has been had recourse to. In experiments made in this way in Scotland, the advantage in respect to wool is stated to have been very considerable, and the expense not more than 7d. per sheep. By having recourse to this practice with that of the above, it has been suggested that combing wool may be rendered fit for the purpose of clothing, and at the same time the mutton rendered more valuable. The trials in these ways have, however, hitherto been but few, and do not seem to extend.

It may also be noticed, that in the general management of sheep, it is usual, after the shearing has been performed, to mark the sheep with redde, orke, or some similar substance; and some also cut the ear in different ways. The mark has been said to be a characteristical, but where a small quantity is only employed, little injury can be sustained. And in almost all the sheep districts of the kingdom, except in Dorsetshire, the tails of sheep are shortened, which seems to be an useful practice in keeping the animals more clean behind, and of course less liable to be driven with the flies. It has, however, been suggested in the ninth volume of Annals of Agriculture, that by this custom the sheep may be rendered less able to drive away the flies. The general prevalence of the practice would, however, seem to prove its being of advantage. There is much difference in the manner of performing the business in different districts, with respect to the length; but four or five inches being left, are quite sufficient. It is usually done while the animals are young. In all sheep-paitories the hedges should be very clear from briers, as their coats are often injured by being torn by them; and all sorts of pernicious reptiles should be as much as possible destroyed, and removed from such land.

Further, in respect to the business of castrating or gelding the lambs, it may be performed any time from the age of a fortnight or three weeks to that of a month or fix weeks; and in some districts it is deferred to a considerably later period. It is, however, the safest method to have it executed early, as there is less danger of too much inflammation taking place. But in all cases, the lambs should be in a healthy state, when it is done; as under other circumstances, they are liable to be destroyed by it. The operation is usually performed by the shepherd, by opening the testicles or cod, and drawing out the testicles, with the spermathe cord. This he often does with his teeth, in the young state of the animal. But where the operation is performed at a later period, it is usual to have recourse to the knife; the arteries being taken up, and secured by means of ligatures or the feaming-iron. The business, if possible, should be done in fine weather, when not too warm; and the gelded lambs be kept in a dry, sheltered, quiet situation, for a few days, until the inflammation is gone off. If it should happen to be wet at the time, it may be advisable to have them under some sort of shelter, where they can have room to move freely about.

It is now well known that the mode of ascertaining the age of these animals is chiefly by their teeth; but they are likewise sometimes named from the number of coats or fleeces that have been worn from them, as one-shear, two-shear, &c. The sheep of one-shear having two broad teeth before; of two-shear, four; of three, five; and of that of four, eight; which is full-mouthed. See Age of Sheep.

And they have also different names in different districts. After being weaned, the ram or wether-lamb is sometimes termed hog, hoggit, teg or tag, during the whole of the first year; and the female lamb, an ewe or gimmer-lamb, and ewe-teg. The second year, the wether has the title of shear-hog, or a two-toothed teg or tag; and the ewe is called a thieve, thaver, or two-toothed ewe. In the third year, a shear-hog, or four-toothed wether; and a four-toothed ewe, or thaver. The fourth year, a six-toothed wether, or ewe. And in some places, from the time of lambing till that of springing, the males are called tup-lambs; and from that period till the time of shearing, tup-hogs; and ever afterwards, tops; the females in the same order being termed ewe-lambs, ewe-hogs, gimmers, young ewes, old ewes. The gelded male lambs, castrated wether-lambs, wether-hogs, dambongs, or dambots, swadders. Crotos also signify old ewes; and there are several other provincial names, which are explained in their proper places, under their different heads. See Sheep, Names of.

In the management of this fort of flock, it must be sufficiently evident that a great deal of the profit and advantage must depend upon having a careful attentive shepherd, who perfectly understands his business, and is at all times willing to perform it. See Shepherd.

Sheep are subject to a variety of diseases, which should be carefully attended to by those who have the care of such a fort of flock, as soon as ever they shall themselves; as a very short time often renders them irreparable. The nature of them, and the means of removal, are described under the proper heads to which they belong.

The above accounts, observations, and details, may serve to afford the inquirer a general knowledge of the nature of sheep husbandry, and of the usual methods of management which are required with that fort of live-stock, as well as the advantages and benefits which may be derived from it in many different ways.

Sheep, and their Varieties, chiefly in connection with the Woollen Manufacture, History of. Of all the animals that have been domesticated by man, none have rendered him more essential service than the sheep. A large part of the food and clothing of the civilized world is supplied by this useful animal. The culture, improvement, and manufacture of its fleece, have constantly accompanied and marked the progress of civilization, both in ancient and modern times.
In the early ages of society, sheep appear to have been principally domesticated for the sake of the skin, or the fleece; we shall, therefore, first take a short view of their cultivation and improvement in different countries, as wool-bearing animals; whether as producing fine or coarse wool, or as long or short-woolled sheep; the produce of the two latter differing from each other in the mode of manufacture, and the uses to which it is applied, more than silk and cotton, considered as articles of manufacture.

It is not a little remarkable, that the domesticated sheep depends for its subsistence almost entirely on the care of man, and is never found at any great distance from his habitation. Left to itself, it becomes the subject of disease, and the prey of ferocious animals; or if these should spare it, its own fleece becomes the abode of insects, which continually nourish themselves with its blood, and destroy its constitution. Its enemies are indeed so numerous, and constantly at hand, that it has no chance of escaping them.”

Naturalists are not fully agreed from what animal the different varieties of domestic sheep originally sprang. The Siberian argali, as described by Pallas, was most probably the parent of all the cultivated flocks in Asia, from whence they have spread to other parts of the world. This animal, the argali, which in the Siberian language means wild sheep, is called by the Russians kancer or baran, or sheep of the rocks, from its ordinary place of abode. According to Pallas, it is the same with the mufmon of Pliny, and the ophion of the Greeks. It is found, in all its native wildness, vigour, and activity, inhabiting the vall chain of mountains which run through the centre of Asia to the Eastern sea, and the various branches of this chain, extending through Great Tartary, China, the north of Hindooostan, and Peria. The argali delights to bask in the sun on the bare rocks, but avoids the woods and shade; it feeds on alpine plants and shrubs; it prefers a temperate climate, but is found also amongst the rocks of Asia Minor. This animal loves a state of solitude, and flees the haunts of men. According to professor Pallas, nothing but the surrounding sea can account for the argali being found on an inhabited island, as it sometimes did.

The ewe of the argali brings forth before the melting of the snow: the lamb resembles a young kid, except that it has a flat protuberance in place of horns, and is covered with dark grey hair, frizzled and woolly. There are few animals more difficult to overtake than the argali. When pursued, it turns and doubles like a hare, scrambling over the rocks with wonderful agility. Though the adult animal is untameable, the lamb is easily domesticated, when taken young, and fed on milk, and afterwards on fodder, which is proved by numerous experiments made in the Russian settlements.

The argali is about the size of the fallow deer, but its make is more robust, being less elegant than the deer, and its neck and legs are shorter. Its head resembles that of a ram, with long straggling hairs about the mouth, but no beard like the goat. The horns, according to the drawing given by Pallas, bear a similitude to those of the Merino rams; their weight is about sixteen pounds; the tail is short. The summer covering of the argali is a short fleecy hair, resembling that of the deer; the winter coat consists of wool, like down, generally of a white colour, and intermixed with longer hair. See Argali.

From the facility with which the young of the argali is domesticated, and from the character of this animal, as well as its situation, we may with much probability infer that it was the parent of the Asiatic flocks. According to other travellers, the coat of the argali is of a grey or nut-brown colour: probably it may be of different colours in the different districts it inhabits. In early ages the flocks of domestic sheep appear to have been all of a dark colour: such was the flock of Laban, in Mesopotamia; and the narrative of the manner in which the change was effected, may serve to.shew that, previously to that time, the common colour of the sheep was black or dark-brown. The improvement in the quality, as well as the colour of the fleece, has always been closely connected with the progress of the arts; for we uniformly find in countries, where these have flourished, a race of sheep which yield wool of a superior quality to those around them. In Peru and Syria, the influence of ancient manufactures is still visible in the superiority of their sheep, as fine-woolled animals. From Asia Minor these animals were transported into Greece, and thence into Italy and Sicily. They were dispensed by the Romans over various parts of Europe; and the Tarentine sheep, formerly celebrated for their fine soft wool, were introduced into Spain, where they have flourished for fifteen centuries; the present Merino race being their immediate descendants, but rendered more hardy by an intermixture with the original native sheep of Spain.

From the writings of Columella, and the incidental circumstances mentioned by ancient historians, we may infer that the fine flocks of Greece and Italy were of the short-woolled kind, producing clothing wool, which was manufactured into woollen cloth, similar to what is at present worn; but probably more flexible, from not undergoing to completely the milling or felting process. (See Wool.) Indeed, from the remains of the Tarentine flocks at present in Italy, we can be at no loss to determine the nature of the former Tarentine fleece. Thirty centuries of neglect and cultivation, and intermixture with other breeds, have not been sufficient to obliterate the labours of former times. From what we have seen of the finer Italian wools, we have no hesitation in affirming, that by judicious and careful felection, it would be practicable to restore the Tarentine race once more to its original purity, in the course of a few years; were it found to poskfs some superior merit, compared with the fine-woolled sheep of Spain. The circumstances respecting the management of the Tarentine flocks, recorded by ancient writers, when compared with the present treatment of the Merino flocks in Spain, leave no doubt respecting the origin of the latter.

The term Merino, in the Spanish language, is an adjective, derived from the corrupt Latin merinus, or majorinus: when united with ovijas, it signifies the royal judge, or superintendent of the sheep-walk. At the period when the trophumantes, or travelling flocks in Spain, were established, they became the objects of police, and were placed under the exclusive jurisdiction of mayors, with public walks and large districts allotted for their sustenance, and were termed Merinos ovijas, or the sheep under the care of other lords or mayors. The names peculiar to the establishment of these flocks, such as melas, caucasas, &c. are derived, not from the Moriscos, but from the provincial Latin that prevailed in Spain before and after it was subdued by the Goths. (See Mesta.) The management of the flocks is peculiarly Roman; the merino, or mayor, corresponds exactly with the magister pecoris of Varro and Columella, and was superior to the obliiones and pallores. The practice of destroying half the sheep at their birth, and of skilfully each of the survivors on two ewes; of sweating the sheep before they were born, to increase the softness of the fleece; and of conducing them from their winter to their summer stations, by long journeys through public sheep-walks, has been derived from Roman institutions, with this difference, that in Italy their migrations were
were confined to the coarse-wooled sheep, while the molles over, or fine-wooled flocks of antiquity, were always housed.

The experiment of Columella's uncle appears the early introduction of fine-wooled sheep to Spain. Having procured some wild African rams at Cadiz of a coarse fleece, but of an admirable quality, he gave them to some fine-wooled ewes, and the lambs produced, again given to Tarentine ewes, the offspring, with their descendants, united the paternal colour with the peculiar fineness of the maternal fleece. Columella's uncle resided in Bética, which comprehended the modern Extremadura; and as Columella flourished under the emperor Claudius, the Tarentine breed must have been introduced into that province at the commencement of the Christian era. Whatever was the peculiar quality which the elder Columella introduced by means of African rams into his Tarentine flock, we may conclude that the same successful expedition was employed by other agriculturists of Bética, to convert these coarse into fine-wooled breeds, and to communicate the pure white to the black or parti-coloured native flocks, which, according to Pliny, were common in Spain. The original intermixture of different breeds of native Spanish sheep with the Tarentine in different parts of Spain, may be inferred from other circumstances: each cvana, or flock, forms a distinct breed; and the Nigrette no more resembles the Paulaec, than the Merino South Down resembles the Merino Cheviot. The genuine unmixed descendants of the Tarentine breed would have preferred one uniform character; but the native flocks crossed with Tarentine rams would retain their distinctive varieties, and transmit them to each cvana.

That the Merino is a mixed race, seems to be further indicated by the tender constitutions of the fine-wooled flocks of antiquity. Of these, the Tarentine were most celebrated in Italy, and the Mikelan in Aisia Minor. They were termed pelite and tecte over, from the coverings of skin with which they were clothed to defend the fleece. They were denominated allo molles over, not only from the softness of the fleece, but from the delicacy of the constitution. They were always fed in the house; and though fattened with brambles, or the coarsest food, they are described as a most voracious breed: a diminution of their allowance from the fraud of servants, or the parsimony of the owner, was attended with certain destruction to the flock. (Plin. lib. viii. cap. 47.) As there was no male for the lambs, nor any profit from the milk of a Tarentine flock, half the lambs were destroyed at the birth. The ram-lambs were chiefly reared, and were killed at two years, when their pelts sold to the merchant at an advanced price, on account of the beauty of the pille. This breed demanded constant care, when in the field, to preserve their coverings from being torn, and the fleece destroyed. At home they required even greater care than abroad, as they were not daily conducted to their pastures. They were frequently uncovered and cooled for refreshment. The staples of the fleece were opened and disparted, and were frequently moistened with wine and oil. The whole flock was washed three times a-year, when the weather was warm. The flables were frequently swept, cleaned, and fumigated: for these different offices two shepherds were constantly required for every hundred sheep.

The excessive care bestowed on these flocks by the nations of antiquity, shews in what estimation their flocks were held; and though such attention is remote from modern practice, we are fully convinced that, by selecting the very finest and fittest Merino flocks, and covering the wool, and frequently anointing and washing, it would give to the pille that degree of softness which is so much wanted in the manufacture of shawls, and other costly articles of luxury, but which we seek for in vain in the finest fleeces of modern Europe. However expensive such attention might prove, we have no doubt that, on a limited scale, it would well repay the labour of the judicious experimentall, as the wool would be worth more than 20s. per pound, could it be made to equal that of India in softness. It would appear that the Tarentine breed were selected with much care for breeding, and every experiment adopted, which was proved by experience to attemper and soften the pille. The transmission of these delicate animals into the Merinos of Spain, which are a hardy race, can only be explained by supposing that other agriculturists hadimitated Columella, and obtained a fine-wooled race, by crossing their native breeds with the more delicate animals from Italy. The beginning of this improvement is indeed described by Strabo in the reign of Viborine: he informs us that the inhabitants of Trudistia had formerly imported many garments, but that their wool in his time surpassed that of the Coraxi, and excelled it in beauty so much, that a talent, equal to two hundred guineas, was the rated price of a ram to breed from; and that they excelled also in the fabrics which the Saltiate manufactured. Trudistia, according to Strabo, comprehended the province of Bética, from the Guadiara to the confines of Lusitania, and southward to Gibraltar, and eastward to Toledo. The wool of the Coraxi, with which Strabo compares that of this part of Spain, we are informed, in his account of Pontus, was from the fritellated Miliane sheep. Such high prices as a talent must have been produced by a very general demand for rams, not for the use of the Tarentine flocks, which could occasion no such competition, but for the purpose of crossing the indigenous breeds of the province, which, from the earliest period, appears to have abounded in sheep.

The travelling flocks were not at that time introduced, as the mountainous regions had been till then infested by native as well as Lusitanian robbers, whom the Romans deflowered from their villages, and dispersed into cantons. (Diocorus Siculus, lib. v. cap. 32.) The Moorish looms of Andalusia and Catalonia, and those of the Christians at Segovia, in the 13th century, must have been supplied by the fine-wooled flocks introduced by the Romans. The vacant mountains, when cleared of banditti, offered a vast range of pasture from Extremadura northward, towards Galicia and the Asturias. A similar opportunity occurred to establish or renew the introduction of travelling flocks when the Christians defended, in the middle of the 13th century, to occupy the conquered provinces of Andalusia and Murcia. After that time the travelling flocks became so well established, that the menagge, or tolls, on their passage through the mountains, from province to province, the servicio, or tax to the crown, and the laws of the mella, were imposed or ratified by government, in the middle of the 15th century, before the Moorish kingdom of Granada had been finally reduced.

We are thus enabled from history to trace the introduction and establishment of the Merino race of sheep in Spain, from which, or from their descendants, nearly all the manufactories of fine cloth in Europe are at present supplied with wool. See Wool.

The native breeds of Bética were originally and gradually converted into fine-wooled animals, by repeated crosses with the Tarentine breeds, and thus an immense number of hardy sheep, producing a most valuable pille, were spread over the country, and survived the successive conquests of the Goths and Vandals, and the protracted warfare
fare of many centuries. The pure Tarentine breed in Greece and Italy being more delicate, is said to have become extinct with the destruction of the Roman empire; but the mixture of this race with the original flocks of Italy may still be distinctly traced, particularly in the middle and southern parts. The Italian wool was finer than that of any other country in Europe, except Spain, prior to the improvements which have recently taken place by the introduction of the Merinos. It is not improbable that the fine-woolled flocks of England, though greatly inferior to the Merinos in the quality of the wool, were also originally descended from crosses with the Tarentine breed introduced by the Romans, when they established a manufacture of woollen cloth at Winchelsea.

The deterioration or diminution of the improved flocks in the ages of barbarism which succeeded the fall of the Roman empire, was the natural consequence of the decay of the manufactures, and of a total inattention to prevent the inter-mixture with coarser breeds. In Spain alone, the improved race had taken such complete possession of the mountainous districts, that it remained unmixed and unimpaired till the revival of commerce and the arts, when that country supplied the neighbouring nations with fine wool, and was supplied to poffefs some peculiar advantages of soil and climate, which it would be vain to seek for elsewhere. The opinion that the superior fineness of the Spanish flocks was derived entirely from some peculiarity of the soil and climate, had obtained so generally, and was so firmly believed, even twenty-five years since, in this country, that he who afrected the contrary, was regarded by agriculturists and clothiers as a speculator theorist, only deferving their pity.

It is not a little remarkable, that this prejudice continued undiminished nearly a century after the Merino sheep had been introduced into Sweden and Saxony, and had continued to produce wool in those countries, equally fine with that of their parent flocks in the Spanish peninsula.

It might have been previously supposed that the climate of Sweden, being much colder than that of Great Britain, and more remote from the annual mean temperature of Spain, would render that country peculiarly unfriendly to the Merino race and to the production of fine wool. This prejudice respecting the influence of climate would have been removed by considering that almost all the finest furs are the production of cold climates, and that the growth of fine wool and fur is a provision of nature, to defend animals against the severe cold of the districts nearer the poles.

Mr. Alltromer, who had previously endeavoured to ameliorate the breed of sheep in Sweden, by importations from England and Germany, obtained a flock of Merinos, which he introduced into that country in the year 1723. In the year 1739, the Swedish government, for the promotion of this race, instituted a school of shepherds, under the direction of Mr. Alltromer, and public funds were appointed for granting premiums to those who fold frams of the Swedish breed; and from the same period, to 1780, a premium of twenty-five per cent. was also granted on the sale of fine wools of a good quality. These premiums were afterwards reduced, and finally discontinued in 1792, being no longer necessary. From exact accounts, it appears that the fine wool sold from 1751 to the year 1790, amounted to 3,402,961 francs.

The quantity of fine wool actually produced was much greater than what had been fold to receive the premium, a considerable part having been consumed in domestic manufactures by the growers and others; and the distaince of the public magazines, where the wools were sent to receive the premium, prevented the public returns from including the real quantity of fine wool grown. In the year 1764, there were in Sweden 65,369 sheep of the pure Merino race, and 23,384 of a mixed breed, producing fine wool. The Swedish Merinos prefer their primitive form; their fleece, very close, and the wool has not deteriorated in fineness length, or elasticity; and the sheep produce as great a weight of fleece as in Spain, wherever they are supplied with a sufficient quantity of food. This race, now naturalized in Sweden, are larger and stronger than the Spanish sheep. M. Laylefeir examined the flock of Mr. Schulzenheim, at Gronf, in the province of Upland, which had been introduced from Spain 55 years. On comparing the wool with that of other Spanish sheep recently imported, he did not find it inferior either in beauty or fineness. M. Schulzenheim preferred the descendants of sheep which he imported from Spain to the fifth generation, and the comparison of their flocks proved that they had not in the least degenerated. These facts prove decidedly that the Spanish sheep do not lose the good qualities of their wool by a removal to cold countries. At the same time it must be observed, that those sheep degenerated which had been neglected, or treated in the same wretched manner as the native flocks, by confining them in damp, infected, and dirty stalls during a part of the year, and omitting the requisite quantity of food; or paffuring them in summer in forests and marshes, or in low moist situations, where they could neither find the proper kind nor due quantity of herbage.

The introduction of the Merinos into Saxony took place in 1765, and again in the year 1778. The first flock consisted of one hundred rams and two hundred ewes, chosen for the electors of Saxony from the best flocks in Spain; they were placed under the care of a Spanish major, or mayor, at Stolpen, fix leagues from Dresden, on the frontiers of Bohemia.

After ten years' experience, it was found that they had preferred all the original good qualities of the fleece, and the wool from the mixed breed had also acquired a degree of fineness which did not yield to that from Spain. As soon as it was ascertained, by experience, that it was easy to naturalize the Spanish sheep in Saxony, and that the crosses from this race with the native flocks were so greatly ameliorated, the attention of the agriculturists was directed to the general improvement of the flocks, and such has been the success, that their produce is at present one of the greatest sources of profit to the cultivator. During the last fifteen years, a very considerable quantity of fine wool has been imported from Saxony into England, and the price of the bell lot is greater than that of the finest Spanish wool, a sufficient proof of the estimation in which it is held by the manufacturers. It is better suited for the finest kerseymeres, and the more delicate articles of the woollen trade, as it can be spun to a greater length than any other kind of carded wool grown in Europe; it is also superior in fineness, but owing to the scarcity of winter food, it is generally less found than the best Spanish, and not so well suited for flute cloths. See Wool.

The Merino race has since been introduced into Denmark, the Prussian states, Austria, France, Holland, Italy, the Cape of Good Hope, and the United States of America. Of its introduction into England, we shall afterwards speak.

As Saxony is the only country which has yet cultivated the Merinos so extensively, as to come in competition with Spain in the exportation of fine wool, it may be proper to state the modes of treatment adopted in that country. It is generally believed in Saxony, and in other parts of Germany and Holland, that the practice of breeding from the same race
race, or what the English graziers technically denominate "breeding in and in," occasions a deterioration of the flock; owing to this prejudice, the Swedish farmers frequently change the rams of the Spanish race for others of the same race from neighbouring flocks, and some proprietors bind their farmers to renew a certain quantity of rams every year. But this practice is useless, where the rams upon an estate are already of a good quality; if the contrary were the case, there could not exist a perfect Merino sheep in Spain, as these sheep have continued to breed from the same flock, without any attention to confangunty, for many centuries. The good quality of a race of sheep may be preferred, either by selecting the most perfect from the same flock to breed from, or by constantly taking out those which are most defective.

The common food of sheep in Saxony, during winter, is hay, which is distributed three times a day, in a greater or less quantity, according to the flock of the farmer: those who have not sufficient hay, subdivide pea-flax, veteches, and lentils. They take care to mow the crops before maturity, that they may be more nutritious, and to prevent the fall of the leaves before mowing. Some farmers supply the deficiency of hay with powdered oil-cakes, crushed seeds, and meal; they put the cake or meal into troughs with water, which they give the sheep to drink, and afterwards they give them the solid residue, which sinks to the bottom of the trough. This treatment serves to keep them in a healthy state, at a season when they cannot have fresh food. Eight pounds of cake or meal diffused in water are given to every hundred sheep. When the snow remains long on the ground, they sometimes give them straw which has not been thrashed, and even corn; but as this is expensive, they generally substitute roots of different kinds, such as beets, turnips, and carrots, but particularly potatoes.

The Saxonic farmers collect with great care the horse-chefnats in autumn, which they give their sheep as a remedy against the rot. The nuts are cut small, to prevent them getting into the throat, and choking the animal.

They fend out their sheep in winter, when the weather permits, and the snow is not too deep, to the woods or dry situations sheltered with underwood. Proprietors who have no winter pastures, leave their sheep in the sheep-houses from the beginning of November to April, but they take care to turn them out each day in the fresh air, for three or four hours, and they keep open the doors, to cause a constant ventilation. Some proprietors keep their sheep outside, and to prevent copulation, they confine the whole year; and where the sheep-houses are kept clean, and the sheep are supplied with proper food, this practice is not found to injure either the wool or the animal.

During fine weather in summer, they are allowed to range in the pastures. They leave the sheep-house after the dew is entirely dissipated, and they repose in the shade during the heat of the day. This practice of providing shade during the hot weather cannot be too strongly recommended to the cultivators of fine wool in England, both with respect to the health of the animal and the improvement of the wool. Nor is another practice less deserving their attention, which is, to shelter them during heavy rains, hail-storms, and thick fogs. In many sheep-houses, water is conducted in troughs, from which the sheep may drink at pleasure. Saxon farmers consider salt not only as necessary to the health of sheep, but as contributing to the fineness of the fleece; it is sprinkled in their forage, and diffused in their drink; it is given principally in summer, when the weather is dry. They cease to give it them the two or three weeks before lambing, because they think that the excess of water which it occasions them to drink, is injurious to them at that time, and that it also prevents them from licking their lambs.

The rams and ewes are not put together before the age of two or three years; they allow one ram to twenty-five ewes, and leave them together day and night during the liaison. The lambs are kept in the sheep-houses, but some proprietors allow them to go out with the ewes after eight days.

Before shearing, the sheep are washed in the English manner, but with greater care. First they make them run through a river or dam; the following day they are again driven through, and plunged in separately, and the fleece prefled with the hands, beginning from the head, and passing on to the extremities of the body; they are again driven through the water in the afternoon. The fleece is suffered to dry during two or three days, and then on the third. Saxonic wool, thus washed, is much cleaner than the English, which generally undergoes but one washing. It loses by a further scouring by the manufacturer, about 12 per cent., more than Spanish wool already scourcd. English wool loses about 25 per cent. in the hands of the manufacturer.

The general treatment of the Saxonic Merino sheep we consider as judicious, but we have frequently noticed that the wool had been sometimes injured by want of sufficient nourishment in winter, which renders it darker. The hay being given in racks, seeds and straw fall into the fleece, when the animal is eating, which the English manufacturer finds great difficulty in eradicating; this might be prevented, in a considerable degree, by lowering the racks, so that the food might be level with the head, or somewhat below.

As France is perhaps the most formidable rival which our manufacturers of fine cloths will meet in foreign markets, the progress made in the amelioration of her native flocks becomes an object of interest to the English agriculturalist and clothier. The celebrated minister Colbert first formed the design of improving the breeds of French sheep, by importations from England and Spain. But his intentions were at that time opposed. It was not till the year 1775 that the Spanish breed was introduced into France by M. M. Trudaine, intendant of finances, under the direction of the celebrated naturalist d'Aubenton. The experiments which he made on these sheep, and numerous crosses from them, with seven distinct breeds, which he had on his estate in Auxois, demonstrated to the government, that it was easy to introduce and preserve a race of sheep in France, producing superfine wool; and in the year 1786, a selection of 376 rams and ewes, from the finest flocks in Spain, was conducted, under the care of a mayor, to the farm of Ramboillet. They consisted of individuals of extraordinary beauty, superior to any previously introduced into France, but having been chosen from a number of different flocks, they presented great varieties of shape and size, which have since disappeared by intermixture; and a new race has been formed, differing from any of the primitive flock, but which equals the best of them in form and constitution, and in the fineness, length, softness, elasticity, and quantity of wool.

It is to be observed, that the wool-dealers and manufacturers in France were at first disposed to depreciate the value of the wool; but numerous accurate experiments having proved that the cloths manufactured from it were in every respect equal to those made from the finest Spanish wool, these prejudices disappeared, and the republican government, as well as that of the emperor Napoleon, interested themselves in the further introduction of Spanish sheep into France. In the year 1802 it was calculated that there were one million sheep in France, either of pure Merinos, or of an ameliorated
SHEEP.

florated mixed breed. Since that time many large flocks have been imported from Spain, the temporary command which the French obtained of that country having afforded them facilities for their introduction. In the course of a very few years France will, in all probability, produce a sufficient supply of superfine wool for her extensive woollen manufactories.

The experiments which have been made by the introduction of the Merino sheep into the United States of America, the Cape of Good Hope, and New Holland, prove that fine wool may be grown wherever there are intelligent cultivators, and that it is not the gift of a peculiar soil or climate. We are, however, fully convinced, that very elevated temperatures will require greater care to prevent deterioration. The specimens of wool which we have seen from New Holland, appear to have been affected by an arid sandy soil, and by the great heat of the sun, which has in some degree injured the softness of the fleece. Between the tropics, elevated mountains and shade would be essentially requisite to preserve a race of fine-wooled sheep from degenerating.

The advantages which the Merino sheep posses as wool-bearing animals, over the native breeds of English fine-wooled sheep, consist in three important peculiarities: 1st, the wool is much finer; 2dly, it is more regularly fine over the body; and 3dly, it is grown in a larger quantity from the same surface of skin. That the Merino wool is finer than the best English, is proved from this circumstance; the best Merino Spanish wool, or the R. wool, as it is called, from the finest flocks, falls at nearly double the price of the best English furred wool, or what the wool-staplers call the prime and picked lock. These English flocks which yield a portion of the best fett, generally contain a larger portion of inferior sorts; sometimes eight ferts will be found in one flock, and the finest will not constitute one-eighth of the whole.

On the contrary, the fleeces of the Merino sheep are so regularly fine over the whole body, as generally to yield from two-thirds to three-fourths of the superfine or R. wool. The second fett, called the F. wool, is also fine; and with the T. wool, or third fett, bears a higher price than the best English wool. The quantity of wool on a Merino sheep is considerable greater than on an English sheep of the fame fett: this is not owing to the greater length of the wool, but to the animal being more fully clothed over the body and legs; and the wool is also grown closer on English sheep; that is, there are more filaments on the same surface. A moderate fized well-clad Merino sheep will yield a fleece which, when brought to the same state of purity as the English wool, will weigh 3lbs. A Rycland, Norfolk, or South Down sheep of the same fett, will produce a fleece only weighing about 2lbs. The value will be nearly as five to two in favour of the Merino fleece. In this fett, however, the Merino fleece is not clean, as the wool imported from Spain, which are fcoured after they are fhorn, and before they are fettered, by which means it is much cleaner than it can be made by washing on the back of the animal. The Merino rams are horned, which is not generally the cafe with the ewes. The average weight of a fat ram per quarter, is about 17lbs. of a ewe, about 11lbs. per quarter.

The shape of these animals by no means corresponds with the symmetry of form which an English grazier considers as the criterion of excellence. The legs are rather long, the neck curved, and from the throat there hangs a pendulous skin, or dewlap, which is very offensive to those who are only accustomed to view the improved breeds of English sheep. This appendage is valued in Spain, as indicating a tendency to produce wool. The colour of the skin beneath the wool, on the back and sides, is of a rofe red colour: this is also confidered by the Spaniards as a flign of a robust constitution, and an abundant fleece. The only English sheep which have the fame coloured skin with the pendulous dewlap, are the Ryeland, which produce also the finest English wool. These circumstances, with the ancient practice of houing the sheep, continued in Herefordshire, where it is called eating, confirm the opinion before advanced, that the Ryeland sheep were defended from the Tarentine race introduced by the Romans into this country.

It is not to be wondered at, that the Merino sheep, which are cultivated in Spain almost exclusively for their wool, and not for their fleece, should present that deformity of shape which at first was particularly offensive to the eye of the English farmer, accustomed to the fine Leicesters and South Down sheep. There cannot, however, be a doubt that the Merino breed is as susceptible of improvement as the English. Indeed there is a very great diversity of form in the flocks in different parts of Spain; and were the fame attention paid to selecting the most perfect to breed from, as has been given in England to the South Down sheep, there is every reason to believe that a new race would be formed, possessing all the good qualities which both the grazier and the manufacturer might require. The South Down sheep, which have been greatly improved, and rendered almost perfect in form, have preferred all the good qualities of the fleece. This alone is sufficient to prove, that there is no necessary connection between deformity of shape, and the fineness of the wool.

The Spanish breed of sheep were first introduced into Great Britain in the year 1767. Some individuals of the black and spotted sheep had indeed been procured, and kept in the parks of noblemen previously, but without any regard to the wool; nor was much interest excited by the flock introduced in 1787. The sheep, however, lived, though treated in the English manner, and the wool had not deteriorated. These facts having proved that the Merino race might be naturalized in England, his majesty George III., obtained from the marquis of Campo Alano five rams and thirty-five ewes of the Nigrette race. They were imported in the year 1792, and were for some time at Ostlands, the seat of his royal highness the duke of York. On their arrival they were extremely low in fhee, but they soon began to improve; and the decaifs with which they had been affected, were removed by a plentiful supply of food. They left Ostlands greatly advanced in bulk, and with renovated constitutions; and the quantity and quality of the wool were greatly admired.

The prejudices of the manufacturers were not so speedily to be furred, as the difficulties attending the naturalization of the Merino sheep. Though the wool was admitted to be equally fine with the best imported wool from Spain, they would not offer a proportionate price, fearing that it might not prove equally good, when manufactured. It ought, however, to be rated, that the condition in which the English Merino wool was offered for sale, either very imperfectly washed, or entirely in the grease, prevented the manufacturer from forming a just comparison with the wools from Spain, which came to this country clean scoured, and regularly sorted; nor could they appreciate the lofs it would sufibr, in scouring, which is not less than from 20 to 70 per cent. We are well persuaded that this uncertainty respecting the lofs in scouring has, more than any other circumstance, retarded the sale of the English Merino wool, from the year 1792 to the present time. Nor will
The sheep manufacturers ever greatly encourage the growth of the breed, until it be brought to market, either for export or for sale. Many manufacturers, who have purchased it, have been greatly disappointed not in the quality, which was excellent, but in the small quantity which remained after finishing. In consequence of the manufacturers declining to purchase his majesty's wool, it became necessary to have it manufactured on his majesty's account, to demonstrate its fitness for superfine cloths. This was done till the year 1796, when it was resolved to sell the wool at the price which was offered, that the manufacturers might have a trial. The clip was saved that year for 22. per pound, and the following year for 21. 1s. 6d. In the years 1797 and 1798 the wool was torrid in the Spanish manner, and scoured, after having been previously washed on the sheep's back. The following is an account of the produce.

Eighty-nine ewes and wether fleeces washed on the back


Loses by subsequent scouring


Pure wool


Which yielded, Raisinos, or R. wool, 167 lbs. at 51.

\[
\begin{array}{ll}
\text{Fines, or F. wool, 23 lbs. at 32. 6d.} & 72 \\
\text{Terceros, or T. wool, 13 lbs. at 22. 6d.} & 295 \\
\end{array}
\]

In 1798 one hundred and one ewe and wether fleeces, washed in the same manner, yielded


Loses by subsequent scouring


Pure wool


Of which there was Raisinos, 207 lbs. at 51. 6d.

\[
\begin{array}{ll}
\text{Fines, 28 lbs. at 32. 6d.} & 203 \\
\text{Terceros, 19 lbs. at 22.} & 254 \\
\end{array}
\]

The rams' fleeces of both clips


Loses by subsequent scouring


Pure wool


Of which there was Raisinos, 181 lbs. at 42. 6d.

\[
\begin{array}{ll}
\text{Fines, 22 lbs. at 32. 6d.} & 314 \\
\text{Terceros, 12 lbs. at 22.} & 215 \\
\end{array}
\]

The prices have, since that time, progressively increased with the price of Spanish wool, and have been nearly equal to that of the best piles from Spain. In the year 1801, the right honourable lord Somerville took a voyage to the peninsula, for the purpose of selecting such sheep as united in the greatest degree the excellence of the fleece with a good carcase. His efforts were in a considerable degree successful, and, as far as related to the fleece, completely so. Since that time, particular political events have increased the facility of procuring Merino sheep from the various Spanish flocks; and the fleece of these sheep in England at present is sufficiently great to change, in a few years, the whole race of fine-woolled sheep in Great Britain, were such a change desirable. Many of the native flocks of fine-woolled sheep in England have been considerably diminished in the last forty years, owing to the numerous enclosures of forests and commons, that were formerly only suited to pasture a race of small light sheep; but which, in consequence of improvement, are now capable of maintaining a heavier race of animals; the former requiring a light dry soil, and an ex-
HEEP.

ing quality of the wool. This is so well known to the Yorkshire manufacturers, that they always avoid the woods grown on chalk foils, when they want a soft thick pile to the cloth. The fine wool from the South Down fheep is chiefly used for light goods, such as kerseymeres and pelisse cloths, which require very little milling or felting. When the South Down sheep are removed from chalk lands, the wool may be grown remarkably soft, and possesses all the good qualities of the best native English wool.

The action of the soil on the fleece was long known to manufacturers, viz. that woods grown on argillaceous soils were softer, and proved better in the processes of manufacture, than those on chalky soils. The cause of this was involved in much obscurity, and generally supposed to be owing to the quality of the herbage on different foils. Mr. Bakewell, of Wakefield, in Yorkshire, in a little tract, "On the Influence of Soil and Climate on Wool," proved that the influence of the soil on the fleece arose from the action of the minute particles on the surface of the fibre or staple.

Not only can this action affect the quality, but impart indelibly the colour of the soil to the wool. In part of Gloucestershire the fleece acquires a deep orange colour from the soil. In Hertfordshire and part of Warwickshire, and in every country having a red soil, the wool is inclined to brownish-red. Wool on chalky soils are distinguished by their whiteness; and in every district England the action of the soil is evinced, by communicating its own colour to the fleece. The colour thus acquired is as indelibly fixed in the wool as the colouring matter of an artificial dye, nor can its whiteness be perfectly restored by any artificial processes hitherto known.

That the same cause can change the hardnes or softness of wool, is proved from the different effects which argillaceous, siliceous, and calcareous soils are invariably found to have on these qualities. This is perhaps no where more clearly shown than in the northern part of Derbyshire, where the Irata are so abruptly broken, that two adjoining farms, separated by a small brook, will not unfrequently be found, the one upon lime-stone, the other on a siliceous grit or sand-stone. The difference of the wool on these two farms, from the same breed of sheep, was so distinctly marked, that the grower always obtained a higher price when grown upon the latter soil. My wool is grit-stone, and I expect a better price than my neighbour.' was the language in common use, and the meaning was well understood by the buyer. In the processes of separating wool from the skin by the fell-monger, the pelts are steeped some days in lime and water. The softest wools, when thus exposed to the action of lime, lose their distinguisishing excellence, and acquire all the hardnes of wools grown on lime-stone foils."

To remedy this injurious effect of calcareous soils, Mr. Bakewell recommends the practice of the farmers in Northumberland, and in North Britain, of anointing the skin of the animal with butter, in which a small quantity of tar is melted to give it consistence. In Northumberland this is practiced with the fine-woollen sheep on the Cheviots; and the wool from these sheep bears a higher price in Yorkshire, in proportion to its relative fineness, than any other English wool, on account of the superior softness of the cloth made from it. The ointment is also found to defend the animal against flies and sheep-ticks, and to be a preventive against the feverity of the weather. The only inconvenience is, that the whitens of the wool is in some degree affected by it; and it is not suited for white flaved cloth, or for any delicate colours. Could any good and cheap substitute for tar be devised, there cannot be a doubt that the practice would be of great benefit to the South Down fleeces on their native chalky foils. It is, in fact, similar to what the Romans adopted with the Tarentine breed, which were frequently washed, and the skins anointed with the dregs of olive-oil, mixed with other ingredients. A similar treatment of all English sheep, after being born, would be found a most effective remedy against flies and insects when the skin is exposed: it is also proved by experience to be a peculiar against the fcab.

The South Down breed, so far as relates to the fleece, will admit of considerable improvement in the following particulars. First; it might attain a degree of fineness more nearly approaching that of the Merino fleece; secondly, the fleece might be grown more uniformly fine over the body: and thirdly, almost all the South Down fleeces have a few grey or black hairs intermixed, which is a great defect where the goods made from it are intended to be flaved white. At present, the finest part of the South Down fleeces, called by the wool-flaper the prime, does not bear half the price of the prime Spanish, or R wool, from the best Merino flocks. In the South Down fleeces very rarely more than one-fourth part is of the best quality; but in the Merino breed full two-thirds of each fleece will be of one uniform quality, and that the prime or R wool. In the South Down fleeces, these parts from the buttocks and shanks will also be as coarse as the coarsest wool from heavy sheep. These defects in the South Down fleece are not common to almost all our native fine-woollen fleece, except the Ryeland; but we conceive they admit of a remedy, without any injury to the form of the animal, or the weight of the fleece. If the opinion of an intelligent wool-flaper were first taken on the qualities of the different fleeces of those ewes from which it was proposed to raise a stock, and selecting for them some of the best formed rams bred from South Downs and Merinos, called Anglo-merinos; from this progeny the most perfect forms might be again chosen: and if these were still too strongly marked with the character of the Merino form, another cross with perfect South Down ewes would produce a progeny from which a race might be selected polishing whatever was desirable in the carcass, with a considerable amelioration of the fleece, both in the fineness of the wool and the regularity of the quality, over the greater part of the skin. The uniformity of the fleece would also be increased, for the wool is grown closer and thicker on the Merinos than on any of the English breeds; and this property continues in the croffes from that breed. The advantage of employing an intelligent wool-flaper to judge of the quality of the fleeces will be admitted, when we consider that a fibre of the finest wool is perhaps little more than the two-thousandth part of an inch in diameter; and that a variation from this, which is too small to be visible by the unpractised eye, may occasion a difference in price not less than 40 per cent. Indeed, it is truly astonishing that the eye can detect this microscopic difference unaided by instruments. Nothing but long and constant practice can secure the facility of determining the fineness of wool; and the most experienced dealer in English fine wool, were he to discontinue entirely the examination of wool for three months, would not be able, at first sight, to ascertain its quality and value to 15 or 20 per cent., supposing no change to have taken place in the markets. Can it then be supposed that a grazer, who has never acquired this fine sense of vision, and to whom wool is only an object of particular attention at one season of the year, we say, can it be possible for such a person to be an accurate judge of the quality of wool, and the comparative fineness of fibres ranging between the fifteen-hundredth and
the two-thousandth part of an inch? Yet many of our
English wool-growers will decide, with the utmost con-
dience, whether their wool be finer or coarser than it was
in the former year; or rather, they will decide that their
wool is always growing finer. To this great confidence
of the wool-growers, and to their real ignorance of this subject,
much more than any other cause, may be ascribed the little
improvement in the culture of English fine wools prior to
the introduction of the Merino breed into Britain.

The South Down breed, in its improved state, is likely to
supplant most of the English fine-woolled breeds, except
perhaps the Cheviats in Northumberland, which are become
habituated to the severity of the climate, on the elevated
hills in the northern parts of that county bordering on
Scotland. This race we think much better suited to sup-
plant the coarser-woolled sheep in the Highlands of Scot-
land, than another of our English breeds. The Cheviot
sheep are described by Mr. Culley, an intelligent farmer in
Northumberland, as hornless; the faces and legs are, in
general, white: the left kind have a fine open countenance,
with lively prominent eyes; the body long, fore-quarter
wanting depth in the breast, and breadth both there and
on the chin; fine, clean, small-boned legs; thin pelts;
weight of carcase, when fat, from 13 lbs. to 15lbs. per
quarter; fleeces from 3lbs. to 5lbs. The qualities of the
Cheviot fleeces are various; some of them contain a small
portion of fine wool, which, as we have before remarked,
is more soft than any of our native English wools. The
price at lord Somerville’s annual show in 1813, for the bell
cloth from English wool, was given to Mr. J. F. Smith,
for a piece of cloth manufactured from the prime part of the
Cheviot fleeces.

In general, the quality of these fleeces might be much
improved by a judicious selection. The great defect is,
that in the finest fleeces only, a small part is of the belt
good. Some of the Cheviot sheep are speckled on the
face and legs; but these are probably a mixed breed, from
crossing at different times with Heath sheep, to whom
they have long been neighbours; for leaving the heights of
Annandale to the eastward, we insensibly lose the Heath sheep
and mixed breeds; after which all the extensive fine green
hills on the Scotch and English borders from the sides
of the Cheviots to the barren heaths of Lammer-muir are
covered with the Cheviot breed. The best kind of these
sheep is certainly a valuable mountain-sheep, where the
fusture is mostly green sward, or contains a large portion
of that kind of herbage, which is the cafe with all the hills
around the Cheviots, where these sheep are bred; and the
fine herbage which the border hills everywhere produce,
supports them so well in summer, as to enable them to
stand the severities of the winter.

The shape of this breed of sheep has been greatly im-
proved of late years, but will still admit of much improve-
ment. We cannot (says Mr. Culley) expect the perfe-
cion of this breed of sheep can be obtained at once, it must
proceed by slow gradation, as every other improvement hath
done.

That breed of sheep which brings the most profit to the
farmer will always be preferred, but this object is not to be
obtained in this district by fine wool alone. Perfect moun-
tain sheep should be hardy, well-formed, and quick feeders.
These qualities will always recommend them to the grazier;
but if to these qualities, so essential to the fale of a moun-
tain farmer’s flock, can be added a fleece of fine wool, a breed
of sheep might then be obtained, the proper for a hilly
district of any we have yet seen. There is little doubt but
this may be accomplished by proper selection, and probably
the best kind of Cheviot sheep, from their hardarts, and
producing a portion of fine wool, are the properst stock
for laying the foundation of a desirable change.”

With these sentiments of Mr. Culley we entirely agree, and par-
ticularly in the propriety of selecting from the belt Cheviots
to lay the foundation of a valuable flock of mountain sheep,
which might plant the coarse-woolled Heath sheep on
North Britain. Every situation may be said to have its
peculiar advantages for particular breeds of sheep; and the
rage for improvement, and desire of change, have in late
influences been carried too far. There can be no doubt, that
the rich pastures on the eastern side of England are better
suited for heavy long-woolled sheep than for South Downs
or Merinos, whilst it would be fully to attempt to flock
the mountainous parts of Britain with the Difley or Lincoln-
shire breeds. But many of the flocks in the uplands are
susceptible of much improvement by selection, without any
admixture, and in very exposed situations it might not be
desirable to attempt improvement by introducing a less
hardy race. In dry and moderately elevated situations there
are none of the fme-woolled native or Anglo-morino breeds,
that might not be cultivated with advantage; but we are
well persuaded, that with the present demand for, and price
of animal food, the breed which will send into the market
the largest quantity of good meat in the shortest time, will
have the preference over any superior quality of the wool
alone. On which account the improvement of the South
Down breed, which combines both advantages, is perhaps
an object the belt deserving attention, in all situations suited
for fine-woolled sheep, that are not too much exposed to
the inclemency of the climate.

A particular race of sheep exist in the Shetland islands,
which produce a fleece more like that from the sheep on
the mountains of Thibet, than any of the European sheep with
which we are acquainted. From the report of Mr. Thomas
Johnson, addrest to the British Wool Society, it appears
that there are two varieties of Shetland sheep.

One of these varieties carry coarse wool above and soft
wool below, and have three different successions of wool
yearly, two of which refemble long hairs more than wool,
and are termed by the common people fars and fudda.
When the wool begins to hoosen at the roots, which gene-
rally happens about the month of February, the hairs or
seuda spring up; and when the wool is carefully pulled off,
the tough hairs continue fall until the new wool grows up
about a quarter of an inch in length, then they gradually
wear off; and when the new fleece has acquired about two
months’ growth, the rough hairs termed fars springing up, and
keep root till the proper season for pulling it arrives,
when it is plucked off along with the wool, and is separated
from it at dressing the fleeces, by an operation called furing.
The fudda remains upon the skin of the animal, as if it were
a thick coat or fence against the inclemency of the seaons,
which provident nature has furnished for supplying the want
of the fleece. See the preceding article Sheep.

The native or kindly breed, which bear the soft cottony
fleeces (as they are called), are rather of a delicate nature;
their wool is short and open, and deliijuate of a covering
of long hairs. These soft-woolled fleeces are very often lost
or rubbed off, during the winter or early in the spring,
which it is supposed might be prevented by clipping or
shearing the sheep, in place of pulling off the wool, a bar-
barous practice, tending to weaken the sheep and hurt the
length of the staple.

The Shetland sheep are of various colours; the silver-grey
wool is thought to be the finest and softest, but the black,
the white, the mouarit, or brown, is very little inferior; it

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is all of the finest texture, fit for the finest manufacture, and in some instances has been found to rival Spanish wool itself; but the purest white is generally the most valuable for all the finer purposes for which combing wool can be used. For softnesses and for lustr, no wool equals it; and the finest, with the fleece on, can be converted into a fur of very great value, some specimens of which have already been sent to the China market.

They are in general very hardy. In the winter season, when the ground is covered with snow, they eat the unplowed very greedily, and often during long and severe snows they have little else to live upon. Nature seems to have imparted to them a perfect knowledge of the time at which this food may be procured; for immediately upon the tide beginning to fall, the sheep in one body run directly down to the sea-shores, although feeding on the hills several miles distant from the sea, where they remain until the tide returns and obliges them to seek their usual haunt.

It is to be regretted, that we know so little of this peculiar race of sheep, or of the time when they were introduced, and the country from whence they came. The wool, though intermixed with coarse hairs,possesses a most extraordinary degree of softness, approaching, if not equaling, that from the sheep of Thibet, and might, if proper attention were paid to it, be applied with advantage to the manufacture of shawls and other articles now imported from the East. None of the European woods which we have seen, possess this quality in any degree to be compared with that from the Shetland sheep. The circumstance of the fine wool growing as down under a pile of coarse wool or hair, is not peculiar to these sheep. We believe that unmixed fine wool is rather a product of cultivation than natural to the animal in a wild state. In the argali, as well as in numerous animals, the inhabitants of cold countries, the skin is covered with a short fine down, and this is protected by a covering of longer coarse hair growing through the former. By regular keeping and warmth, the coarse hairs fall off in many animals, and this has probably been the case originally with all our fine-wooled sheep, many of which, if neglected, shew indications of their original condition, growing coarse hair intermixed with the finer parts of the fleece. Even in the coarsest-wooled sheep of cold countries, such as the Heath sheep in the Highlands of Scotland, we have often seen a small portion of fine wool growing under the coarse fleeces with which these animals are covered. It appears to be a beneficent provision of the Author of nature, to accommodate animals to different climates. European sheep removed between the tropics, languish and become sickly from excessive heat, and lose their fleeces in the course of the ensuing year. They are afterwards covered with a thin crop of coarse short hair. We have seen a finely-shaped ram, of the European breed, brought from Louisiana, which was entirely covered with white hair, as coarse and short as that on a dog. We have no doubt, however, that in hot climates, where sheep have the advantage of a mountain pasture, that with care and proper shelter these fleeces might be procured, but they would certainly be a useless incumbrance. Fine fleeces seem to be more peculiarly the produce of cool or temperate climates; for it is observed, in most of our English sheep, that the part of the wool or staple which is grown during winter, is finer than that part which is grown in summer. Extreme heat and cold appear to have both an effect upon the skins-of-sheep, to cover them with coarse hair; but in cold climates there is also a tendency in the animal to produce a fine down underneath. It is not probable that the Shetland sheep may have been originally descended from the Tarentine breed, the "molles ovem," which the Romans had introduced into Britain; their inferior situation protecting them, in a considerable degree, from intermixture. For, according to Dr. Anderton, though the coarse-wooled Heath sheep are introduced into these isles, the native active sheep frequenting the more defolate wilds at the greatest distance from man, withdraw themselves from the others, and thus the breed is only partially debased by accidental stragglers. The whole system of management, respecting these sheep, is directly the reverse of what it should be, and it is truly astonishing that they have preferred for long the peculiar softness of the wool. Could these sheep be introduced into more favourable situations, and proper attention paid to them, we have no doubt that their wool might be grown free from the coarse hairs with which it is at present intermixed; it would then be of far greater value than the finest Merino fleeces, as it might be applied to the manufacture of shawls, approaching in softness to those of Cashmere.

We have now to describe the long-wooled breed of sheep, which may be considered as almost peculiar to Great Britain and Ireland; for though sheep of this breed are found in Flanders, and some other parts of Europe, their number is inconsiderable; and they no where exist with the same perfection of form, and producing the same quality or quality of wool as in the united kingdoms. Their fleece is the envy of the other manufacturing countries of Europe, and can only be grown upon rich pastures. Long combing wool, and the varieties, will be described under the article Wool; but it may be necessary here to state that the longer kind varies from fix to about nine or more inches in the length of the staple, or filaments. In the manufacture of this wool by the comb, the fibres are laid parallel; whereas in short-combing wool, they are broken in all directions by the cards.

Long wool is manufactured into shawls, camlets, manteaux, bombazine, and various other articles; and a large quantity is also manufactured into what is called hore-crumble, consisting of grits, fringes, and other articles of use or ornament in equipages. The coarser kind makes the warps for carpets.

Short combing wool is manufactured into hosiery. The Lincolnshire sheep may be considered as the original of our heavy sheep in England. These, with the new Leicester or Dibthey breed, have nearly supplanting the other varieties of long-wooled sheep. The Lincolnshire breed has also been generally somewhat changed of late, by an intermixture with the Leicester breed. The original Lincolnshire sheep have no horns, and long carcasses; the ewes weighing from 14 lbs. to 20 lbs. per quarter, the three-year-old wethers from 20 lbs. to 30 lbs. The average weight of the fleece is about 9½ lbs., or three fleeces to the toad of 28 lbs. Some of the heavier fleeces weigh 14 lbs. The richer parts of Lincolnshire will support five of these sheep on the acre; and when we take into account the price of the wool, which in 1814 was 25. per pound, it will be seen that the sheep of this description are the most profitable for the lands to which they are suited. The improvement made in their form, by the mixture with the Leicester breed, reduced the weight of the fleece; but the extraordinary demand for heavy combing wool is inducing some of the farmers to return to their heavy breed. It is probable that this kind of wool will not soon fall under 12. 6d. per pound; and the production of a fleece, which weighs 10 or 12 lbs., must be an object of attention to the grower, not less than that of the carcass. For though the wool from the Leicester breed is somewhat finer, the weight seldom exceeds 7 lbs., and the difference of price is not more than about 2s. per
The peculiar characters of these sheep have been well described by Mr. Culley, an eminent grazier in Northumberland, who introduced the breed into that part of England. The Ditheley breed are particularly distinguished from other long-woollled breeds, by their fine, lively eyes, clean heads, straight, broad, flat backs, round (barrel-like) bodies, very fine small bones, thick pelts, and inclination to fat at an early age. The fat property is probably owing to the before-specified qualities, which, from observation and experience, there is reason to believe extend generally through every species of domestic quadrupeds. The Ditheley breed is not only peculiar for its mutton being fat, but also for the fines of the gam: the flavour is superior to the mutton of most other long-woollled breeds. The weight of the carcase may be flated in general: ewes, three, or four years old, from 18 lbs. to 26 lbs. per quarter; wethers, two years old, from 20 lbs. to 30 lbs. The fleece is flated by Mr. Culley at 18 lbs.; but in Leicester-shire, we believe, the average weight is not more than 6 or 7 lbs., about four and five to the yard. The wool is finer and shorter than the Lincoln flate, and a portion of it is better suited for the hosiery trade than for the goods, such as flannels, &c.; but considering the difference of weight, the fleece is more profitable to the grower as that from the Ditheley sheep.

There are two reasons for killing the wethers of the Ditheley breed at two years old: first, they leave the mohm profit; and, secondly, it keeps them, they grow too fat for dressed tables. It is very common for two years old wethers to cut four inches thick of fat on the ribs, and from two to three inches down the back. Even one of this kind, which have bred and muckle lambs till July, when killed about the Christmas following, will frequently measure four or five inches thick of fat on the sides, and two or three inches down the back, all the way from the head to the tail, and though sheep of this breed are not eminent for much tallow, yet cases, under such circumstances, generally produce from 18 lbs. to 24 lbs. of tallow each. This mutton is not so sporting as the leaner kinds, but it finds a ready market among the manufacturing and laborious part of the community.

The graziers in different parts of England, who had been too negligent respecting the improvement of flock, no longer became sensible of the possibility of forming a race of sheep, that would produce a large weight of meat in a much shorter time than before known, than they became desirous of introducing the breed; and the table for growing fat meat became generally adopted, and in many instances without proper regard to other considerations. In some instances, fine-woollled flocks were crossed with this breed, and it was faintly expected that they should preserve the quality of the wool, and masure the carcase at the same time. In other instances, the Leicester-shire breed were introduced on land only suited for a lighter race of sheep; and even where the pastures were suitable, the propensity to fat was encouraged, until it became a disease, and the animal was scarcely able to move under its own weight. Whatever the advocates of this breed may advance in its support, it cannot be contended that the mutton is equal in flavour to that of the smaller sheep.

The object of Mr. Bakewell was to introduce these instances mistaken: it was not to produce meat for the tables of the rich, but to supply substantial nourishment for the working classes. We have heard him say, "a small quantity of this fat meat, cooked over a large dish of potatoes, is a good dinner for a poor man's family; and this is what I proposed in the selection of this breed."

The increased demand for animal food could not have been supplied had not some improvement taken place, and the working classes will ever prefer the fattest meat. In this respect they resemble the North American Indians and the back setters, who regard fat as the only nutritious part of meat, and accordingly Volney describes the lean by a name which signifies meat breed. The race for excessively fat meat has in some degree fubheded, and the new Leicester's are likely to be confined to those districts which are peculiarly suited for their growth, and the object of the grazier will be directed to producing a large quantity of meat for the consumption of the working classes. Instead of attempting to improve the fine-woollled breeds by crosses with a heavy race, it would be more judicious to pursue the same plan of improvement with those breeds which Mr. Bakewell attempted with such success in the heavy sheep.

The improvement of the carcase may, we are convinced, be effected without injuring the quality or diminishing the quantity of the wool. Of this Mr. Bakewell was well aware,
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aware, but the price of wool in England at the time of the American war (the period of his celebrity) was so low, that he used to say, it would be defirable to grow sheep without wool, and confine the attention to the carcasse exclusively.

In selecting the most profitable breed of sheep for a farm, it can never answer to flock hilly districts with a heavy race of sheep, and in such districts the improvement of the wool is an object more particularly deserving attention, because we believe it would be possible to grow an equal weight of wool of a much finer quality than what is produced by many of our coarse-wooled breeds of sheep, and particularly by the Heath sheep, which pasture the mountainous parts of North Britain.

In rich pastures, weight of carcasse must in a considerable degree supercede the improvement of the wool, at least so far as relates to its finefens; for the real interest of the grower of long wool is to produce a heavier fleece. At the present price of wool, a Lincolnshire fleece of twelve pounds being more valuable than any other native English fleeces. To combine, therefore, the perfection of form in the Dihleby breed with the heavy fleece of Lincoln, is what will baffle the owners of long-wooled flocks.

There are, besides long and short-wooled sheep, numerous flocks which produce wool suited for the comb, but of a finer and shorter kind than the heavy combing wool. The worsted yarn made from this wool is spun soft, and manufactured into hofery. A very considerable quantity of wool, suited for hofery, is grown in the county of Kent; but the breed of sheep which produce it, has not any distinctive name, and appears to have originated from an intermixture of the short-wooled sheep of the southern counties with heavy long-wooled sheep. We believe there is no country in Europe, which at present produces combing wool of this kind equal in quality to that grown in England. See Wool, and Worsted.

SHEEP, Stealing of, is now made felony without benefit of clergy. See Cattle.

By an ancient statute, no person shall keep, at one time, above two thousand sheep; but lambs are not to be accounted sheep till they are a year old. (25 Hen. VIII. c. 13.) Perons exporting sheep shall forfeit them, and 20l. for every sheep, &c. (12 Car. II. c. 4.) And perons in the counties of Kent and Suffolk, within ten miles of the sea, are to give an account, in writing, after sheep-fearing, of the number of fleeces, to the next officer of the customs, &c. (9 & 10 W. III. c. 40.) See Wool.

SHEEP, Clutting of, in Agriculture, a term given to the busines of preparing the ewes of them for lambing in some places, which commonly takes place about a week before the lambing season commences. In such cases the ewes are usually driven into a pound, when the clatter, looker, or shepherd, draws them out lingly and separately, turning them upon their backs, and removes with the shears the locks of wool from the underfides of their tails, from about their udders, and from the infides of their thighs. This becomes necessary, in consequence of the dirt and filth which often adhere to the wool about these parts, especially in moist growing spring fheons, when the ewes are affected with much purging. The wool being removed in this manner, not only renders the parts more neat, but enables the lamb, or person who has the care and direction of the busines of lambing, to distinguish when the ewes have lambed, by the mark or stain which is generally left on the back parts of the udders; as, if such marks were not to occur, he would sometimes be at a loss, as the young ewes not unfrequently defert their lambs, and endeavour to escape along with the other ewes, paffuring as unconcernedly as if nothing had happened to them.

Some think, that it would also be a good method at this time to have the different ewes marked in a different way about the face, in the order of their lambing, and to have those of different forwardness put together into separate suitable pastures, to be taken care of in the most proper ways.

The barren ewes, or those not with lamb, are likewise now distinguished by the clatter, looker, &c. by their not having any enlargement of their udders or their bellies, as well as by their jumping and slipping about in a nimble manner; such being usually turned off directly upon the fattening grounds.

SHEEP, Lambing of, the busines of managing the lambing of the ewe flocks, which is very effential and important, though but little known or attended to in many places, even where sheep are almost the whole flock of the farmer. However, in conquence of this, and the employing of unskilled persons, much loss is not unfrequently sustained, to the great injury and inconvenience of the sheep-grazing farmer. In some situations, as those of the inclosed, dry, and warm kind, and the more poor mountainous ones, as well as the upland pastures and downs, it is such a very minute attention to this busines need not, perhaps, be bestowed, as accidents loss frequently occur, than on rich pastures or marshes, where the lambs are much exposed to danger and destruction from many caufes, unless very carefully attended to at this time. The nature of the principles and practices which are necessary in the busines of lambing, are, in short, yet much too confined and too little known to sheep-farmers in general to be of any great advantage. The first thing which is requisite in preparing for this busines, is the making choice of proper dry warm fields and pastures for the purpose, and having them made as safe and secure as possible from the danger of all sorts of accidents and inconveniences to the lambs. Where they have large wet open exposed ditches, or any other sort of inconvenient fences on their fides or other parts, they should be well guarded and secured by means of suitable low dead or other hedges being raised on the fides of them, by the ufe of small light hurdles, about two feet in height, with two racks, fixed down around them or in the most dangerous parts; by placing in brufh-fuggets of a proper fize round the fides of their banks, and flaking them well down to prevent their being disturbed by the winds and fstorms; by hanging old fefuets along their banks or borders; or by some other kind of cheap low defence, which the local nature of the situation may fuggest. The nature of the pastures for this ufe should constantly be such as are fine and fhort in their grafs, and neither of too poor nor too rich a quality, as inconveniences are liable to take place from each of these flates.

It was formerly the practice to have the lambing of the ewe flocks performed on a great breadth of paffure-land, as two or three to the acre, or in a very thin manner, which was extremely troublesome; but it is now found that much benefit attends its being done in a clofer or thicker way, as ten or twelve more to the acre, in some fakes; as it is not only more convenient and successful, but far more profitable. By thus doing it in a narrow compafs, according to the flate of the grafs, the work is more fafely gone on with, is more under the direction of the manager, and more convenient in cafe of difficulties arising in it, while there is much loss danger of lofs among the ewes in conquence of the nature of the keep, which is very material, as it is often
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often by no means inconsiderable, especially in certain circumstances and situations towards the close of the lambing season.

In some places it is not unusual, before the lambing takes place, to provide a better sort of pasture-field for the reception of such ewes as may chance to have twin-lambs, more food is required for them. This is a bell when in or near the middle part of the lambing pastures, as the ewes and lambs, in that case, can be the most readily and conveniently removed, whereas in other circumstances there is often much trouble and difficulty caused with the young lamb, which should always be marked and removed as soon as they are enabled to walk.

The next preparatory buffets, in some situations, is that of clattering the ewes, which commonly takes place a little time before the lambing begins; but in many places this is wholly neglected and thought quite useless. See SHEEP. Clattering of.

The lambing time takes place at different periods in different places, according to the nature of the situation and other circumstances, and often a week or ten days sooner or later in the same situation, as the season may be more or less severe, and the feeding of the herd has been more light or more hard. But about the beginning of April is probably the bell and most general time. Early lambing is most advantageous, where the circumstances of the land will admit of it. The season of lambing mostly continues about a month, and in some places, where lambers are employed without any lookers, two guineas and the lamb-skins are paid for that time.

In the actual buffets of lambing, much care and attention are necessary in the person who has the direction and management of it. In all natural cases of this sort the less that is done, perhaps, in general, the better, as nature will for the most part effect the buffets in the safest and most proper manner. The chief difficulty, it has been said, consists in knowing when ewes should be affiled, as young persons employed in this management are much too apt to interfere, from which much mischief and loss not infrequently proceed. The nature of the particular cafe, and the workings of the ewes, should constantly be the principal directors in this matter. Some conceive, that when ewes have been at work some length of time, they should be affiled; others, that when the lambs' tongues are protruded from the mouths, they should have affilation; but neither of these rules is always to be depended upon. There are still others who think, that when the ewes rife and walk off on being approached without any thing being the matter, they require no interference; but that when they will not rife, but appear a good deal spent, they should have immediate affilation. Some also suppose, that a considerable force may be exerted in such cases without danger. But though there may be some truth in the remark, it is always necessary that much caution should be taken where force is employed on these occasions. Besides these, something may probably depend upon the state of the feasons in this buffets, as affilation will be less necessary in such as are cold, than when they are warm. The ewes should, in fact, never be meddled with in their lambing, in these cases, until there is an absolute necessity.

In all unnatural cases of this kind, which vary very much in different situations, according to the nature of the usual part of the lamb which may present itself, and which require the affilation of proper persons those who have had the fullest experience, and are the most cool and cautious, will be the most proper for performing the buffets, as where this is not the case, there will often be great loss of lambs, as well as of ewes. In every case of this nature, where much force, or any other means are necessary to be employed, very great care and circumspection should constantly be used to have it exerted as little as in the most gentle, deliberate, and safe manner possible, as otherwise much danger and inconvenience may arise, that might have been avoided.

In some instances, where the lambs are apparently dead when they are lambed, they may be recovered and restored by forcing air into their lungs in an easy manner. This should however always be done almost immediately afterwards, otherwise it seldom succeeds.

As soon as the lambs are brought forth, they have commonly some milk from their mothers given them, or are allowed to suck them for some little time, which are supposed to increase the affection of the ewes for them; the lambs being at first left as close by the boxes of the ewes as possible, which should be done quickly, that they may not go away without noticing them. The lambs are always greatly strengthened and improved by the ewes licking them, which they constantly do, where they have a proper affection for them. When lambs drop and hang their heads immediately after they are lambed, they are bad and unfavourable signs, as showing them to be in a weak and dangerous state. The practice often made use of in some places, of putting the tail of the lamb, which is just lambed, into the ewe's mouth, in order to promote her affection for it, is very silly, and of no avail.

In the catching of all ewes is the lambing time, every fort of exertion, trouble, and fatigue, is as to injure them, should be avoided as much as possible, in order that they may lamb, or be affiled to lamb, in a cool suitable state.

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During the time of lambing, the looker, or other person who has the management, should be very careful and attentive early in the mornings, and at other times, in looking over the ewes and lambs, to see that they are not injured or left by neglect in any way.

In cafes where this business is carried on upon a large scale, when every thing has been properly prepared and got in readiness, the lamb'er, or other person employed in the management, begins his laborious and difficult undertaking, by entering and going over the lambing pastures at the time of day-break, with his lamb-hook in his hand, that he may notice and examine the ewes, raise up such as have lain down, and determine whether such lambs as are dropped be capable of suckling, which is commonly readily decided by the distinction of the belly. In cafes where this left is not able to be done, the ewes are either caught, and the lambs stucked, or the lamb'er is provided with some ewe's milk in a bottle for the purpose, a precaution which is essentially proper on many occasions, as when the weather is severe, wet, and tempestuous, in which circumstances the lambs quickly perish, if not supplied with such food. This attention often strengthens the lambs in a wonderful manner, and prevents much trouble in removing them and the ewes to the pounds. The continuance of the affection of the ewes is proved by the callings and noise they make. The twin lambs are now usually marked, to prevent confusion, as the ewes frequently leave one of them, after which they are not meddled or interfered with for some little time, as a few hours, or a day, as their strength may be; but as soon as they can walk, they are mostly removed with the mothers into better keep. The ewes which have single lambs commonly remain in the pasture-fields where they have lambed, unless the number be great, in which case, the lambs with the ewes are occasionally removed into the pasture-fields, where they are intended to be kept during

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The fummer. It is supposed, that by the above practice the lambing pastures are sometimes less discommoded, than is the case where too great a number of ewes and lambs are crowded together. Sometimes, when an ewe has lost her lamb by any accident, and yet is deemed capable of bringing one up, a twin lamb is given her. When a weakly lamb, however, is put to an old ewe, the milk is often too strong for it, and will speedily cause its destruction, by scouring or in other ways; such lambs are likewise incapable of keeping the udders of the ewes properly drawn, by which means much injury is frequently done to them. These ewes are therefore often better turned off for fattening, than being employed in this way. Various methods are practised with the ewes which have dead lambs, by using such lambs so as that their affections may be increased, and the ewe be drawn into the pounds, and have other lambs put to them. All such measures, however, often fail. The custom of running the ewes down to get them into the pound is always very bad, as frequently causing their destruction. The ears of ewes being flapped down, and the ewes not looking back, are in every case bad signs of affection, but the contrary good ones. Lambs pounds are mostly supplied with suitable pens or coops for the convenience of flocking the strange lambs in. And the coats of the natural lambs are sometimes employed on the others. Whatever is done in this way, must, however, be done by deception, and not force, as the ewes are very refractory. Many other modes are had recourse to in different cases for taming the refractory ewes, and causing them to suckle the lambs in a proper manner.

It will now be necessary for the lamb to be particularly careful of the twin and other lambs, to see that they are regularly kept, and properly suckled in all cases, especially those which are in a weakly state. For this purpose some milk of the cow or other kinds is often carried and made use of by him, which prevents trouble afterwards. In these intentions, it is proper to go over the fields twice or oftener during the day; and to be particularly attentive in cold stormy weather. All sorts of accidents and dangers are at these times to be looked to, and guarded against in the most cautious manner.

About the end of the first week of the lambing season, one-half of the ewes will mostly have lambed, and more than two-thirds of them probably at the termination of the second, when the ewes may be brought into a leafy compas, and the lambing-field or pasture be cleared of all the twins and most of the single lambs, and they which are necessary may be had ready to cut, which in suitable circumstances is often done at this early period, by which the manager will be freed from much of his future labour and trouble.

By this sort of cautious attention and management in the lambing of the ewe flocks, and the use of proper forts of shelter, a vast saving of lambs and ewes may in all cafes be made, and the interests and profits of the sheep-breeding farmer be very greatly aided and promoted. See Sheep.

Sheep, Names of, the several names which are given, applied, or appropriated to them, at different ages, in different parts and places where they are much kept. These are very numerous, and of a very local nature; but the following are the greatest part of them.

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
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<tr>
<td>Borders of Scotland</td>
<td>Lincoln</td>
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<tr>
<td>From that of being lambed until that of weaning</td>
<td>Lambs</td>
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<tr>
<td>From that of weaning until that of the first clip</td>
<td>Hogs</td>
</tr>
<tr>
<td>From that of the first to that of the second clip</td>
<td>Dimonts</td>
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<tr>
<td>From that of the second until that of the third clip</td>
<td>Young</td>
</tr>
<tr>
<td>From that of the third clip forward</td>
<td>Old wedders</td>
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<tr>
<td>From that of the fourth clip ever afterwards</td>
<td>Full-grown</td>
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<tr>
<td>Such ewes as are broken mouthed and refuse are denominated</td>
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<tr>
<td>Such ewes as are neither with lamb nor give milk, are said to be</td>
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These arbitrary names, which are given to sheep at different periods of their existence, in different parts of the country, serve to guide the breeding and grazing sheep-farmers of such places in their management with these animals.

Sheep, Smear of, the practice of falving or laying them over with some sort of substance of the unsociable kind, for the purpose of improving the wool, and preferring the animals from disease. It is only had recourse to in some districts, and those mostly in the northern parts of the kingdom. See Salving of Sheep.

Raw unboiled tar, not mixed with butter, is sometimes very dangerous and hurtful to sheep, especially rams, when laid on in large, or even moderate quantities. There are, indeed, some forts of tar which are very acrid, and blisters sheep, causing the wool to fall off, and the death of the animals. When it is thin, and appears black on stirring, with an offensive smell, and caustic acrid taint, it should never be used for sheep, especially without boiling, to destroy such properties. The personas engaged in the work of smear often find proofs of the danger of this fort of tar, in the burning effects which it has on their fingers. Good smeared tar, it is said, on being filtered, has a thick, brown, ropy
SHEEP.

ropy appearance, and a more pleasant smell, with a left
and tail than the other kind. Tar should probably always
be well mixed with butter in performing this work.

Sheep. The teeth of the part of the mouth of these animals
by which their age is often, if not in measure, ascertained.
When the mutton, they have usually eight teeth of the
inner kind in the lower jaw. They throw up two licks each
year until this takes place, by which means their bands
are replaced or lost. See Arts of Sheep, and Perfor.

Sheep-Shearing, is a Rural Diversion, the business of shearing
or cutting off the ears on account of the sheep by means
of shears contrived for the purpose, which are termed
shearers. It is sometimes figures the notion in which
this art of work is usually performed, which was formerly,
and is even in some cases at present, a sort of festivity.
The operation is performed in different ways by different persons,
but the best mode is that of the circular, or round the sheeps,
neither of the longitudinal, which is at present most in use.
It is usually performed about June or July, according to
situation and season, but should not be done either too early
or too long protracted, as injury and inconvenience may
attend either extreme. A good clipper is capable of clipping
from seven to fourteen or fifteen, and up to twenty or
twenty-five in the day; and more are frequently done by
very expert persons. Great care should be taken not to cut
or prick the animals; but where this accident happens in the
northern parts of the kingdom, they touch the part with a
little tar, or sheep-salve; and in Sweden it is often done with
train-oil and resin melted together. And in addition to
what has been already observed on this subject, it may be
stated, that much improvement has taken place in this art,
especially in the more southern districts of the kingdom, in
making use of the mode of clipping round the sheep, which
has gradually extended itself from the northern districts of
the island; by which left wool is lost by being left upon the
sheep, and the business performed in a more expeditious, neat,
and convenient manner. It was much the practice formerly
to clip lengthways of the sheep, and in some cases in many
different directions, according to the convenience of the
person who executed the work, by which means it was often
ill done. And in Ireland it has been stated, that they clip in
short strokes, catching a bit of wool first in one place and
then in another; and that if they are not looked narrowly
after, they will leave many parts, such as the heads, tails,
and undersides of the thighs, untouched.

We have, in speaking of sheep, noticed the most proper
periods of performing this very important operation; and
the following remarks, by Mr. Price, an excellent sheep-
farmer in the county of Kent, with the comments of Mr.
Culley, as stated in the Annals of Agriculture, will shew
the proper mode of managing the sheep in the time of shearing,
as well as the manner of executing the businets with these
sheep-madders. It is stated by the former, that the sheep-shearing in Romney-March commences about Midsummer,
and finishes about the middle of July. Those who
shear first, think they escape the effects of the fly, and those
that shear later, apprehend they gain half a pound weight in
evety fleece, by the increased perspiration of the sheep.
In early shearing the wool has not the condition which it afterwards acquires, but the hot weather occasions a good deal of
trouble in detecting the fly. In order to begin, a large pen
is marked with sheep ready for the coming of the shearsers, it
number from 1200 to 1500, and these men would take the
flock. The time employed is from two to four days. The
sheep are let into a small pen, thirty or forty at a time,
and when taken out to be sheared, all except three, more are
put in, because one or two only left would be apt to jump
out. A boy keeps the gate, and the amount of the num-
ber sheared, with all he can tell. Their heads by
preference differ much as to quantity and method of
performance; never by early, but are finished with the
least ten hour shearing; a goodower will shear three or four
shears, or bad one. The common method is to clip each whole
part of the sheep, not excellent for persons, as it is long and
often pulled about a side and back in manner, and
wounded by the hands with cuts of the length of three
to four inches, and the wound left open. In some manner, it is
then applied carefully by the boy, order to keep all the flax. The milt of officcr is usually to give the pitch-marks, and when one field is finished, the
sheep are returned, and others are in readi itsit to take their
place.

The common mode of catching the sheep is by the
linder leg, drawing the animal backward to the adjacent
shearing-place, the hand holding the leg to be kept low;
when at the place it is turned on its back. Or they are
moved bodily, or one hand placed on the neck, and
another behind, and in that manner walked along; the shift,
or common mode, he thinks the most safe. The parts of sheep fed
on rich pastures, and lathy, if handled hard, and bruised,
are liable to fatal mortification; an accident which often
happens, on which account the pens upon some lands are
obliged to be lined with woodens, or many would die from
brufes. The price of shearing is 2d. or 2½ score, with a dinner,
and 2½, 2½d. or 1d. a sheep without vici-
tuals, but with drink. They vary much in different
places. A good winder will wind 400 fleeces a day,
at the same price per hundred as the shearer has per score.
The method of shearing—the left side of the sheep to the
shearer's left leg, his left foot at the root of the sheep's tail,
and his left knee at the sheep's left shoulder. The precedes
commences with the shears at the crown of the sheep's
head, with a straight cut along to the loin, returning to the
shoulder, and making a circular shear round the off-side
to the middle of the belly; the off hinder leg next; then the
left hand holding the tail, a circular shear of the rump to the
near bick of the sheep's hind leg; the two fore-feet are next
taken in the left hand, the sheep rafled, and the shears set in
at the breast, when the remaining part of the belly is sheared
round to the near flite; lastly, the operator kneeling
down on his right knee, and the sheep's neck being laid over
his left thigh, he shears along the remaining side.

However, on these statements Mr. Culley has made the
following practical comments; namely, that Mr. Price's ob-
servation is just, with regard to the benefit arising to wool
from being late clipped, and that it is consonant with the
opinion of the Lincolnshire graziers and breeders, who have
paid more attention to the subject, and understand it better
than any other of the profession in this island; but very great
attention is required from the shepherd to keep the sheep,
under the circumstances of late clipping, free from the fly
and maggots, also from the danger of being beaten by small
flies, which fallen on those parts where the points of the
shears have made the smallest friztch. But that, in regard
to shearing even or ten sheep in an hour, nothing can be
more absurd and improper than such attempts, since it is im-
posible for the best shearer to clip the lowest number within
the time, and perform it well; as it ought to be done. Forty
years ago, the same absurd method of clipping sixty or seventy
of that large breed in a day; but the consequence of such imprudent
hafe was, that besides imperfect shearing, large pieces of
skin were cut, particularly from the bellies of the sheep,
which,
The use of sheep in agriculture is discussed, including their clipping, shearing, and the care of the fleece. The writer describes the process of shearing, including the clipping of the wool and the use of shears. The sheep are kept in shearing houses, and the fleece is collected for sale. Shearing is an important part of the sheep's care, and it is done annually. The fleece is then sent to the wool lofts, and the sheep are left to graze in the fields. The sheep are also used for their meat, and the writer mentions the different cuts of meat that can be obtained from the sheep. The sheep are treated with care and respect, and their welfare is a priority. The writer concludes by emphasizing the importance of the sheep in agriculture and the need for continued care and attention to ensure their health and well-being.

Sheep.

The sheep fold, in agriculture, is a space of arable or other land, used for the feeding and grazing of sheep. The sheep fold is an important part of the sheep's care, and it provides them with a safe and comfortable environment. The sheep fold is typically a large open space, with a well-drained surface to prevent waterlogging. The sheep are kept in the fold during the day, and they are taken to the fields at night to graze. The sheep fold is also used for the purpose of shearing, and the sheep are taken to the shearing house to have their fleece removed. The wool is then collected and sent to the wool lofts, where it is processed for sale.

The sheep are also used for their meat, and the writer mentions the different cuts of meat that can be obtained from the sheep. The sheep are treated with care and respect, and their welfare is a priority. The writer concludes by emphasizing the importance of the sheep in agriculture and the need for continued care and attention to ensure their health and well-being.

The writer of the "General Treatise on Cattle," states, that the royal flocks of fine-wooled sheep in Spain are sheared in the beginning of May. There are shearing huts, each of which will contain twenty thousand sheep, and costs in building above five thousand pounds sterling. To sheer a flock of sixteen thousand sheep requires one hundred and twenty men; a man shearing twelve ewes, or eight rams, in a day. The sheep are sheared previously to being sheared, in a long, narrow, low hut, called the shearing place, where they remain a night, crowded as close together as the sheep can keep them. The flock is then permitted to go to pasture if the weather be fine, returning home in the evening, to pass the night within the shelter of the walls, or in the huts, if cold or cloudy; by which means they are brought by degrees to endure the open air.

And it is a point of great consequence in this business to have a person well conversant with the winding of the wool, in order that it may be well performed, and look in a proper manner to the buyer. In some places the wool is laid in a heap on being wound, and conveyed in the evening of the same day to the wool lofts, or other depots. Some store their wool constantly in upper chambers, as the moisture which is produced by it on ground floors, when it is continued there for any length of time, is supposed to be very injurious to it.

See Wool.
moveable, either by means of wheels or other contrivances, being drawn to different situations according as they may be wanted. See Sheep-House.

There is likewise another sort of more imperfect sheep-field, which is formed by the planting of trees in different methods, in order to afford the animals a sort of protection from the severity of the winter season, as well as from the excessive heats of the summer. These are termed tree fields, and sometimes plantation fields, from the manner in which they are formed. See Tree Field.

In the construction of the second sort of sheep-fields, which were mostly termed in some distinct parts of the farm, in which cases they were often denominated 'flanking-out fields,' a cheap and simple method was had recourse to be an excellent sheep-farmer in Suffolk (Mr. Moreo). He inclosed a double fold with the threety dozen of old hurdles seven feet long each, formed of wads, and raised a hazel fence around them, composed of upwards of sixty loads of wheat stubble, the area of the fold being littered with about thirty loads more; in this the flock were to be lodged where the field fold was unsafe, or could not be removed from place to place, on account of frost, snow, or flood; and if it is stated, that he made during the same winter season, 403 loads of manure, improving at the same time the condition of his flock. The land, it is observed, lay at too great a distance to be measured from the home-farm. He likewise adds, that before he thought of this plan, his sheep were always obliged to lie in bad weather, upon a certain sheltered part of the heath, where the fold manure was not only lost to his farm, but the grass on which the dung was heaped in such quantity became so coarse and sour, that nothing would eat it; and that, exclusive of this injury, he used to lose by mortality from wet or severe fevers, during yeaming time, a much greater number of both sheep and lambs, for want of the dry warm lodging of a sheltered fold, the advantage of which he estimated at thirty or forty pounds a-year at least. He states that, by his improved plan than thirty lambs in a year, besides sheep amounting to a greater number of lambs than he usually reared in one year during the period of his farming business.

And by the forming of these folds in any other cheap convenient manner, similar benefits may be derived by the sheep-farmer. In all these cases, the sheep should be littered down as above as often as necessary, and be well fed, twice in the day at least, with such food as has been provided, being let out during the middle of the day, except when the weather is very stormy and severe.

It is stated in the Annals of Agriculture, that one hundred and thirty-four sheep confined in this way for the period of six weeks, and littered with five loads of forty trusses each of oat-straws, forty loads to the truss, made twenty-eight large loads of manure, confining two acres of turnips within the time.

The great superiority of this sort of fold over that of the naked movable kind, is therefore sufficiently obvious, and may probably be had recourse to at all fensoms with some advantage. See Sheep, and Fodding of Sheep. Also Sheep Yard.

A sheep-fold has been lately invented by Mr. Plowman of Bracon, near Norwich, upon an improved and very simple principle, combining many advantages over the old and expensive method of folding by hurdles; and as the whole fold can be removed with ease at all times, it will be found peculiarly useful in feeding off turnips on the land in frothy weather, when hurdles cannot be used. It is stated that the expense, in the first instance, will exceed that of hurdles for the same given quantity of sheep; but having had one in use nearly three years, he is satisfied the saving will be very considerable: for, before he adopted this method of folding, he lost from thirty to forty sheep during the year, owing to the land being bad and dry; which renders hurdles almost useless, as they never can be fix'd with great shelter, and deflection of hurdles. He is also clearly of opinion, that the flock of sheep will be greatly increased when this method of folding becomes more known; and that it will enable many small farmers to keep from 50 to 100 sheep, who are now deterred from it on account of the small quantity of feed they have not a sufficient and certain for that purpose only; but by this plan, they may keep a low at 35 or 40 lbs. per week, who can attend on 10 or 20 lbs. sheep, and move the fold themselves without any of these. In many cases of wind it frequently happens that the hurdles are blown down, and the sheep of course become Harry carriage over the crops do inculcable mischief which cannot happen with this fold. And in some countries in England, where hogs are folded, great difficulties are experienced for want of strawage, for them to feed off winter turnips, &c. &c. from rooting up every flake or hurdle; and having tried the experiment, he is certain this fold will keep them in, and defray their attempts to displace it. And an abundant quantity of time is saved, as a man can remove a fold to contain 300 sheep in five minutes, which by the old method frequently takes some hours to accomplish. Many are now using folds from his model; and he received for the invention the gold medal of the Society for the Encouragement of Arts, &c.

It is further remarked, that where the fold is wanted to be used on very hilly ground, it must be begun at the top and worked down to the bottom for the sake of removing it, and then drawn up again with a hurdle. Thus, however, he has never had occasion to do, for his land is ploughed in a contrary direction, and he works the fold in the same course as the ridges. By this means the inconvenience is avoided of crossing the furrows; and they are also a guide to keep the fold in a straight direction. With respect to the sheep getting under, he does not recollect that circumstance to have ever happened, nor does he conceive that any land, which is cultivated, can be so uneven as to admit of it.

This sheep-fold is twenty-one feet in length and three feet eleven inches in height, being composed of a top-rail, and bars below pased through uprights; the whole moving on low cast-iron wheels, and made strong, but in a light manner.

Sheep-House, a sort of flight wooden building, constructed for the purpose of containing and protecting sheep in bad weather, &c. Houses of this kind are usually made low, for the sake of warmth in the winter, being mostly a third part longer than they have breadth; they should also be sufficiently large for the quantity of sheep they are to contain. The sides should be lined with boards, and the bottoms be laid in an even manner with stone or some other material, that the litter may be well impregnated with the urine of the sheep. And it has been advised to have the sides exposed to the sun, set with lined moveable hurdles, that when it thaws the whole may be laid open, to afford due refreshment, and give the sheep an opportunity of feeding upon the pasture wherein they stand. They should be well and securely covered with some sort of proper material upon the tops. They are sometimes fixed in particular situations, but in other cases, which is the more improved method, so constructed as to be capable of being removed as they may be wanted. One of the latter kind, employed on the farm of the Hon. George Villiers, in Hertfordshire, which is very complete, is described, with a plate, in the Corrected Agricultural Survey.
SHEEP.

In this sheep-house the wheels are fixed to the sides, being sixteen inches in diameter, and having an axle-tree to harness the horse to, with weather-boarded flaps hung with hinges, to turn up and button against the flaps when it is removed. It has also folding doors to open when the sheep are let in or out, and fixed weather-boarding, with cover-boarded windows to open on hinges in slits, in order to put fodder into the racks. Likewise a canvas roof, with open railing for air.

It is observed, that the length of the building is from twenty feet to any length; the width to be such as to enable the building to pass through the field-gates; the weather-boarding and flaps to be made as thin as possible, and covered with pitch.

But how far the advantages of houses of this fort may compensate the expenses of constructing and keeping them in repair, has not been fully shown; nor has perhaps a sufficient number of trials been made to show the advantage of confining sheep in covered houses or folds, or whether the economy of the animals is well suited to such a system. Some circumstances of advantage attending the practice of housing sheep have certainly been stated, but no satisfactory comparative experiments have, so far as we know, been made. And from the plan being little or not at all adopted in many extensive sheep districts, and in others where it once prevailed being either wholly in diffuse or much on the decline, as is well known to be the case in Gloucestershire and the county of Hereford, there seems reason at least to presume that it is not so necessary or so well suited to the habits of the animal, nor even so beneficial as has been supposed by some writers on the subject. See SHEEP, and FOLDING of Sheep.

Houses of this nature, for the purpose of sheltering sheep and lambs in bad weather, are formed in a very cheap and simple manner in Romney-Marsh, as may be seen in Price's account of the sheep-husbandry of that district.

Sheep-Hurdles, the flanes or fort of fence-gates which are let up so as to confine sheep at the time of folding them on arable land, or while they are feeding down, or upon any particular fort of food. They are of several different kinds, and either close or open; but the former are in general to be preferred, as affording the most shelter. It is obvious that the number required to inclose a certain space must depend upon the length. See Hurdle.

Sheep-Husbandry or Farming, that fort of farm management which relates to or has sheep for its principal object. There are various modifications of this fort of farming, depending upon the differences in the circumstances of the lands, their nature and situations, as well as other local matters. See SHEEP.

It is not improbable but that in this fort of husbandry and farming, the most benefit and advantage may often be derived where there is a judicious intermixture and conjuction of other forts of management, as those of cultivation, cattle, planting, and some others, sheep being constantly the great object. By such means advantages are afforded and brought forth in a great variety of different ways to the individuals themselves as well as the community at large.

In this fort of farming management it is of much conquence to have recourse to the fixing upon such plans and methods as are the belt and most suited to the flat or nature of the farms and markets for the sales of the animals. In cases where the farms are high, and of a cold exposed nature, the weather system may often enter largely into the plan which is to be adopted. Where they are of the most mixed nature, and composed of high, as well as low lands, they may sometimes be most suitably fitted, in a partial manner, with ewes and lambs, and with wethers. In those of the more common fort, the breeding or rearing systems, according to circumstances, may frequently be the most profitable modes. And in rich grazed land and mixed farms, which are provided with parks and pastures, as well as arable lands, the sheep-farmer may not unfrequently be tempted to fatten the saleable part of his sheep-flock, particularly where the markets are convenient for him in respect to distance.

In all these forts of farms in this kind of husbandry, the breeds or kinds of sheep should always be selected and provided with a perfect consideration of their nature, and the management of the sheep to be carefully directed with the same intention. The means of disposing of them should also be well regarded. Many other circumstances likewise require attention in this fort of husbandry and management. The inquirer may find much useful information on the subject of Highland sheep-farms and sheep-farming, in the third volume of the "Transactions of the Highland Society."

Sheep-Marks, and Marking, the marks and means of performing those which are put upon sheep in different ways and manners; as by means of tar, ochre, redde, wad, and other similar substances, and by cutting the ears of the animals in different forms and methods. Thesre are useful and necessary to the sheep-farmer on many occasions and accounts; they serve to distinguish his particular sheep and flocks from those of others, to discriminate the several different kinds, and to point out the various forts of management which are necessary with different kinds of sheep and lambs, as well as to answer different purposes in the sale of them, &c. In the marking with tar, a tool or contrivance having letters fixed to the end of it, is mostly made use of, the initials of the name of the farmer being most commonly employed. With the other matters different methods are taken; such as writing and rubbing them on plates, flones, or other matters, and then marking the sheep with them in the ways that may be thought necessary. Sheep and lambs are marked by these means in many different parts, as in the faces, on the sides, the hips, and in several other places; the work being mostly done according to the fancy of the person engaged in it, or of the owner of the flock, often in different curious modes and forms, as straight lines, curves, circles, and a variety of other more out-of-the-way methods. The marking of the sheep in the ears is performed by cutting them with a sharp knife in different forms and manners, as in that of a fork, an under and upper flan, an under and upper square, an under and upper notch, a flape, an under and upper flit, straight flit, a crop, a crop and flit, a hole, a hole and flit, &c. All these several modes may be seen represented in Price's System of Romney-Marsh Sheep-grazing.

Marking sheep in the ears, in these or other methods, forms excellent and correct means of distinguishing, for knowing them by, in a variety of cases and circumstances in sheep-farming.

Dr. Lewis recommends the following composition for marking sheep: mix melted tallow, with so much charcoal, in fine powder, stirred into it, as is sufficient to make it of a full black colour, and of a thick consistence. This mixture, being applied warm, with a marking-iron, on pieces of flannel, quickly fixed or hardened, bore moderate rubbing, refulted the fun and rain, and yet could be washed out freely with soap, or ley, or flate urine. In order to render it still more durable, and prevent its being rubbed off, with the tallow may be melted an eighth, sixtli, or fourth of its weight.
weight of tar, which will readily wash out along with it from the wood. Lewis's Com. Phil. Techn. p. 561.

Sheep. *Pens*, the divisions made by the small moveable gates or hurdles, which are set up to keep sheep in the particular situation. They are usually formed on a dry place, about the corners where different inclosures of the pasture kinds meet, to as to be convenient for the whole. They are useful in examining and feeding the sheep, being divided so as to contain about three dozen sheep each, as by this means they are always at the command of the shepherd for any purpose he may have in view. The bottoms should be firm and dry, so that the sheep may not be fouled.

Pens or coops are likewise made and used in the pounds, which are enclosed and put in some sheep districts. These are usually about two feet seven or eight inches in the square, into each of which one ewe and the lamb are put, and fenced, where there is a difference in the ewes to let their own lambs suck, as occasionally happens, and where strange lambs are put to them. Two of the side-boards of these pens are capable of being lifted up and let down so as just to admit the ewes; in which they move with difficulty, consequently are not able to reach the lambs to eat them away; by which means they thus find an opportunity of sucking against the wills of the ewes. These pens are therefore often very convenient in these cases, two of which are mostly kept in each lambing-ground or yard. See *Sheep-Pound*.

Sheep-Pound, any sort of narrow inclosure for the confining of sheep. Pounds of this kind are of many different sorts, and useful for several different purposes in the management of sheep-flocks, as those of lambing, catching, sorting, and dressing them in different ways, &c. They sometimes occupy pretty large spaces of ground, but at other times are only of very small extent.

Sheep Rubbing-Pots, the small pots and pieces of wood which are fixed up in sheep-paupiers for them to rub themselves against. They are sometimes simple upright pots, but at others they have crofs pieces put through them. They are very necessary and useful to the animals. See Rubbing-Pots.

Sheep-Scraps, the ears used in clipping or shearing of sheep. They are the frequently termed wool-shears. They are made with a spring on the handle part, which causes them to open readily in working with them. The handle part is mostly about six inches in length, and that of the blade about five; but shears of this kind vary much in size in different places.

Sheep-Skin, or Pelts, the common covering by which the sheep is surrounded and defended. The skins of these animals differ much in thickness, size, and other properties, according to the nature of the different breeds. Sheep pelts, or skins, sometimes form an article of great utility and profit to sheep-farmers, being sold to the fell-mongers, or other persons in their neighbourhood, under contract by the year, at different prices; as from the time of shearing to Michaelmas, at from 12 to 11 6d. from that till Shrove-tide, at from 21 to 20 6d. and from Shrove-tide till Michaelmas, at from 21 to 31 6d. Sometimes of this method is pursued by the South Down sheep-farmers in the sale of their sheep-skins, as well as by those of several other great sheep districts, by which great advantage often arises.

Sheep Wallowing-Hooks, the long-handled hooks which are made use of in washing sheep in some places. The hooks are in these cases fixed at the small ends of the long handles, in several different forms, as in that of somewhat the manner of an S; that of two small forks of half circles, with a little

**SHEEP.**

Sheep-Yard, any sort of inclosure in which the sheep are confined and kept at certain times of the year, for the purpose of raising very young lambs, and for the purpose of other matters, such as shearing, or the like. These yards are now becoming pretty generally made, as well as in all eyes. They are of several different ways, as the nature of a square, or an outside yard and other round yards, as well as often made in ells, sheep-yards, as in the case of Stover, Southfield, and Stover-Hay.

It is stated in the Agricultural Report of the County of Oxford, that at Chilton, Mr. Leach, has one of the most complete sheep-yards in it; a small farm and three sides of it, in which are racks and hurdles for the sheep to take their food from; it is forty yards in length and sixteen in breadth; the heds being five yards broad. This sheep-yard does very well for two hundred ewes. The ewes are usually brought into the yard from four to six weeks before the lambing-time, and continued in it until that is over, going out however in the day-time. This is said to be considered as a very excellent method, but attention must be paid in it, that the dung does not accumulate, as by its fermentation the sheep are liable to be injured. It should, of course, be carted out in a repeated manner. When not removed too often as to prevent its taking on heat, it has also been found, in Elne, to prove dangerous to lambing ewes, as well as ewes and lambs.

The heds may be raised on the sides of these yards so as to serve as fences also. Stubble, haulm, and other similar matters, may likewise be made to form warm walls as the outside fences of them.

All yards of this sort should be kept constantly well littered with suitable substances of that kind, upon foundations laid with good earth, sand, or some other proper material.

In some large sheep districts, as the South Down, in Sussex, the farmers have sometimes two or three of these yards, which are well sheltered for the sheep to lie down in at night, in very rainy and stormy weather. In some instances a yard of this nature, including the heds, comprehends a space of not less than three hundred and fifty-five square yards; the heds around which are about four yards wide. The whole are kept, for the most part, thoroughly well littered down. They are commonly extremely warm, and found to preserve many lambs in bad weather. The whole of the circumference around them, in some cases, has a rack for containing hay.

In the Dorchester district of the first of the above counties, natural grass being extremely scarce, straw is given in large quantities to sheep, as soon as ever the frosty mornings come on; barley-straw is had recourse to in these yards, or in lambing pens; and afterwards bean and pea-straw, which they are very fond of; they pick off the pods and tops, and do very well with these substances. These sorts of straw are occasionally carted to the field for their use; and what they do not consume, brought back to the yards; a practice which is pursued to the saving a great many tons of hay. Such dung as is made in this way is found to be very good.

Peas may likewise be applied in these yards, or other ways, in fattening lambs, the mothers of which are at turnips. They are given in troughs, six or eight weeks after the lambs have been dropped. By the lambs having the liberty of running through the openings in the hurdles, where the field mode is followed, it is often some time before they will take to this
fort of food, but they mostly come on gradually, until a score will eat a peck a day. Peas are sometimes given in this manner, till they reach six shillings a bushel, and found to answer. A great many forts of food of these and other kinds may be used with superior advantage for sheep in these yards, and a vast supply of good manure be provided at the same time.

_Sheep._

Sheep-Clatter, in Rural Economy, a term applied in some sheep districts to the person who has the care of clattering the ewes just before the lambing-time begins.

Sheep-Lander, a name given to the person who has the care and management of the ewe-flocks, which are under the state of lambing, in some sheep districts. It is of very great advantage to a sheep-farmer to have a careful, tidy, active lambner, unless he attends to the business himself, which is always the best way where it can be done; as few will be found who are sufficiently attentive and diligent at this period, and, of course, much loss may be sustained. Where persons are hired for this purpose, they should, it is supposed, be rather elderly than young, as being more experienced and less apt to be hasty, as the business is intricate, tedious, and often subject to much trouble, confusion, and disorder, which stand in need of a great deal of patience to have them properly attended to and rectified. If they are, or have been lookers, it is so much the better, but this is far from being always the case, even in the principal situations where sheep are kept. In the great sheep district of Romney-Marsh, it is the custom for the lamners to have the fkins of the dead lambs as a perquisite, which are usually sold at about 5s. the dozen. This is certainly a bad practice, as it tends to the making of rogues. The interest of the sheep-master and his servant, which ought to be the same, are separated, as what is the loss of the one is the gain of the other, and much injury and disappointment result from it.

In the above great district for sheep, it is usual for the lamner to go his regular rounds at four o’clock in the mornings, and to continue with the ewes until about seven or eight, returning to the fields until dinner-time; then going off again at one, and returning about five; setting off on his last round at six o’clock, when he does not return until dark. There is indeed sometimes so much to do, that he cannot come home above once or twice a day; the lambing should on no account be ever left until the lamner has every thing in a fair way, especially at the time of night.

Sheep-looker, the name of the person who has the over-looking and management of the sheep-flocks, in some districts. Persons of this kind should always be of careful, tidy, active dispositions; with sufficient experience, and a full knowledge of the different modes of sheep management. See Shepherd.

Sheep-Lambing-Hooks and Marks, the instruments of the hook and mark kind, which are made of iron in laying hold of the lambs, and in marking them, in particular cases and circumstances. In the former the handle is about seven feet in length, the head, or circular open part, three inches in width; the neck, or opening part to it, two inches and one-eighth wide; and the guide, or bill, six inches and a half in length. The latter have the handles about seven inches and a half long, with straight and curved or circular marks at the ends, one inch and three-eighths in length, and one inch and two-thirds in width, inside the circle. These instruments are very useful on many occasions.

Sheep Hay-Rack, that sort of rack which is provided for the use of sheep in their consumption of hay and other sorts of fodder of the same nature. They are made in many different ways, as open or covered on the tops, and boarded or barred up a little height at the bottom part, as well as railed on low wheels, or wholly without them.

They are usually from about fix to nine feet in length, and about two feet and a half in height; the space for the hay at the top about two feet ten inches, but which is sometimes contracted at the bottom so as for the two sides to come nearly together, standing out in the manner of common horse racks. The openings for the sheep to feed through from three, four, or five inches to seven or eight. The smaller they are the less loss there will be, provided they are sufficient for the sheep getting at the fodder. The bars and boards put at bottom in some sorts of these racks prevent the animals getting into them. When formed with covers and screens for keeping the hay or other food, and the sheep, while feeding, from being wet; they are the most complete, especially if, at the same time, they be provided with low wheels, so as to be capable of being moved from place to place. In small racks, where wheels are put at one end, they can be easily moved about.

These racks are of very great use and convenience on all farms where sheep are kept in any quantity. See Rack.

Sheep Corn-Bin, any sort of trough or bin formed for the purpose of containing the corn, or any other similar kind of food for sheep, either in fattening, or in other modes of managing them. Bins or troughs of this nature are usually contrived in a light manner, so as to be moveable on low wheels, having covers at some height over them, supported from below by the ends and upright pieces in somewhat the roof-form, so that the wet may be prevented from getting to such provisions, and the sheep enabled to feed dry. They are generally made very narrow, but of considerable length, the box or trough for the food having only the depth of a few inches.

Sheep-bins of this sort are very necessary and useful in many kinds of sheep management.

Sheep-Dung, the manure afforded by sheep, which, by means of proper folding in yards properly littered with straw, flubble, &c. may, in many cases, be increased to a considerable extent, so as to render it an object with the farmer. See Dung, Folding of Sheep, and Manure.

Sheep-Drains, a name sometimes given to those small drains which are frequently formed upon the more loft and damp sheep-walks and pastures in different parts of the kingdom, in order to render them in a state of greater dryness. They are often made not more than two feet in width at the surface, and one foot and a half in depth. They are most suited to that sort of wettons where the bottom is of a clayey or tily nature. Such sort of work can, in some places, often be done at three-halfpence the rod of six Scotch ells. These drains should constantly have a gentle slope or declination across the declivities of the grounds on which they are made.

Sheep-Farm, that sort of farm which is principally conducted under some system of sheep management. Many situations are suited to some branch of this husbandry, which cannot be converted to the purposes of raising grain or fattening cattle, &c. See Sheep, and Farm.

The more dry the lands are, and the more fine and short the grass is which is upon them, the better and more proper and suitable they are, in general, for the purposes of sheep-farms. Where the substratum is of a lime-stone quality, this is most likely the case, in the most favourable degree. But in many instances now, arable farms are likewise sheep-farms, to a very considerable extent; artificial food being grown and raised for the sheep-flock in sufficiently suitable proportions. There is probably much advantage in this combination in all cases in which it can be properly admitted. Sheep-farms
farms should constantly be kept with great attention to the nature of the grass, the capitula, and the fuller for the animals. They should also be kept dry and in good order on the surface, with every sort of proper convenience for the management of sheep. See Sheep-Husbandry, and Farming.

Sheep-Law, a term applied to pasture-laid appropriated to the feeding or supporting of sheep; or any sort of pasture-laid on which this kind of animal or live-stock is kept.

Sheep-Plant, that kind of dry, firm pasture-laid which is suitable for the purposes of grazing, feeding, and fattening sheep. Many sorts of mild land are not at all proper for, or adapted to this use, though well suited for some other sorts of farm management.

Sheep's Trotters, a refuse material procured from fell-mongers, which is made use of in some places as a maturable to be turned into the land. They are bought at about 6d. the bushel, hoofed heaped, in some places, and sold about 2d. more in carriage, being used in the proportion of from twenty to forty bushels the acre, being afterwards picked in to prevent their being eaten by dogs, crows, &c. They answer well on such lands as are rather dry, and where the fea-son is rather mild. They contain a large proportion of lime, and are often adulterated by being mixed with sand, as well as oak saw-dust; which last is laid not to injure them. Forresters' cuttings are nearly the same, and made use of in a similar manner.

Sheep's Cree, in Geography, a bay on the E. coast of Newfoundland, between Bay Robert and Port Graves.

Sheep Island, a small island near the coast of South Wales, E. of the entrance into Milford Haven. N. lat. 51° 38'. W. long. 5° 9'.—Also, a small island on the northern coast of the county of Antrim, Ireland, opposite to the extreme point of the head-land, between Ballintoy and Ballycastle, not far from the remarkable rock, called Carrick-a-Rede. N. lat. 55° 15'. W. long. 5° 41'.

Sheep-Faced Grasfs, in Agriculture, a sort of grass which, while it has been much prized by some as useful in pastures, has been condemned by others as of little importance from its smallness, and being liable to be burnt up in dry seasons. It is said to succeed with less moisture than most other sorts of grasses. As forming a close-matted turf, where no great produce is required, it may be found a beneficial plant. See Festuca ovina, and Grass.

Sheep-Node-Worms, in Natural History, a species of fly-worm, found in the noes of sheep, goats, and fags, and produced there from the egg of a large two-winged fly. The frontal sinuses above the nose in sheep, and other animals, are the places where these worms live, and attain their full growth. These sinuses are always full of a soft white matter, which furnishes these worms with a proper nourishment, and are sufficiently large for their habitation; and when they have here acquired their defined growth, in which they are fit to undergo their changes for the fly-state, they leave their old habitation, and, falling to the earth, bury themselves there; and when these are hatched into flies, the female, when she has been impregnated by the male, knows that the nose of a sheep, or other animal, is the only place for her to deposit her eggs, in order to their coming to maturity. Mr. Valintini, to whom the world owes so many discoveries in the insect class, is the first who has given any true account of the origin of these worms. But though their true history had been, till that time, unknown, the creatures themselves were very early decoyed, and many ages since were esteemed great medicines in epilepsies.

The fly, produced from the worm, is all the time of its life a very lazy div, 611111, and does not like to use any use of its lighter wing. In full grown nymphs together are about as long as its body, while the head of five rays, forked on the back, a pair of yellow, and brown, are there dipped in irregular spots; the body has the same colours, but they are there more regularly disposed. For the brown here makes three lines, one in the middle, and one on each side, and all the intermediate spaces are yellow; the wings are early of the same length with the body, and there are a little inclined in their points, as to be upon the body; they do not, however, cover it, but a naked space is left between them, the alar, or petty wings, which are found under each of these wings, are of a whitish colour, and perfectly cover the balancers, so that they are not to be seen without lifting up the head.

The fly will live five weeks after it is first produced, but will take no nourishment of any kind; and perhaps it may be of the same nature with the butterflies, which never take any food during the whole time of their living in that state. Reaumur Hist. Inf. vol. 16. p. 532; &c.

Sheep-Scabius, in Botany. See Jasione.

Sheep-Shank, in Sea Language, is a sort of short, or butch, call on a rope, to shorten it as occasion requires; particularly to increase the sweep or length of a tackle, by contracting its runner. By this contrivance the body, to which the tackle is applied, may be hoisted much higher, or removed much farther, in a shorter time. Falconer.

Thus, if any heavy body is to be hoisted into a ship, &c. and it be found that the blocks of the tackle meet, or black and black, before the object can reach the top of the side, it will be neccessary to lower it again, or large by some other method, till the runner of the tackle be sheep-shanked, by which the blocks will again be prepared to a competent distance. See Rigging. Plate 1. fig. 16.

Sheep-Case, in Agriculture, a name provincially applied to the large sheep-bough.

Sheepent, or Sheepscot, in Geography, a river of America, in the district of Maine, which runs into the sea, N. lat. 43° 43'. W. long. 69° 38'.

Sheep-Haven, a harbour on the northern coast of the county of Donegal, Ireland, situated well of the Mulroy, and separated from it by a long, and, in some parts, very narrow peninsula. The surrounding country is mountainous, and thinly inhabited; nor is there any town of confluence in the neighbourhood. Dunfanaghy, near Hornhead, is no more than a village, though runs near it seem to indicate that it was formerly much larger. The fisher- man's land found in this district is of excellent quality for making glafs, and it is carried to Belfast for that purpose. Under the article Hornhead, a promontory which forms the western boundry of the harbour, we noticed, on the authority of the late Dr. William Hamilton, in the Transactions of the Royal Irish Academy, the effect of drifting farce in overwhelming the vertigos of cultivation; and the change thus produced in the appearance of a country. A similar effect took place on the eastern side, which is thus described by the same writer. "About 4 years ago, an elegant edition, according to the table of that year, was built on the peninsula, between the harbours of Sheepscot and Mulroy, which at present stands like Tadpole of the Tail, a solitary wonder of a surrounding desert." The yard are totally decimated of trees and shrubs by the fury of the western winds; their walls, usually to stand the mouth of overbearing fairs, have bent in four the celebrated pefure, and, overthrown in numberless places, have given free paillage.
passage to this reflecs enemy of all fertility. The courts, the lights of shops, the terraces, are all involved in equal ruin; and their limits only discoverable by tops of embattled walls, visible amid hills of sand. The mansion itself, yielding to the unconquerable fury of the tempest, approaches fast to destruction: the freighted whirlwind howling through every avenue and crevice, bears ineffectually along its drifted burden, which has already filled the lower apartments of the building, and begins now to rise above the once elevated thresholds. Fields, fences, villages, involved in common defolation, are reduced to one undistinguished scene of sterile uniformity, and twelve hundred acres of land are fain thus to have been buried, within a short period, in irrecoverable ruin."

"The lower parts of the Shetland Islands, are the greater number of them, but the inhabitants of the Orkney Islands, are the less thans of the same; and the inhabitants of the Shetland Islands, are the greatest number of them, and the inhabitants of the Orkney Islands, are the least." A distance of eighty miles, separates the town of Shetland, from the town of Orkney. The former is a town of considerable size, and is the chief seat of government, and the residence of the noble family of the Earl of Shetland, who are the principal landowners of the island. The latter town is a town of smaller size, and is the residence of the Bishop of Orkney, who is the spiritual, as well as the temporal, ruler of the island.

**SHEER**, or SHEERING, in the Woolen Manufactures, the cloth-worker or dresser's craft, or office; or the cutting off, with large sheers, the too long and superfluous knaps, or shag, found on the surface of woolen fluffs, fustians, cottons, &c. in order to make them more smooth and even.

Stuffs are shorn more or fewer times, according to their quality and fineness.

Some use the phrastic sheering of huts, for the paxing of hats made of wool over the flame of a clear fire made of straw, or sprays, to take off the long hairs: others call this flaming, and others figuring. Other hats, as callers, femiliners, &c. are shorn, by rubbing them, over with pumice-stone. See Hat.

**Sheer**, or Shering, in Sea Language, a term used for the motion of a ship, when the deviates from the line of the course, either to the right or left, so as to form a crooked and irregular path through the water, either by reason that she is not sheered steadily, or on account of the swift running of the tide, &c. in which case she is said to sheer, or go a sheering. Hence, to sheer off, is to remove to a greater distance.

When she lies at anchor, near port, &c. by reason of the swift running of the tide-gate, &c. she is often said to be in danger of sheering home her anchor, or sheering afofe. See Chest-Rope.

**SHEER MOHAMMED PETT**, in Geography, a town of Hindooftan, in the circar of Condapilly, on the borders of Golconda; 21 miles W.N.W. of Condapilli.

**SHEERNESS**, a sea-port and market-town in the Isle of Sheppey, and county of Kent, England, is seated at the mouth of the river Medway, and has derived its origin and importance from this circumstance. In the reign of king Charles II. it was deemed advisable to form a fort here, to protect the entrance to the river; and in 1667 that monarch, with an engineer and other officers, surveyed this spot, and strengthened the works. The Dutch, however, sent a fleet to this point, deformed the fortifications, and failed up the Medway, as far as Upnor Castle. After returning again from this enterprise, the government directed some firing works to be formed here, because the spot was deemed of great importance. A regular fortres was soon constructed, and mounted with a line of large and heavy cannon; and at the same time several smaller forts were built at different flations on the banks of the river. Since that time Sheerness has progressively been augmented and strengthened by new works, and now constitutes a regular garrison. It is commanded by a governor, lieutenant-governor, a fort-major, and inferior officers: and the ordnance establishment is under the control of a store-keeper, a clerk of the cheque, and a clerk of the survey. Adjoining the fort is the king's yard or dock, which has been made subseque unto the former. This yard is chiefly used for the repair of ships that have been slightly damaged, and for building frigates and smaller vessels. A resident commisioner,
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fuser, with two clerks, a master's signature, and other
officers, with theirs, are laced and laced.

A second chapel has been erected at the expense of
Figure; but it is a little more open and spacious than
that of the present house of Merton. According to
the popular report of 1611, Sheerholf was visited by
13,500 soldiers, who executed the works; and it is said
that in 1649 the victory was due to the skill of the
architect, who had been trained in the hulk. The
hull of this ship, called the "Queen," is unique in the
seventeenth century, as a vessel of this size, weighing
600 tons, was not built before 1655. The Great
hulk experienced a peculiarity of fresh water, the chief
supply being brought in vessels from Chatham; but it was
determined by the Board of Ordnance, that an attempt
should be made to fix a well within the hulk, and the execution
of this was entrusted to Sir Thomas Pagge, an able en-
gineer, whose skill and perseverance were found fully equal
to the task that had been proposed in him. The preparation
of the materials, and the boring, to ascertain the different strata,
were begun in April, 1785; and the linking of the well
was commenced in June following. Thelanding-springs, &c.
which greatly interrupted the progress of the work during
the first half of the year, were excluded by regularly fi-
etting the inside of the well; till, at length, the workmen
came to an immense quantity of chalk, which prevented
the further necessity of fi-netting, and enabled them to pro-
cceed with less inconvenience. They went on, however,
with great caution, and having dug to the vault depth of
325 feet, the auger with which they were trying the strata
dropped down, and the water rushed up with such velocity,
that the workmen could hardly be drawn out with sufficient
haste to escape drowning. In six hours it rose 189 feet,
and in a few days it was within eight feet of the top; and it
never since produced a never-failing supply; for, though con-
stantly drawn from, it has never been lowered more than
200 feet. The quality of the water is fine and soft, and its
temperature is somewhat warmer than commonly happens
in other wells. From this well, conjointly with that of
Queensborough, not only the garrison and inhabitants are
supplied, but also the shipping which lie at anchor at the entrance of the Medway. (See QUEENSBOROUGH.) Havett's
History, &c., of the County of Kent, vol. i. 8vo, edit.
by E. W. Brayley, 8vo, 1806.

SHEEP, a town of Hindoostan, in Bahar; 43
miles S.S.W. of Patna. N. lat. 24° 55'. E. long. 87° 10'.
Also, a town of Hindostan; 32 miles E. of Delhi.—
Also, a town of Hindoostan, in Mewar; 25 miles N.E. of
Dug.

SHEARING, in Ship-Building, two masts or spars, set
slopes at the upper end of each other, and there lathed
together with tackles depending from the intersection; and
they are kept upright by guys extending each way from
the heads. The bows are lashed and lathed, or cleated, to
prevent their slipping. By this contrivance very heavy
bodies are raised, such as the stem, stern-frame, and the
frame-timbers of ships; large ships are mated by these,
or have their masts taken out where there is no sheer-hulk.

SHEET, in the Engineer. See CARRIAGE.

Sheet, in Ship Languages, a rope fastened to one or both
the lower corners of a sail, to extend and retain it in a par-
Fig. 21. 1710, few with the penfiou, Set
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park, which has, during this reign, been the principal
residence of the queen. At the great change of the ministry
in 1710, he was again introduced, first as secretary of the
house-
household, and then as president of the council. After the death of queen Anne he was an opponent of the court, and employed his time chiefly in literary pursuits, till his death, in 1721.

The duke had been thrice married, and each time to a widow: his last wife was a natural daughter of James II., by whom he had a son that survived him. Following the example of the court of Charles II., he freely indulged in licentious amours; nevertheless, it has been said that he had occasionally serious thoughts of religion, though probably not restricted to any particular party. The following is the epitaph which he composed for himself: "Deditus

he fed non improbus vivit: incertus morior, fed inturbatus: humanum et necire et errare. Chirilium adverceror : Deo

condido omnipotens, benevolentissimus: Enims emit misere mei." This was inscribed on his magnificent monument in Welminster Abbey, with the exception of the clause respecting Chrift, which bishop Atterbury rejected, thinking simple veneration a derogatory expression applied to the second person in the Trinity.

In the capacity of poet, the duke of Buckinghamshire does not rank very high; his compositions are on a variety of topics, of which, however, the chief is "An Essay on Poetry," which, according to Dr. Johnson, contains judicious precepts, which are sometimes new, and often happily expressed, but with many weak lines, and some strange instances of negligence. In his "Essay on Satire," he is supposed to have been assisted by Dryden, who, for some peculiarities in it, had the misfortune to be taken as the real author.

The duke of Buckinghamshire composed two tragedies, entitled "Julius Cæsar," and the "Death of Brutus;" for the latter of which, at his request, Pope wrote two choruses: of these Warburton says, that they have the usual effect of ill-placed ornaments, they make the meanners of the piece more conspicuous. In the collection of the duke's works are likewise historical memoirs, speeches, essays, &c.

Sheffield, or Sheﬃeld, in Geogra phy, a large and populous market and manufacturing town in the south division of the wapentake of Strafford and Tackhill, liberty of Hallamshire, West Riding of Yorkshire, England, is situated at the distance of 36 miles S. from Leeds, and 162 N.W. from London. The origin and remote history of this town are totally unknown. In the 13th century it was noted as a staple for articles of iron manufacture. Chaucer, who wrote in the reign of Edward III., mentions the "Sheffield Whittle" in one of his poems. At that period it was likewise distinguished by a strong cattle, which roost at the north-east of the town, and is said to have been built during the sovereignty of Henry III. This cattle descended from the Lovetots to the Nevis, lords Furnival, and passed from them to the Talbots, earls of Shrewsbury, and subsequently to the Howards, dukes of Norfolk, in whose family the lordship of the manor is still vested. During the civil wars between Charles I. and his parliament, Sheffield cattle sustained a long siege in the cauld of royalty, but eventually surrendered upon honourable terms, on the 10th of August, 1644, and was soon afterwards ordered to be demolished, which seems to have been done most effectually, as scarcely a vestige of it can now be discovered.

Sheffield, as already said, was considered as a staple for iron manufactures at a very early period, its trade, for several centuries, was comparatively confined and precarious, and confifted almost entirely in the making of thistles, knives, scissors, sickles, and scythes. About the commencement of the 17th century, an ordinary kind of tobacco-box of iron, and Jews' harps, began to be manufactured here; and in 1625 the major manufacturers were first incorporated by the style of "The Company of Cutlers of Hallamshire." This corporation is governed by a master, elected annually, six searchers, and twenty-four affitants, and is the only body corporate yet existing in Sheffield. It was not, however, till after the year 1750, that this town assumed the rank it now holds in manufacturing opulence. Previously to that period, none of the manufactu rs had extended their trade beyond the limits of Great Britain; but in the same year Mr. Joseph Broadbent opened a direct trade with the continent; and in 1751, the river Don having been rendered navigable to within three miles of the town, that facility was given to exportation, which has since proved so beneficial to its manufacturing interests. Soon afterwards Mr. Thomas Bolfver began to plate brass and copper buttons with silver; and in 1758 the silver plated manufacture was commenced on an extensive scale by Mr. Joseph Hancock, and has subse quently been prosecuted with great advantage by a numerous class of individuals. The opulence and population of the town increased from that time with great rapidity, and soon gave rise to numerous conveniences and improvements, both useful and ornamental. In 1760, the first stage-coach started from Sheffield for London; and in 1762, the theatre and assembly-room were built by subscription. In 1770, the first bank in Sheffield was opened by Mr. Roe buck; and in 1786, the new market-place was formed, about the same time that Meffrs. Proctors erected the first steam-engine grinding-wheel. In 1793, hackney coaches were introduced; and in the same year also was laid the foundation of the General Infirmary. These circumstances are mentioned, because they are calculated to display the progressive benefits resulting from successful industry and ingenuity, the contemplation of which can scarcely fail to excite pleasurable emotions in every breast.

To notice particularly the various articles manufactured at Sheffield of late years, would occupy too considerable a space to admit of the attempt. The two great divisions of them are into cutlery and plated goods, each of which branch out into numerous ramifications. The manufacture of the latter is almost entirely confined to the town, and comprehends a great diversity of articles: such as tea-uris, coffee-pots, taskards, cups, candlesticks, and other pieces of table furniture. The cutlery division embraces the making of edge-tools, combs, cafes, buttons, fenders, files, anvils, joiners' tools, lancets, forks, hafts, ink-stands, nails, knives of every description, scissors, fcythes, sickles, awl-blades, bellows, &c. to which we shall only further add the refining of steel. Many of these manufactures are carried on in the country, as well as in the town, especially in the villages and hamlets of Aler cliffe, Brentgreen, Brightside, Butterthwaite, Carbrook, Darnall, Dyson-holmes, Dungworth, Ecclesfield, Greeno side, Grimethorpe, Hallam, Miln-houses, Newfield-Green, Owlerston, Pittmoor, Stannington, Shiregreen, Upper Heely, Wadsley, Woodates, &c.; all of which are situated within seven miles of Sheffield. Besides the above manufactures, there are in the town and its vicinity several extensive foundries for iron, brass, and white metal.

Sheffield occupies a fine eminence at the confluence of two rivers, the Sheaf, whence the name of the town is derived, and the Don. In former times the houles were entirely built of stone but for the last century they have been chiefly composed of brick. There are few towns which surpass it in the regularity of its streets, many of them running in a direct line, and displaying a series of uniform and respectable edifices. Sheffield extends about a mile
a mile in length, from north to south, and nearly as much in breadth, from east to west. According to the population census of 1811, it contained 7977 houses, and 35,874 inhabitants, being an increase of 4576 persons since 1801, the date of the preceding report, notwithstanding the retardation its manufacturing prosperity has sustained during that eventful period. According to Gilly's plan of the town, made in 1764, there were 32 streets in Sheffield at that time; in 1774, there were increased by 25 new streets; and in 1791, fifteen additional streets had been made.

Sheffield is not particularly distinguished by the superiority of its public buildings, which are rather calculated for purposes of utility than for show. The principal of them are the 'Town-hall,' built in 1760, Cutler's-hall, the General Infirmary, the almshouses, and the four churches belonging to the establishment. Neither the Town-hall nor Cutler's-hall deserve attention as architectural productions, but the infirmary and theatre are handsome structures. The former, commenced in 1763, stands on the west side of the town; and in respect of situation, plan, medical aid, and comfortable treatment, may vie with almost any similar institution in Great Britain. The latter, which occupies the same building with the assembly-room, stands in Norfolk-street. The four churches are Trinity church, St. Paul's, St. James', and a chapel belonging to the Duke of Norfolk's hospital. Trinity church, anciently called St. Peter's, is the parish church of Sheffield, and appears to have been erected as early as the reign of Henry I. On the south side of the chancel is the Shrewsbury chapel, which contains four monuments to the memory of the earls of Shrewsbury of the family of Talbot; and on the north side is a monument commemorating Sir Humphrey de Brome, was erected in 1525, and contains the remains of William Walker, of Darwen, in this parish, who was found executors of Charles I. Besides the above churches, Sheffield contains seven meeting-houses for Prot- estant dissenters, one for Unitarians, two for Methodists, one for Quakers, and a Roman Catholic chapel.

The duke of Norfolk's hospital, mentioned above, stands on the easterly bank of the Sheaf. It was founded and endowed in 1559, by Henry, earl of Norfolk, and received a considerable accruement of property by Edward, duke of Norfolk, in 1714. The building consists of two quadrangles, each containing eighteen dwelling, for the accommodation of eighteen men, and the same number of women, all of whom receive five shillings a week, with clothing and coal. There is also an hospital founded by Mr. Thomas Hollis, a merchant of London, in 1724, for poor cutters' widows; his wife a free grammar-school, and two charity-schools, one for boys, and another for girls.

The other objects of a public kind which remain to be noticed are, the military barracks, situated at the north-eastern extremity of the town; and the bridges thrown over the Sheaf and the Don. That upon the latter river is called Lady's bridge, from a religious house, which formerly stood near it, and was dedicated to the Virgin Mary. It was built in 1495, but underwent great alterations and improvements in 1762.

Sheffield has two market days, weekly, Tuesday and Saturday; the first for corn, &c., and the second for butchers' meat. There are also fairs-markets on Monday and Thursday, and two annual fairs, one on the first Tuesday after Whitsun week, and another on the 28th of November. A new market-place, with extensive and commodious stables and other conveniences, was formed and finished here Aug. 31, 1786. Sheffield supports a weekly newspaper, called the "Iras," which is edited by Mr. James Montgomery, the author of "The World before the Flood," and other interesting works.

The scenery in the vicinity of the town may be characterized as romantic. It is bounded by lofty hills, commanding fine views over a populous and cultivated country. At the distance of about a mile and a half to the eastward, the southern end of Sheffield, the easternmost point of the county, presents a wondrously beautiful prospect. The high ground above the town is a characteristic landscape of the country, and the beauty of the scene is enhanced by the breadth of its prospect. The town is bordered on the north, west, and south by a broad plain, which supplies water for several mills and water works. South mountain extends along the whole length of the town, on the E. side of the river.

SHEFFIELD, a town of America, in the state of Vermont, and county of Caledonia, containing 4554 inhabitants. — Sheffield, a town of the county of Middlesex, in the county of Berkshire ; incorporated in 1733, and containing 2439 inhabitants. It is traversed by Houlton's river, which supplies water for several mills and water works. South mountain extends along the whole length of the town, on the E. side of the river.

SHEFFIELDIA, in Botany, Earl. Gen. t. 9, was so called by Forster in honour of the Rev. Mr. Sheffield, whom he designates as the chief hand at Oxford. This gentleman was, we believe, one of the companions of the illustrious Banks, in the early part of his studies, and retained to the last a love of the science, though without having materially contributed to its advancement. He was living as a fellow of a college, at rather an advanced age, in 1785. The genius in question is now sunk in obscurity; see that article.

SHEFFORD, in Geography, a market-town in the parish of Compton, hundred of Clifton, in the county of Bedford, England, is situated at the distance of 10 miles S.E. from Bedford, and 41 miles N.N.W. from London. It was formerly a place of much more importance than at present, and had a large weekly market on Friday, which has now become almost nominal. Still, however, it possesses the advantages arising from a fair annual fair, held on the 23d of January, Easter Monday, the 19th of May, and the 10th of October. The two first usually afford a large supply of sheep and crows; the third is his important; and the fourth is now only a holiday fair. Sheffield is a chapel, having two parishes of its own, and maintaining its own poor. Here is a Roman Catholic chapel, endowed with an annual stipend left in trust for that purpose. According to the parliamentary returns of 1811, this town contained 213 houses and 526 inhabitants.

In the north of Fitchett, and at the distance of about four miles from Sheffield, is Wrel Park, the seat of baronets Lucas, a representative of the family of the Greys, earls and dukes of Kent. In its present state the house retains little appearance of a mansion, having been at various times added to and modernized. It contains a large collection of portraits, forming nearly a complete series of all the members of the noble family just mentioned, from Henry, Earl of Kent, one of the peers who sat on the trial of Mary, queen.
queen of Scots, down to the present time. Here are likewise several portraits of the crew family, and others; among which are Sir Randolph Crew, lord chief justice of the court of king's bench; a fine picture of Thomas lord Crew, by Sir Peter Lely; Nathaniel lord Crew, bishop of Durham; and the late lord chancellor Hardwicke.

The garden attached to this mansion exhibits a specimen of the old style of arrangement and ornament, modified and improved by the celebrated Brown, who formed the serpentine canal, which nearly surrounds the garden, and is supplied by a spring rising near the house. At the springhead is a cold bath, over which is a building, designed by Sir William Chambers, in imitation of a Roman temple. The late duke of Kent, who was very partial to this residence, adorned the gardens with obelisks, and other buildings, particularly a magnificent banquetting house, which terminates a spacious avenue in front of the house. Lyfons's Magna Britannia, Bedfordshire, 4to. 1806. Beauties of England and Wales, vol. i. by John Britton and E. W. Brayley, 8vo. 1803.

SHEFNAI. See Shiffnal.

SHEHERON, a town of Persia, in the province of Irak; 15 miles E. of Kermanshaw.

SHEHERVERD, a town of Persia, in the province of Irak; 50 miles S.W. of Sultana.

SHEHOUN, a town of Syria, under the jurisdiction of an independent age, anciently called "Caparras;" 18 miles N. of Hamah.

SHEHRAN, or Sheeran, a town of the Arabian Irak, on the Dial; 50 miles N. of Bagdad. N. lat. 34° 8'. E. long. 44° 9'.

SHEHRIGHERD, a town of Persia, in the province of Irak; 33 miles W.S.W. of Kom.

SHEHRISTAN, a town of Persia, in Khorsafan; 210 miles W. of Herat. N. lat. 35° 10'. E. long. 56° 20'.

Alfo, a town of Persia, in the province of Chufillan, or Kuzzilan; 50 miles N.W. of Schiras.

SHEIB, a lake of Egypt; 48 miles E.N.E. of Cairo.

SHEIDEK, a mountain of Switzerland, in the S.E. part of the canton of Berne; 10 miles S.E. of Interlachen.

SHEIK, or Schiek, in the Oriental Customs, the person who has the care of the mosques in Egypt: his duty is the same as that of the imams at Conflantinople. There are more or fewer of these to every mosque, according to its size or revenues. One of these is head over the rest, and answers to a regular priest with us, and has under him, in large mosques, the readers and people who cry out to go to prayers; but in small mosques the sheik is obliged to do all himself. In such it are his bunfons to open the mosque, to cry to prayers, and to begin their short devotions at the head of the congregation, who fland rank and file in great order, and make all their motions together. Every Friday the sheik makes an harangue to his congregation. Pococke's Egypt, p. 171.

SHEIK-BELLET, the name of an officer in the Oriental nations.

In Egypt the sheik-ballet is the head of a city, and is appointed by the pacha. The bunfons of this officer is to take care that no innovation be made, which may be prejudicial to the Porte, and that they fend no orders which may hurt the liberties of the people. But all his authority depends on his credit and interell, not his office; for the government of Egypt is of such a kind, that often the people of the least power by their polls have the greatest influence; and a casa of the janizaries, or Arabs, and sometimes one of their meanest officers, an oda-bafia, finds means, by his parts and abilities, to govern all things. Pococke's Egypt, p. 161.

SHEIKHAUT, in Geography, a town of Bengal; 8 miles N. of Tannahat.

SHEIKH-UL-JEBAL, Dominions of, or lord of the mountains (commonly called the old man of the mountain) comprised the whole of that elevated tract in the province of Azerbaijan in the Persian empire, which runs parallel with the course of the Kizilozain and the greater part of Chilai. When destroyed by Holak, the Houfesinees, or Afafins, possession upwards of 100 strongholds; but the residence of the prince was generally confined to the castles Roudbar and Allah Ahmaur, both of which are situated in the Khor Caucasie, near Azaaren.

SHEIKPOUR, a town of Hindoosin, in Bahar; 28 miles E. of Bahar. N. lat. 25° 3'. E. long. 86° 3'.

SHEIMERKS, a town of New Jersey; 34 miles N.W. of Morritown.

SHEK ABADIE, a town of Egypt, anciently called Antinoe; 8 miles N. of Abu Girge.

SHEK Abdolla, a village of Syria, in the phalich of Aleppo, where are some springs of water; 20 miles S.E. of Aleppo.

SHEK Abu Ennar, a town of Egypt; 7 miles S. of Beninfeet.

SHEK Ammer, a town of Egypt, situated on the Nile; 17 miles N. of Syene.

SHEK Embose, a town of Egypt, on the right bank of the Nile; 16 miles S.S.E. of Girge.

SHEK Ered, or Haradi, a town of Egypt, on the E. side of the Nile. Here is the tomb of a Turkish sultan, who after his death is said to have been metamorphosed into a serpent, which never dies, and is consulted as a physician; 8 miles N.N.E. of Achrim.

SHEK ii Eiman, a town of Egypt, on the Nile; 7 miles S.S.W. of Cairo.

SHEK Fadale, a town of Egypt, on the right bank of the Nile; 10 miles S. of Abu Girge.

SHEK Zeineddin, a town of Egypt, on the left bank of the Nile; 3 miles N. of Tahta.

SHEKEL, Shekile, Checkle, Siclus, an ancient Hebrew silver coin, which was originally a didrachm, but, after the Maccabees, about the value of the Greek tetradrachm, or four Attick drachmas, or four Roman denarii, allowing the drachma and denarius to be of the same value; and, according to Mr. Raper's valuation of the drachma at 97.296, equal to 77.-144. See DEXARIUS and DRACHM.

In the Bible, the shekel is sometimes also rendered solidus, and sometimes flater.

The Jewish doctors are in great doubt about the weight of the shekel; and it is only by conjecture, and by the weight of the modern shekel, that the ancient one is judged equal to four Attick drachmas.

Father Socquet has described several of these shekels in his Dillertation on the Hebrew Medals. By the way he observes, that the third and fourth parts of a shekel, described by Waferus, de Ant. Numb. Heb. are counterfeit of that author.

The Hebrew shekel, according to F. Merfenne, weighs 268 grains, and is composed of 20 oboli, each obolus weighing 16 grains of wheat. This, he says, is the just weight, as he found by weighing one in the French king's cabinet. He adds, that such as come short of this weight have been filed or clipped. Bishop Cumberland tells us, he has weighed severall, and always found them near the weight of a Roman semuncia, or half ounce. Mr. Raper infers from various considerations (see DRACHM), that the mean
She.

The eldest, of 133 tons, was very near its full weight, and its last, of 60 tons, that of the youngest. The weight of the ship would then be about 450 tons.

Some are of opinion that the "Hirloom" had two kinds of thick felloes, the fuzil, or plaited felloe, called the fuzil felloe; and the felloe of the forecast, which had the well to be double the former. By this expedient they think it might get clear of some difficulties occurring in Scutagone; where things are mentioned as of incredible weight; particularly that passage where it is said, that every time Ablood cut off his hair, the weight of which used to be considerable, he cut off the weight of two hundred felloes.

But Villalba and liis will not hear of such a disjuncture; nor do liis, at Cambridge, M. Murgan, Greaves, &c. take the opinion to have any foundation. The fuzil felloe, or felloe of four fuzils, they agree, was the same with the fuzil felloe; and it was only called by this last name, because the standard of it was kept in the lunatick by the pupils.

Greaves apprehends, that the fuzil are, or 30 pieces of silver, which were given to Judas, as the reward of his treason, were 30 felloes. Some modern writers, he says, imagine they were 30 deniers, and others, that they are regina fuzil, or regina fuzilata. Greaves's Works, vol. 1. p. 237., note n.

It is maintained by several, that the Jews had also a gold felloe, fusa aurea, of the same weight with the silver one; and valued at 1 d. 166. 6d. sterling.

The felloe is supposed to have been first struck in the D. M. &t, on the footing of 100 to the Attic mna, weighing 160 grains of wheat, and current for 10 geriors, or obols; but that afterwards they were struck of double that weight.

Some will have the felloe to be the oldest piece of money in the world, as being in use in Abraham's time; but this was not coined, nor flanged, nor had any other value besides its intrinsic worth.

Xenophon mentions felloes as current in Arabia; and Du Cange speaks of others struck and current in England.

Pikerton, in his Essay on Medals, (vol. 1. p. 291.) suggests, that the Hebrew felloe, and also the brass coins, with Samaritan characters, were at most of them later than the Chalifian era, and generally the fabrications of modern Jews. At any rate, the same impression of a spiring on one side, and a safe upon the other, runs through all the coins of that barbarous nation; and the admission of both of them is rightly esteemed to be almost a disgrace to a cabinet.

Shekidej, in Geography, a town of Grand Bu\n
charsa; 60 miles N.W. of Sagadon.

Shekabad, a town of Hindu, in Deob; 60 miles W. of Canoge. N. lat. 27°. E. long. 79°. 2'.

Sheelah, a town of Alcap' Turkey, in Natalia, near the Black sea; 12 miles N. of Ilium.

Sheilan, a town of Persia, in the province of Far\n
sian, near the Perisan gulf; 75 miles S.S.W. of Jaron.

Shelburn, a town of America, in the province of Vermont, and county of Chutebun, on the E. side of Lake Champlain, containing 957 inhabitants.

Shelburn Bay, a bay on the N. coast of New Hol\n
land, between Oxforders and Cape Grosvenor.

Shelburne, sometimes called Port Festav, a sea\n
port town of Nova Scotia, at the head of a bay, in the S.W. part of the province. At the conclusion of the American war, this place was made the seat of royalty, and it was designed to erect many buildings here, and in 1783 it contained above 600 families; but being neglected and unable to defend themselves, many of them afterwards left the town; 90 miles W. of Halifax. N. lat. 43° 50'. W. long. 63° 15'.

Sheffield, a town of Anchor, in the county of Yorks, and county town of the shire of Yorks; 50 miles W. of Buxton. - Also, a town of New Hampshire, in the county of York, seated in 1769, and containing 1700 inhabitants.

Sheidelberg, a name given to several parts of the kingdom for the chancellors.

Sheeldon, Gentleman, in Biography, archbishop of Canterbury, was born 1563, at Tristam, in Suffolk. His father was a natural servant of Gilbert, earl of Shrews\n
bury, though descended from an ancient family in Shrewsbury.

The subject of this article took his name from the earl, who was his god father. Having had the foundation of a good education, he was entered at Trinity college, Oxford, in 1614, and after taking the usual degrees was elected fellow of All Souls' college, in 1622. When he had taken orders he became chaplain to lord keeper Coventry, who made use of his services on various important occasions. As a reward for these services he presented him with a prebend of Glo\n
celler, and recommended him to his majesty, as one extremely well versed in political affairs. When he had taken his doctor's degree, in 1634, he was elected warden of All Souls' college. He was also chaplain in ordinary to the king, and clerk of the college, and was in the road to farther preferment when the civil wars broke out, and checked his career.

He was a zealous adherent to the royal cause, attended the king on various occasions, and rendered himself obnoxious to the parliament: on which account he was ejected from his wardenship, and imprisoned for six months. On his liberation, he retired to his friends in the country, and from his own purse, and the contributions of others, he sent frequent supplies to Charles II. during his exile. On the restoration he received ample rewards for his sufferings and steady loyalty, being restored to his offices, and promotoed to the see of London.

The conference between the episcopal and presbyterian divines in 1661, was held at the Savoy, in bishop Sheldon's lodgings. On this occasion he is accused by the opposite party of want of fairness, and he rejected the proposal of an amicable discussion, and insisted that the Presbyterians should first bring in writing all their objections against the liturgy, and all the additions which they proposed. He did not appear often at the conference, and never entered into disputation, yet he was known to have had the principal share in the determination. To conciliate was not his object; he was resolved to carry his point by power: when it was debated in council in August 1662, whether the act of Uniformity should be punctually executed that month, or be suspended for a time, bishop Sheldon pleaded against the fulfiment, and carried the council with him. "If," says his biographer, "in these and other instances he appears too much the political churchman, in public spirit and munifi\n
\ncence he blushed, after an exemplary manner, the char\n
adeter of a great prelate. He expanded large sums upon the episcopal houses of the see of London, and being in 1665 translated to that of Canterbury, he rebuilt the library at Lambeth, and made many additions to its contents."

On the removal of lord Cheddon from the chancellorship of the university of Oxford, he was chosen to succeed him in December 1667, and he immortalized his name in that university by the erection, at his sole expense, of the celebrated theatre at Oxford. Of this act bishop Lowth says, "Munus dignum factum—quidcum cum utore et circum\n

\ntuque videor inhi in sua Roma, vel in medius Athenis, antiques
tiquis illis, et cum maxime florentibus verlari.” This edifice was opened in July 1679, and almost immediately after the archbishop resigned the chancellorship, and retired from all public business: during the latter part of his life he chiefly resided at Croydon. He died at Lambeth, on the 9th of November, 1677, in the 80th year of his age.

This prelate appears to have been more attached to the duties of morality, than to the profession of any particular doctrines of religion: to young men of rank his advice was always this: “Let it be your principal aim to become honest men, and afterwards be as devout and religious as you will. No piety will be of advantage to yourselves or others, unless you are honest and moral men.” Burnet says that “he seemed not to have a deep desire of religion, if any at all, and spoke of it commonly as an engine of government, and a matter of policy;” but he allows that he was a very generous and charitable man. From his own books it appears, that from the time of his becoming bishop of London till his death, he expended for public and charitable uses 66,000L. He published a sermon at the thanksgiving for the king’s restoration. He was intimate with Chillingworth, and found means to overcome his scruples respecting subscription to the articles of the church of England.

SHELDON, formerly Hungerford, in Geography, a post-town of America, in the state of Vermont, and county of Franklin, containing 883 inhabitants; 14 miles E. of Lake Champlain.

SHELF, a river of England, in the county of Northumberland, which runs into the Tyne, near its head. SHELF, a term used by the miners in many parts of England, to express a diminution of the inner structure of the earth, so little known to philosophers, that they have no word to express it by. These workmen sometimes also express it by the term “fool ground,” or “fool country.” What they mean by this is, that part of the earth, which they find lying even, and in an orderly manner, and evidently having attained its primitive form and situation, unmoved by the waters of the general deluge, while the circumjacent, and upper strata, have plainly been removed, and toss’d about.

It is evident to reason, that there must have been a very violent concussion of the superficial part of the earth, in the time of its being covered by the waters of the deluge; and experience as much evinces this as reason. Before this concussion it appears probable, that the uppermost surface of mineral veins, or loads, did in most places lie even with the then surface of the earth. The remains of this surface, found at different depths in digging, the miners express by the word shelf.

In this concussion of the waters covering the whole earth, its natural surface, together with the uppermost surface of those mineral veins, were then in many places lost, and torn off; and the earth, and with it the mineral nodules, called “fool-flores,” were carried down with the descending waters from hills into the adjacent valleys, and sometimes into the streams of rivers, by which they were washed to yet greater distances from their original place. On this depends the method of training mines. Phil. Trans. No 69. See Training.

SHELFY, or SLaty Soil, in Agriculture, that sort which is chiefly formed of a kind of thin laminated, brittle, flaty material, or which has it much mixed and incorporated with its other earthy parts. It is a prevailing sort of land in some districts; this sort of rotten flaty matter being largely intermixed with the light loamy mould that constitutes the earthy parts of it.

Where the subfoil or substratum is a schistus, or fofl
 SHELLS. 

About Brazil, and in the gulf of Mexico, there are found 
mollusks and shells of extreme beauty, and also a great variety 
of porcelains, purpurz, periwcks, nautili, baccare, or heart-
shells, and elegant limpets. 

The isle of Cayenne affords one of the most beautiful of 
the buccaneer kind, and the Midas car is found principally 
about this place. 

Japan, and the island of Barbadoes, have their shells 
covered with porcelains, chame, and baucis; and at St. 
Domingo there are found almost all the same species of shells 
that we have from the East Indies, though they are less 
beautiful, and the colors more pale and dead. The pearl oyster 
is found also on this coast, but smaller than in the Pernian 
gulf. At Martinico there are found in general the same 
shells as at St. Domingo, but yet less beautiful. 

About Canada are found the violet chame, and the lakes 
of that country abound with muscles of very elegant pale 
blue and pale red colors; some species of these are remark-
ably light and thin; others are very thick and heavy. 

The Great Bank of Newfoundland is very barren in 
shells; the principal kinds found there are muscles of several 
species, some of which are of considerable beauty. 

About Carthage there are many mother-of-pearl shells, 
but they are not of so brilliant colors as those of the Pernian 
gulf. 

The island of Magellan, at the southern point of America, 
contains us with a very remarkable species of muscle, called 
by its name; and several very elegant species of limpets are 
found there, particularly the pyramidal. 

In Africa, on the coast of Guinea, there is a prodigious 
quantity of that small species of porcelains, which is used 
there as money; and there is another species of porcelains 
on the same coast, which is all over white: the women make 
bracelets of these, and the people of the Levant adorn their 
hair with them. 

The coast of Zanguebar is very rich in shells; we find 
there a vast variety of the large porcelains, many of them of 
great beauty; and the nau mari, or sea-nut, is very fre-
quent there. Before these, and many other shells, there are 
found on this coast all the species of nautili, many of which 
are very beautiful. 

The Canary flies are found to abound with a vast variety 
of the nautili, and some other good shells; and we have 
from Madeira great variety of the echini, or sea-eggs, dif-
ferent from those of the European seas. Several species 
of muscles are also common there, and the auris marina is no 
where more abundant. 

The Red sea is beyond all other parts of the world abun-
dant in shells, so that scarcely any kind is wanting there; but 
those we principally have from thence are the purpurz, porce-
lain, and echini marini. 

The Mediterranean and Northern ocean contain a great 
variety of shells, and many of very remarkable elegance and 
beauty: they are upon the whole, however, greatly inferior 
to those of the East Indies. The Mediterranean abounds 
much more in shells than the ocean. 

The gulf of Tarentum affords great variety of purpurz, 
porcelains, nautili, and elegant oysters; the coasts of 
Naples and Sardina afford also the same, and with them is 
a vast number of the folens of all the known species. 

The island of Sicily is famous for a very elegant kind of 
oyster, which is white all over; pinnz marina and porce-
lain are also found in great plenty there, with tellez and 
chame of many species, and a great variety of other beauti-
tiful shells. 

Corfica is famous beyond all other places for vast quan-

ties of the pinnz marina, and many other very beautiful 
shells are found there. 

About Syracuse are found the gondola shell, the arum 
mures, and a great variety of elegant shells, with those of 
the delia and nautili. 

The Adriatic sea, or gulf of Venice, is less favored 
than almost any of the seas throughout. Muscles 
and oysters of several species are, however, found there, 
and some of the cordiformes or heart-shells; there are also 
the tellins. About Ancona there are found vast numbers 
of the phalades buried in stone, and the aure marina are 

The ports of Marseilles, Toulon, and Antibes, are full 
of pinnz marina, muscles, tellins, and chame. The coasts 
of Bretagne afford great numbers of the conch arietifere 
and poulpeids; they are found on old rotten boards, on 
tiles, shingles, and upon cluters of pignons. The other 
ports of France, as Rochelle, Dunkirk, Brit, St. Malo, 
and others, furnish oysters, excellent for the table, but of 
the common kind, and of no beauty in their shells; great 
numbers of muscles are also found there; and the common 
tellin, the mussel, the oyster, the folens, and conch ari-
etifere, are also frequent there. At Granville, in Lower 
Normandy, there are found very beautiful pectens, and some 
of the cordiformes, or heart-shells. Our own English coasts 
are not the least fruitful in shells; though they do not pro-
duce such elegantly painted ones as the Indies. 

About Plymouth are found oysters, muscles, and folens, 
in great abundance; and there, and on coast of our other 
shores, the aeres marina and dentalia, with pectens, which 
are very excellent food; and many elegant species of the chame tellin, are fish up in the sea about 
Scarborough, and other places. 

Ireland affords us great numbers of muscles, and some very 
elegant scallop shells in great abundance, and the phalades 
are frequent on coast of our shores. We have also great 
variety of the buccina and cochleze, some volutes; and on the 
Guernsey coast a peculiarly beautiful fair, called the 
Guernsey fair. 

The coasts of Spain and Portugal afford much the same 
variety of shells with the East Indies, but they are of much 
fainter colors, and greatly inferior in beauty. Hitt. Nat. 
Eclairc. p. 171. 

There are, according to Tavennier and others, some rivers 
in Bavaria, in which there are found pearls of a fine water. 
About Cadiz there are found very large pinnez marina, and 
some fine buccins. The isles of Majorca and Minorca afford 
a great variety of extremely elegant shells. The pinnz marina 
are also very numerous there, and their shell is 
wrought into gloves, stockings, and other things. The 
Baltic affords a great many beautiful species, but parti-
cularly an orange-coloured pecten, or scallop shell, which 
is not known in any other part of the world. 

The fresh-water shells are found much more frequently, 
and in much greater plenty, than the sea kinds; there is 
scarcely a pond, a ditch, or a river of fresh water, in any part 
of the world, in which there are not found vast numbers 
of these shells with the fish living in them. All these shells 
are small, and they are of very little beauty, being usu-
ally of a plain greyish or brownish color. Our ditches afford 
us chame, buccins, tellins, and some patellae; but the Nile, 
and some other rivers, furnished the ancients with a species 
of tellins, which was large and estable, and so much superior 
to the common sea tellins in flavor, that it is commonly 
known by the name of tellins regia, the royal tellins. 

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SHELLS.

We have a small species of buccinum common in our fresh waters, which is very elegant, and always has its operculum in the manner of the larger buccin; a small kind of mufcle is also very common, which is so extremely thin and tender, that it can hardly be handled without breaking to pieces.

The large fresh-water mufcle, commonly called in England the horfe mufcle, is too well known to need a description, and the size of this gives it a difference from all other fresh-water shells.

**SHELLS, Polishing of.** (See Conchology.) This is an art of no long standing in the world, in its present perfection; and as the love of sea-shells is become so common among us, it may not be disagreeable to the reader to find some instructions in executing so pleasing a method of adding to their natural beauty, the rules for which are at present so little known, though the effect of them be so much esteemed.

Among the immense variety of shells which we are acquainted with, some are taken out of the sea, or found on its shores in all their perfection and beauty; their colours being all spread by nature upon the surface, and their natural polish superior to any thing that art could give. Where nature is in herself thus perfect, it were madness to attempt to add any thing to her charms; but in others, where the beauties are latent and covered with a coarser outer skin, it is to be called in, and the outer veil being taken off, all the internal beauties appear.

Among the shells which are found naturally polished are the porcelains, or cowries, the casclanders, the dolia, or conchæ globofas; some baccina, the volutes, and the cylinders, or olives, or, as they are generally though improperly called, the rhombi; excepting only two or three, as the tiara, the plume, and the butter-tub rhombus; where there is an unpromising film on the surface, hiding a very great glare of beauty within. Though the generality of the shells of these genera are taken out of the sea in all their beauty, and in their utmost natural polish, there are several other genera, in which all, or most of the species, are taken up naturally rough and foul, and covered with an epidermis, or coarse outer skin, which is in many rough and downy, or hairy. The tellins, the mufcles, the cochleas, and many others, are of this kind. The more nice collectors, as naturalists, infilt upon having all their shells in their native and genuine appearance, as they are found when living at sea; but the ladies who make collections hate the disagreeable outsidies, and will have all such polished. It would be very advisable, however, for both kinds of collectors to have the same shells in different specimens, both rough and polished; the naturalist would, by this means, besides knowing the outside of the shell, be better acquainted with its internal characters than he otherwise could be, and the lady would have a pleasure in comparing the beauties of the shell, in its wrought state, to its coarse appearance as nature gives it.

How many elegancies in this part of the creation must be wholly lost to us, if it were not for the assistance of an art of this kind! Many shells in their native state are like rough diamonds, and we can form no just idea of their beauties till they have been polished and wrought into form.

Though the art of polishing shells is a very valuable one, yet it is very dangerous to the shells; for without the utmost care, the means used to polish and beautify a shell often wholly destroy it. When a shell is to be polished, the first thing to be examined is whether it have naturally a smooth surface, or be covered with tubercles or prominences.

A shell which has a smooth surface, and a natural dull polish, need only be rubbed with the hand, or with a piece of chamois leather, with some tripoli, or fine rotten stone, and will become of a perfectly bright and fine polish. Emery is not to be used on this occasion, because it wears away too much of the shell. This operation requires the hands of an experienced person, that knows how superficial the work must be, and where he is to stop; for in many of these shells the lines are only on the surface, and the wearing away ever so little of the shell defaces them. A shell that is rough, foul, and crufdy, or covered with a tartareous coat, must be left a whole day steeping in hot water; when it has imbibed a large quantity of this, it is to be rubbed with rough emery on a stick, or with the blade of a knife, in order to get off the coat. After this it may be dipped in diluted aqua fortis, spirit of salt, or any other acid; and after remaining a few moments in it, be again plunged into common water. This will greatly add to the speed of the work. After this it is to be well rubbed with linen cloths impregnated with common soap; and when by these several means it is made perfectly clean, the polishing is to be finished with fine emery and a hair-brush. If after this the shell when dry appears not to have so good a polish as was desired, it must be rubbed over with a solution of gum arabic; and this will add greatly to its gloss, without doing it any fort of injury. The gun water must not be too thick, and then it gives no sensible coat, only heightening the colours. The white of an egg answers this purpose alo very well; but it is subject to turn yellow. If the shell has an epidermis, which will by no means admit the polishing of it, it is to be dipped several times in diluted aqua fortis, that this may be eaten off; and then the shell is to be polished in the usual way with putty, fine emery, or tripoli, on the hair of a fine brush. When it is only a pellicle that hides the colours, the shells must be steeped in hot water, and after that the skin worked off by degrees with an old file. This is the cafe with several of the cylinders, which have not the natural polish of the reif.

When a shell is covered with a thick and fatty epidermis, as is the case with several of the mufcles and tellins; in this case aqua fortis will do no service, as it will not touch the skin; then a rough bruffh and coarse emery are to be used; and if this does not succeed, feal-kin, or, as the workmen call it, fibb-kin and prominate-lones, are to be employed.

When a shell has a thick crust, which will not give way to any of these means, the only way left is to plunge it several times into sirong aqua fortis, till the stubborn crust is wholly eroded. The limpets, auris marina, the helmet-shells, and several other species of this kind, must have this fort of management; but as the design is to dwell the hidden beauties under the crust, and not to destroy the natural beauty and polish of the inside of the shell, the method of using the aqua fortis must be this; a long piece of wax must be provided, and one end of it made perfectly to cover the whole mouth of the shell; the other end will then serve as a handle, and the mouth being floated by the wax, the liquor cannot get in to the inside to spoil it; then there must be placed on a table a vesel full of aqua fortis, and another full of common water.

The shell is to be plunged into the aqua fortis; and after remaining a few minutes in it, is to be taken out, and plunged into the common water. The progress the aqua fortis makes in eroding the surface is thus to be carefully observed ever time it is taken out; the point of the shell, and any other tender parts, are to be covered with wax, to prevent the aqua fortis from eating them away; and if there be any worm-holes, they also must be floated up with wax, other-
The shells, when polished, appear all over of a fine pearly colour; but when it is polished away to a small depth, it appears of a fine yellowish colour, with dully hairs. The burrows, when entirely cleared of its coat, is of the most beautiful pearl colour; but when only slightly eroded, it appears of a variegated mixture of green and red; whence it has been called the parrot-mouth. The common helmet-shell, when wrought, is of the colour of the finest agate; and the mussels, in general, though very plain shells, in their common appearance, become very beautiful when polished, and shew large veins of the most elegant colours. The Persian shell, in its natural state, is all over white, and covered with tubercles; but when it has been ground down on a wheel, and polished, it appears of a bright yellow, covered with spots and veins of a very bright and highly polished white. The limpets, in general, become very different when polished, most of them shewing very elegant colours; amongst them the tortoise-shell limpet is the principal; it does not appear at all of that colour or transparence, till it has been wrought.

That elegant species of shell called the junqui-chama, which has deceived so many judges of these things into an opinion of its being a new species, is only a white chama, with a reticulated surface; but when this is polished, it looses at once its reticular work and its colour, and becomes perfectly smooth, and of a fine bright yellow, and the violet-coloured chama of New England, when worked down and polished, is of a fine milk-white, with a great number of blue veins, disposed like the variegations in agate.

The alys ear-shell, when polished, after working it down with the file, becomes extremely glossy, and obtains a fine-rose-colour all about the mouth. These are some of the most frequent among an endless variety of changes wrought on shells by polishing; and we find there are many of the very greatest beauties of this part of the creation which must have been lost, but for this method of searching deep in the substance of the shell for them.

The Dutch are very fond of shells, and are very nice in their manner of working them; they are under no restraint, however, in their works, but use the most violent methods, so as often to destroy all the beauty of the shell. They file them down on all sides, and often take them to the wheel, when it must destroy all the variegated colour of the species. Nor do they stop at this, but determined to have beauty at any rate, they are for improving upon nature, and frequently add some lines and colours with a pencil, afterwards covering them with a fine coat of varnish; so that they seem the natural lines that of the shell. The Dutch cabinets are by
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this means made very beautiful, but they are by no means to be regarded as instruc- tors in natural history. There are some artificers of this nation who have a way of covering shells all over with a different tinge from that which nature gives them; and the curious are often deceived by these tricks into the purchasing of them as new species.

There is another kind of work belted on certain species of shells, particularly the nautilus; this is the engraving on it lines and circles, and figures of stars, and other things: this is too obvious a work of art to suffer any one to suppose it natural. Bonani has figured several of these wrought shells at the end of his work; but it is miserably throwing away labour to do them: the shells are spoiled as objects of natural history by it, and the engraving is seldom worth any thing. They are principally done in the East Indies.

Shells are subject to several imperfections: some of these are natural, and others accidental: the natural ones are the effect of age, or sicknees in the fish. The greatest mischief happens to shells by the fish dying in them. The curious in these things pretend to be always able to distinguish a shell taken up with the fish alive, from one found on the shores: they call the first a living, the second a dead shell, and say that the colours are always much the faintest in the dead shells. When the shells have lain long dead on the shores, they are subject to many injuries, of which the being eaten by sea-worms is not the least: age renders the finest shells livid or dead in their colours.

The finest shells are those which are filled up at sea, not found on the shores. The other natural defects of shells are their having morbid cavities, or protruberances, in parts where there should be none. When the shell is valuable, these faults may be hid, and much added to the beauty of the specimen, without at all injuring it as an object of natural history, which should always be the great end of collecting these things. The cavities may be filled up with matter, dissolved in spirit of wine, or with infusions: these substances must be either coloured to the tinge of the shell, or else a pencil dipped in water-colours must finish them up to the resemblance of the real, and then the whole shell being rubbed over with gum-water, or with the white of an egg, fear ay any eye can perceive the artifice: the fame substances may also be used to repair the battered edge of a shell, provided the pieces chipped off be not too large. And when the excrections of a shell are faulty, they are to be taken down with a fine file. If the lip of a shell be so battered, that it will not admit of repairing by any cement, the whole must be filed down to an evenness, or ground on the wheel.

SHELLS, Fossil. See CONCHOLOGY and PETRIFICATIONS.

Shells are frequently found under ground, in places far remote from the sea, in mines, and even on the tops of mountains; but how they should come thither is a thing that naturalists are greatly divided about. The most usual and cary opinion is, that those parts have been formerly sea, or, at least, have been overflows therein; and many even go back as far as the grand deluge for this. Others take thefe to be the natural places of their birth or formation, some of them being found little other than crude clay, others of the fame texture with the rock to which they grow, though others feem of as absolute a fehly substance as any in the fea. In effect, they say, there may be only so many different gradations of nature, which can as well produce shells in mines as in the sea, there being no want of false or earthy particles for the purpose; nor is there any great difference between some sorts of spars and sea-shells.

Dr. Lister judges, that the shells found in stone quarries were never any part of an animal, and gives this reafon for it, that quarries of different stone yield quite different species of shells; different not only from one another, but from any thing in nature besides, which either sea or land does yield. This opinion has been since proved erroneous, and all these bodies to have been really once parts of living animals. See FOSSILS, ADVENTITIOUS, MARINE REMAINS, and FORMED STONES.

Of these shells, some are found remaining almost entirely in their native flate, but others are variously altered, by being impregnated with particles of stone, and of other fossils; in the place of others there is found mere stone or spar, or other native mineral body, expressing all their lineaments in the greatest nicety, as having been formed wholly from them, the shell having been first deposited in some solid matrix, and thence dissolved by very slow degrees, and this matter left in its place, on the cavities of stone and other solid substanfes, out of which shells had been dissolved and washed away, being afterwards filled up with slowy with these different substances, whether spar or whatever else: these substances, so filling the cavities, can necessarily be of no other form than that of the shell, to the absence of which the cavity was owing, though all the nicer lineaments may not be so exactly expressed. Before these, we have also in many places maifles of stone formed within various shells; and these having been received into the cavities of the shells, while they were perfectly fluid, and having therefore nicely filled all their cavities, must retain the perfect figures of the internal part of the shell, when the shell itself should be worn away, or perished from their outside. The various species we find of these are in many genera as numerous as the known recent ones; and as we have in our own island not only the shells of our own shores, but those of many other very distant ones, so we have also many species, and those in great numbers, which are in their recent flate, the inhabitants of other yet unknown or unpeared seas and shores.

The cockles, musicles, oysters, and the other common bivalves of our own seas, are very abundant; but we have also an amazing number of the nautilus kind, particularly the nautilus grucorium, which though a shell not found living in our own, or any neighbouring seas, yet it is found buried in all our clay-pits about London and elsewhere; and the most frequent of all foifile shells in some of our counties, are the conica anomia, which yet we know not of in any part of the world in their recent flate. Of this fort also are the cornua ammonis and the gryphities, with several of the echitinae and others.

The exact similitude of the known shells, recent and fossil, in their several kinds, will by no means sufer us to believe, that these, though not yet known to us in their living state, are, as some have idly thought, a sort of fufs nature.

It is certain, that of the many known shores, very few, not even those of our own island, have been yet carefully searched for the shell-fish that inhabit them; and as we see in the nautilus grucorium an imitation of shells being brought from very distant parts of the world to be buried there, we cannot wonder, that yet unknown shores, or the unknown bottoms of deep seas, should have furnished us with many unknown shell-fishes, which may have been brought with the reef; whether that were at the time of the general deluge, or the effect of any other catastrophe of a like kind, or by whatever other means to be left in the yet unhardened mass of our stone and clayey strata. Hill's Hist. of Foss. p. 616.

Fossil shells are found to be of great use in manuring land. See MANURING.
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They are much used in France for this purpose; and Mr. Reaumur treats of their effects in fertilizing the earth very fully, concluding his official account of these substances by observing, that it is much more easy to account for the manner of their acting upon land, than for the manner of their coming where they are found. It has been the favourite system of Dr. Woodward, that all these shells were the remains of the universal deluge, which having overflowed the whole earth, might easily leave them in all places; but Mr. Reaumur has much more rationally accounted for their coming to those parts of France, where they are found at this time in such vast abundance, by carefully tracing the course of the beds of them, so far as known there, and easily proving that all that extent of country, under which they are found, may have been once overflowed by the sea without a deluge; it being the very track that a large body of waters, let in at one part of the kingdom, must have taken, in order to get out at another. Mem. de l’Acad. Par. 1729.

Shell, Ariston, a name given by some to a species of porcelain-shell, not because it is found on the coast of Arabia, but because its lines and variegations are supposed to represent the figures of Arabian characters.

Shell, Arion, a very remarkable species of shell-fish, found in cabinets of the curiosity. It is of the figure of a bird, having a head, wings, and tail, and is of a flame-colour; it owes much of its beauty, however, to art and accident; the shell is an oyster of a peculiar variation of figure from the common one; the head of the bird is the carmo or hinge; the wings are the body of the shells; and the tail is a peculiar procefs, like that of the martante, only fingle.

It is naturally of a dusky brown on the outside, and pearly within, but when its rough coat is taken off, it appears of this beautiful flame-colour.

Shell, Caterpillar. See Turbo.

Shell, Cenere, a name given to the balanus marinus, a kind of sea-shell of the multivalve kind, with an open mouth, frequently found fixed to the bottoms of ships, and other things covered with sea-water. See Balanus and Conchology.

Shell, Chaldee, or Cup-fish, a species of the balanus. See Balanus.

Shell, China-letter, a name given by many to that species of chama, usually called by authors the chama Arabica. It is of a pale brownish ground, and is variegated with a great number of black lines, which are so slender as the strokes of a pen, and are of such odd figures, that they represent some of the Arabic, or, as others fancy, Chinese characters. See Chama.

Shell, Crown Imperial, a species of the voluta. See Conchology.

Shell, Dog-tooth, a species of dentalis. See Conchology.

Shell, Euir, See Auris.

Shell, Guinea, the English name for a very beautiful variegated species of voluta, called by the French la fleculation.

Shell, Heart. See Cardium, under Conchology.

Shell, Helmet, the name of a kind of murex, of which there are several species. They all approach somewhat towards a triangular figure, and are free from any long spines.

Shell, Leopard, the English name of the pardus, a kind of voluta, so called from its spots resembling those of a leopard. There are three kinds of this, one spotted with black, another with yellow, and another with red.

Shell, Leopard, a name given by many to a species of porcelain-shell, resembling a young hare in colour.

Shell, Lightning, a name given by some authors to a species of murex, with variegations on its body, resembling the pictures we commonly see of flakes of lightning.

Shell, Map, the name given by some to a peculiar species of porcelain-shell, the figures on which represent the lines on a map.

Shell, Needle. See Centonia and Needle.

Shell, Nervi; Ark. See Noah.

Shell, Oyster. See Oyster.

Shell, Old Wife, the name given by some to that species of chama, which the French also have called ovaux ridis.

Shell, Onion, a species of oyster.

Shell, Pipe. See Entaliun.

Shell, Saddle, the name of a species of oyster, which in some degree represents a saddle in its shape.

Shell, St. James’s, a name given by writers on shells to a very beautiful species of variegated pechen.

Shell, St. Michael’s, a name given by authors to a species of pechen, or scallop-shell. It is of a bright yellow colour.

Shell, Scorpion, the name of a species of murex, very much approaching to the nature of the spider-shell. This is a common shell in cabinets; it is of a yellow colour, and very deeply ridged, and full of tubercles; there arise from the lip of the shell five large spines, or, as they are usually called, fingers, and two others, which are very much bent, the one from the head, the other from the tail; these are very elegantly radiated with white, and a fine violet colour on the lips.

Shell, Screw. See Turbo.

Shell, Small-pox, a name given to a remarkable kind of concha veneera, or porcelain-shell, the protuberances on the surface of which are supposed to represent the pustules of the small-pox. There are two species of this shell, the one white, with flatish protuberances, the other greenish, with more elevated ones.

Shell, Snake, the name given by many to that beautiful species of porcelain-shell, the spots of which represent those of a snake’s skin.

Shell, Spider. See Aranea.

Shell, Strawberry, a name given by collectors of shells to a very beautiful species of cordiforms, spotted with small round red spots.

Shell, Swallow, a name given by authors to a species of oyster, which in some degree represents the figure of a small bird flying.

Shell, Tiger, the name of a species of porcelin, or concha veneera, supposed to represent the spots on a tiger’s skin.

Shell, Tor. See Pollicipes.

Shell, Tortoise. See Tortoise.

Shell, Trumpet. See Trumpet.

Shell, Turbo. See Turban.

Shell, Turnip. This is a species of sea-shell, by others called the radish shell; it is exactly of the shape of a turnip, and is of the dolium, or concha globosa kind. Those who have called it the radish shell, allude to the great black round-rooted radish, not to our common radish.

Shell, Turtle, the name of two species of shells. See Murex and Voluta.

Shell, in Agriculture, a term applied to a hard, and as it were floury covering, with which certain sublunatics and animals are defended, and thence in the latter case called shell-fish. It is observed that the vail beds of fossil shells found at great depth in the earth, as well as those found lying
lying on the sea-shore, make an excellent manure for cold clayey lands. See Sand and Clay.

It is likewise a term applied to the light calcined pieces of calcareous flint, which have been converted into lime; and also to the rim of turnips scooped by sheep, which are mostly applied to the purpose of feeding the fowlsheep. See Lime and Turnips.

**Shell-Apple.** In Ornithology, an English name for the loxia or crolforn, given from his manner of splitting an apple, and feeding on the kernels, leaving the shell of the pulp untouched.

**Shell-Drake.** A common English name for the tadorna.

**Shell-Fish.** A collective name for fishes naturally included in shells. These animals are in general oviparous, very few instances having been found of such as are viviparous.

Among the oviparous kinds, aniphiptera have found that some species are of different sexes in the different individuals of the same species; but others are hermaphrodites, every one being in itself both male and female; in both males their incecal is very numerous, and scarcely inferior to that of plants, or of the most fruitful of the infect clafs. The eggs are very small, and are hung together in a fort of clusters by means of a glutinous humour, which is always placed about them, and is of the nature of the jelly of frogs' spawn; by means of this they are not only kept together in the parcel, but the whole cluster is fastened to the rocks, shells, or other solid subjacent bodies, and thus they are preserved from being driven on shore by the waves, and left where they cannot succeed.

**Shell-Gall-Infect.** An infect of the gall-infect clafs, some what resembling those which are called the boat-fashioned ones, but differing in this, that as the two ends of that species are not very different in form, in this kind one of the ends is sharp and pointed in comparison with the other.

It has its name of shell-infect from the resemblance it bears to a mufcle-shell; as it is, in its whole form, not unlike one of the two shells in which the common mufcle is included, but the pointed end of this infect is much more ex tended in length than the smaller end of this shell.

This species is extremely small, and may be easily mistaken for the minute cafe out of which some small infect has escaped; or in another case, for the shell in which some small infect had deposited its eggs; but if the affilance of the microscope be called in, they will easily be discovered to be true gall-insects, even as soon as they are hatched from the eggs. This species, at its full growth, is so small, that it requires good eyes to discover it: it is brown, very smooth, and polished on the surface, and much of the colour of the bark of some trees; it has usually an edge of a cottony matter, visible where its fides touch the tree, and its eggs are always deposited on a fine cottony bed; the young ones are white, flat, and have two small horns, and six legs; in this state they are known to be of the gall-infect class, not by their likenesses to their parent, but to the young gall-infects of other species. They march about very briskly for some time after they are hatched, and after that fix themselves, and then begin to grow, and by degrees alter their form, till they at length are of the same general shape with their parent. Reamur, Hist. Inf. tom. iv. p. 69, 70.

**Shell-Marl.** In Agriculture, a subfubance of the marly kind, which is of a flaky or shellly nature. Though Mr. Marshall has not seen this material made use of in any of the southern parts of this country, he supposes it highly probable, that in the more northern counties it may be found in considerable quantity; and that in different parts of Scotland, it is in common use as a manure. And he considers it as usually found in low moist situations, under what is termed bog-meadow, a fort of half-reclaimed marshes; namely, tough, coarse, sword, formed upon a depth of black moory earth, which reeks on the marl; this being, in some instances, several feet in depth. In respect to appearance, the colour is nearly white. Its confluence, in the pit, is of a soft curd, roughly broken; with the perceptible remains of small shells interpersed among it; and generally with some portion of earthy particles. It was found by analysis, that one hundred grains of a specimen taken in 1793, from the extraordinary pits on the estate of Aucherterye, belonging to the late fir William Murray, on the southern skirts of the highlands of Perthshire, yielded eighty-two grains of calcareous earth: the residue being brown earthy matter, mostly, it is probable, animal mould, with a slight intermixture of vegetable fibres. One hundred grains, taken from a pit in Strath Tay, within the central highlands, yielded seventy-four grains of chalk; the residue being similar to the above. The search for this species of marl is so obvious and easy, that nothing but undiscernable neglect can suffer a quantity of it to remain within an estate (situated in a country where it is known to abound) unknown to its manager. Wherever, in valleys and dries of surface, level water-formed lands (whether they are already rewarded over, or yet remain in a state of moras) are found, there infert the borers; may in one place only, but in various parts of it; that no hollow receptacle of marl may be filled by the farmer.

And with marls of the foifile kinds it is remarked, that where, by analysis, the proportion of chalk is found to be small, as not more than one-third of the whole; if the earthy matter with which it is combined appears to be of a rich fertilizing nature, such marle becomes, he thinks, a proper subject of trial in the field. And a good method for making this fort of trial, is to spread the marle, at a leisure time, as in winter, or the early part of summer, upon graves-land; and catching a favourable opportunity, when the foil is in a mellow friable state, between wet and dry, to break down and spread the lumps, with the roller and harrow, to give freedom to the grass, and an opportunity of gathering off the flones and rubbish, which may have been carried on with the marle; and in order that summer showers may wash the finer parts of it down into the soil, while it is open to receive them; repeating the operation as often as it may be required. And he knows no better method than this, by which to apply marles, on a large scale, in practice.

**Shell-Sand.** A name given by the farmers, in some parts of England, to the fragments of shells found on the shores, and ground to a fort of powder, so that they resemble sand. See Manuring.

There is also another kind, used as this is, in some parts of Cornwall, and composed of fragments of a fort of tender white coral. This is found principally about Falmouth, and is called by the same name of shell-fand, though very improperly. All the kinds are of great use in agriculture, but they are differently esteemed by the farmers, as they are more or less rich, which they know by their colours: the reddish kind is esteemed more of all; next to this the blue is judged the best, and after this the white. Such as is dredged up from under the water, is always found better than such as is found dry on the shores; and such as is entirely composed of shells is to be chosen, rather than such as has fragments of flone among it, which is a very common cafe. See Sand, and Shelly Sand.

**Shell-Toothed.** In the Mangee, an appellation given to a horse that from four years old to old age, naturally, and without
without any artifice, bears mark in all his fore-teeth; and there still keeps that hollow place with the black mark, which is called in French genre de fesse, i.e., the sign of a beam, innumerable, that at all times in the apes with the mark of a life that is not yet past; for in the support of other bones, the hollow place is filled, and the mark disappears towards the sixteenth, by reason of the wearing of the teeth. Among the English it is not worth note in the minding teeth, and towards the sixteenth year it disappears in the other teeth; but after a hundred staves holes is marked, he marks itself usually in theWISE, the minding, and the corner teeth, which proceeds from this, that having harder teeth than other horses, its teeth do not wear, and for he does not wear black foot.

Among the Polish, Hungarian, and Croatian horses, we find a great many of them hollow-mouthed, and generally the marks are more apt to be so than the horses.

Shell, in Artillery. See Bomb and Mortar.

Shells, M. A. jays, are hollow shells, within which are included a letter, or other papers; the fuse-hole is filled up with wood or cork, and the shells are fired into a garrison or camp.

Shell of a Block, in Mechanics, is the outer frame or cafe, in which the sheave or wheel is contained, and travels about its axis.

Shell-Room, in Ship-Building, a compartment in a bomb-vessel, fitted up with strong shelves, excased fo as to receive the bomb-shells when charged; it is therefore built as secure as possible, to prevent accident from fire.

Shells, Littoral. See Littoral.

Shell-Gold. See Gold.

Shell-Silver. See Silver.

Shell Island, in Geography, a small island near the coast of Carolina, in Pamlico Sound. N. lat. 34° 50'. W. long. 76° 30'.

Shell Key, a small island, or rather rock, in the gulf of Mexico. N. lat. 29° 48'. W. long. 89° 15'.

HELLA, a walled town of Morocco, on the eastern side of Rabat, in N. lat. 34° 31'. This is a bad ground, and contains many Moorish tombs, that are held in great veneration; and the town is a faced citadel, only entered by Mahometans. Sheela was probably the Carthaginian metropolis on the coast of the ocean. Various Roman and ancient African coins were frequently dug up here, but their high price induced the Jews to imitate them, and thus to deceive amateurs, and hence has arisen a suspicion even of the antiquities themselves. The place is now in a state of decay: 4 miles E. of Salem.

SHELLACK POINT, a cape of the island of Man, forming the N. part of Ramfay bay.

SHELLBRAKE River, a river of Canada, which runs into the river St. Lawrence, N. lat. 50° 20'. W. long. 64° 50'.

SHELLENBERG, a mountain of Bavaria, occupied by the Swedes, and strongly fortified in the 30 years' war; 3 miles N.E. of Donauwet.

SHELLIF, the Chimala of antiquity, a river of Africa, and the most considerable in the kingdom of Acrees, which rises in the northern side of the Atlas, and runs into the Mediterranean N. lat. 36° 10'. E. long. 0° 24'.

SHELLNESS, a cape at the E. end of the island of Shepey. N. lat. 51° 22'. E. long. 0° 50'.

SHELLHUIS, a chief of the inhabitants in the dominions of the emperor of Morocco, who occupy the Atlas mountains, and the various borders of them S. of Morocco; living generally in towns, and, for the most part, occupied in husbandry like the Beraberes, though differing from them in their language, dress, and manners. They live almost wholly on Alkaius (barley meal mixed with water), but are not satisfied, and they call it "Zitfut." They naturally solve the use of "Cinfusio," or nutritive farce, and make of granulated flour, and afterwards boiled in them, and mixed with butter, mutton, fowl, and vegetables. Many families among them are tiled to be descended from the Portuguese, who formerly conducted all the parts of the coast, but those, after the discovery of America, gradually withdrew thinner. East of Morocco, near the sea, on the Atlas mountains, there is still remaining a church, having inscriptions in Latin over the entrance, supposed to have been built by them, which, being superstitiously reported to be haunted, has escaped destruction. Their language is called Amazirik.

SHELPGUR, a town of Hindoostan, in the Carnatic; 18 miles N.W. of Trichon.

SHELTER, in Agriculture, a term applied to the means of affording warmth, and procuring protection for lands and live-stock in situations which are too much exposed to storms and inclement seasons. This is mostly accomplished by the use of trees, which should be chosen of the most proper kinds and kinds for effecting the purpose, as those which are the most branchy from the ground, and the most permanent and close in their foliage. The fir tribe, the holly, and the beech, are probably the most suited to this intention, though there are great numbers that may be made use of in this way.

Proper shelter has the effect of producing much improvement in land, trees, plants, and live-stock. See Sheltering Plantations.

SHELTER ISLAND, in Geography, a small island at the E. end of Long island, in Suffolk county, New York, about five miles from E. to W., and from E. to S. It is fertile, and contains about 800 acres; it was incorporated in 1798, and is said to contain 401 inhabitants. It furnishes cattle, sheep, and poultry.

SHELTERING PLANTATIONS, in Agriculture, the means of guarding and protecting them, so as to promote the growth and advancement of the young trees. This is frequently necessary, and of very great utility. In some very exposed situations, trees cannot indeed be raised to any advantage without it. The business is performed in different manners, according to their nature and circumstances. See Plantation.

SHELTERS, Horizontal. See Horizontal.

SHELIE, the name of a small, but strong kind of horse, found in the island of Zetland, commonly called Skel-ldand. In the country, the price of one of these horses was formerly about a guinea.

SHELVES, in Sea Language, a general name given to any dangerous shallows, sand banks, or rocks; lying immediately under the surface of the water, so as to intercept any ship in her passage, and endanger her destruction.

SHELVING-ROADS, in Rural Economy, are such as are formed in a somewhat shelving manner, either on both sides from the middle part, or in the whole front side to side. It is a mode that forms a great improvement in making roads in different situations; as a greater travelable breadth is gained without ruin being formed. And it is particularly applicable in making the side roads on the declivities of hills.

SHELVINGS, in Agriculture, a name applied to the moveable side rails of a waggon or cart, which are occasionally put on for top loads.

SHEMEN,
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SHEMEN, in Geography, a town of Curdiátan; 44 miles N.W. of Kerkuk.

SHEMIUM, a town of Periá, in the province of Khosrafit; 10 miles N.W. of Herat.

SHEANDOAH, a county of Virginia, bounded N. by Frederick, and S. by Rockingham. It contains 13,640 inhabitants, of whom 1038 are slaves. Its chief town is Woodstock.

SHEANDOAH, or Shenandoah, a river of Virginia, which rises in Augulda county, and after running a N.E. course of about 200 miles, joins the Patowmack in about N. lat. 39° 41', just before the latter bursts through Blue Ridge. This river is composed of four branches, S. river, Middle river, N. river, and Shenandoah, which, though the smallest branch, gives name to the united streams. It is navigable about 100 miles, and might be rendered so through its whole course, at a small expense. When this is done, it will convey the produce of the richest part of the state to Washington.

SHEANDOAH Valley, a valley which extends from Winchester in Virginia, to Carlisle and the Susquehannah in Pennsylvania, chiefly inhabited by Germans and Dutch.

SHEANGO, a town of Pennsylvania, in Crawford county, containing 727 inhabitants.

SHEAW, a town of Austria; 4 miles S. of Kirch Schlag.

SHECCOTTY, a town of Hindoottan; 45 miles N.E. of Travancore.

SHENECTADY. See Schenectady.

SHEANGA, a town of Hindooftan, in the Carnatic; 25 miles S.S.W. of Madura.

SHEKNAFELD, a town of Austria; 5 miles W. of Freyltadt.

SHEE-SEE. See Cheeni.

SHEENSEN, in Rural Economy, a term applied, in some districts, as Devonshire, to dried cow and horse-dung, which is laid out and used as fuel for the winter leafoon.

SHEENSHL, in Geography, a town of Egypt, on the right bank of the Nile; 2 miles N. of Achmin.

SHESTONE, William, in Biography, a poet of celebrity, was born at Hales Owen, in Shropshire, in the year 1714. His father was an uneducated gentleman farmer, who cultivated an estate of his own called the Leafowes, which the son afterwards rendered celebrated. William received the elements of instruction from a village dame, whom he has finely described in one of his poems. After this he was sent to the grammar-school at Hales Owen, whence he was removed to that of a clergyman at Solihull, from whom he not only acquired solid learning in classical knowledge, but a cultivated taste. In 1732 he was entered of Pembroke college, Oxford, where he did not make a large acquaintance, but he was one of a few who met at each other's rooms to read and examine the best works in English literature. Here it was he discovered his poetical genius, and produced some compositions of considerable merit, and he had thoughts of taking his degrees, and proceeding to study for a profession, but coming, by the death of his father, into the full possession of his paternal property, he gave himself up to literary ease, and rural retirement, abandoning at once all intentions of active pursuits; hence his biographer justly remarks, "that nothing is more unfavourable to the exertion of those energies which lead to a useful and honourable application in society, than the early possession of a fortune just sufficient to gratify present wishes, and preclude the necessity of immediate entrance into any vigorous course of action." An acquaintance which Shenfstone formed with Mr. Graves of Mickleton, in Gloucestershire, inspired him with an affection for that gentleman's sifter; but the passion of love, which, in some minds, operates as a stimulus to enterprise, seems to him to have waffed its force on plaintive elegies, and other effusions of sentimental poetry. To one species of employment, indeed, he was probably animated by his visit to Mr. Graves,—that of rural embellishment,—which he afterwards bestowed on his favourite place of the Leafowes, with a taste that conduced more to his celebrity than his comfort.

In 1737 he printed, but without his name, a small volume of juvenile poems, which obtained fearcely any notice. In 1740 he came to London, and was introduced to Doddley, who printed his poem of "The Judgment of Hercules," dedicated to Lord Littleton. This was followed by "The School-mistres," of which the heroine was the village dame already referred to. This is thought, by some very respectable critics, to stand at the head of Shenstone's compositions.

Shenstone, from this time, devoted himself to improving the picturesque beauties of the Leafowes, and sometimes excelling his pen in effusions of verfe and prose. The celebrity of this place led him into expences which his fortune was unequal to, and he was perpetually under the preasure of poverty; which, with the deficiency of regular employment, and the perpetual desire of doing more, and appearing better off, than his means admitted, preyed on his spirits, and rendered him the miserable inhabitant of the Eden which his tastes and genius had created. Grey has described him in the following sentence, which may in some respects be rather a caricature likenesses. "Poor man! he was always willing for money, for fame, and for other distinctions; and his whole philosophy consisted in living against his will in retirement, and in a place which his taste had adorned, but which he only enjoyed when people of note came to see and commend it." It has been thought a matter of surprize, considering his connexions, that nothing was done to place him in easier circumstances. Application was said to have been made to lord Bute to procure him a pension from the privy purse, but before the wishes of his friends could be realized he died. This event took place in February 1763, when he was in the 50th year of his age; he was interred in the church-yard of Hales Owen.

Of his poetical compositions many were insertet in Doddley's collection of original pieces; and after his death, his "Works in Verfe and Prose" were published in two vols. 8vo. in 1764, and a third volume, consisting of "Letters," was published in 1769. "Of his poetry," says the critic, "the general opinion was almost uniform; it is regarded as commonly elegant, melodious, tender, and correct in sentiment, and often pleasing and natural in description, but verging to the languid and feeble, and never exhibiting either the powers of the imagination, or the energy and splendour of diction, that characterize compositions of a higher order. His prose writings display good sense and a cultivated taste, and contain just and sometimes new and acute observations on mankind."

SHENUZAN, in Geography, a town of Candahar; 42 miles E. of Ghizni.

SHEEY, Isle of, an island within the liberty of the fame, late of Sway, and county of Kent, England, is situated near the mouth of the river Thames, and is separated from the mainland by a narrow arm of the sea, called the Swale, which bounds it on the south, while the estuary of the Medway, and the German ocean, bound it on the west, north, and east. It is uncertain by what name this island was known to the Romans; for though Ptolemy, in his Geography, mentions two islands in this part of Britain by the
of Tothabil and Comus, he does not describe that of Tothabur. In the text is a matter of dispute among our modern commentators: Camden and Bateley contend for Tothabil, and Lambard, Leland, and others, for Comus. In Saxan times it was called Serpentine, or the island of sheep, from the great number of that animal which were then pastured upon it, whence originated, by corruption, the name by which it is now distinguished. Baxter, in his "Cleric," under the word Mala, remarks, "Verucum Patria, or the island of sheep, now named Shepey." This is corrupted by the book of Rackham, "Maxaca, by the Britons Verex," but these observations are rather conjectural than well authenticated.

The life of Shepey, including the small adjoining isles of Elmsley and Harry, by which he at the south end of it, measures about 42 miles in circumference, being about 15 miles long and fix breeds. On the southern side the lands are flat and marshy, but the interior is diversified by hills, and the northern shore presents a range of cliffs, extending six miles in direct length. These cliffs are chiefly composed of a loose flinty marl, abounding in pyrites, and in some places rising perpendicularly to the height of 50 feet. They belong principally to the three manors of Minster, Shurland, and Wardens, the owners of which let them to the copperers makers, who employ the poor inhabitants to collect the pyrites, or copperers stones, which are continually washed out of the cliffs by the force of the waves, and are of various forms, as globular, oblong, &c. Their external covering is a ferruginous coat; and within they are of a tritified texture, commonly radiated from a centre. The ludi Helmontii also abound in these cliffs. They are in general of a compressed form, from twelve inches to two feet, and a half long, and covered with a thick crust of indurated clay. Where the clay is most tenacious, fossil bones are found of several varieties. Large nodules of petrified wood, retaining the appearance and grain of oak, are likewise met with in these cliffs and on the shores; also a vast number of fruits; but as these are always saturated with pyritic matter, they soon fall to pieces. Animal remains have likewise been found here of many different kinds; as the thigh-bones, tails, and grinders of elephants; two species of tortoises; the heads, tails, and palates of fish; the teeth and vertebrae of sharks; crabs, lobsters, shells, &c.

The great part of this island is of an exceedingly stiff clay soil, and consists chiefly of upland pastures and marish lands. Towards the north side, however, in the parish of Minster and Ewlchurch, it is very fertile in corn, the inclosures of which are small, and surrounded with thick hedge-rows of elm. The roads throughout the island are very good during the whole year, owing to the great plenty of fine gravel found in the beach-pits, and the prospects from them are very pleasing and extensive on every side. Fresh water is very scarce, and the greatest part of it brackish, though between Ewlchurch and Minster there are a few springs, which, notwithstanding they nigh the sea, the waters of them are perfectly good and fresh. The air is generally thick, and much subject to noxious vapours, arising from the large quantity of marshes in and near it. Hence, and from the basins of the water, few people of subidence live in it, the inhabitants consisting in general of lookers, bailiffs, farmers, and ferrants. The garnish of frank and Sherrifs, and its environs, the reader will however be more assured except from this observation, where there are many gentlemen employed in the government service constantly resident. See Sherness.

The water which flows between this island and the main land is called the Swale, and the two extremities of it the East and West Swale. It reaches about twelve miles in length, and is navigable for ships of two hundred tons burden. This water seems formerly to have been connected a part of the river Thames, and to have been the usual, as being the safest passage for the shipping between London and the North Foreland. Accordingly Sands of Naze is frequently visited by our ancient historians London, or the Thames mouth, being the name given to it by the Saxons, and the town of Milton is built by them to stand on the south bank of the Thames. Leland in particular lays, in his Itinerary, "that these lands on an arm of the Tannic," and he speaks of the point against "Quinborough entering into the marine Ferry." The usual passage to the island is by a ferry, called King's Ferry, for carriages, horses, cattle, and passengers. The ferry-boat is moved forward by a long pole, or about one hundred and forty fathoms, or more, which being fastened at each end across the Swale, serves to move it forward by hand. On the side opposite to the island there is a small house of stone, in the room of one formerly erected by one George Fox, who having lived a long while in the cold waiting for the boat, and being much affected by it, built it to shelter others from the like inconvenience.

The very convenient situation of the life of Shepey for the defeating pursuits of the Danes, occasioned it to be made their accustomed rendezvous; and they sometimes wintered here during the course of the ninth century. The inhabitants were then but few, and chiefly congregated in the neighbourhood of Minster, where Sexburga, widow of Ercobert, king of Kent, had founded a nunnery, which, after being several times plundered by the invaders, was at length, in a great measure, destroyed, and the nuns dispersed. The large tumuli in the lower or southern part of the site, and which are termed coterets by the country people, are supposed to cover the remains of different Danes chief, who were slain in battle during their piratical incursions. The years which have been particularly recorded as those wherein these marauders were most active here, are 842, 854, 851, and 852: in the year 1016, King Canute is said to have collected the scattered remains of his army in this island after his defeat in the vicinity of Orford, by Edmund Ironside. Hasted's History and Antiquities of Kent, sv. 1798. Costumes of England and Wales, vol. iii. by E. W. Brayley and John Britton, sv. 1856.

SHEPHERD, in Agriculture, a labourer or other person who has the care and management of a flock of sheep. It is a business that requires much care, attention, and knowledge of the various methods of treating animals of this kind. Mr. Bannister thinks, that it is necessary to have for the employment a person who is well skilled in the nature and management of sheep, and hath been brought up in that employment from his infancy; who is sober, diligent, and good-natured; qualities essentially necessary in a shepherd, who, although he may seem to live a life of idleness, when controlled with the more laborious servants of the farm, need rarely to have a minute's time hang heavily on his hands, if he will be attentive to his business, which will furnish him with sufficient employment throughout the day, particularly in the lambing season, or where there are two folds at work; nor will he want opportunity for the exercise of his patience and good temper, in his attendance on the sheep, which are by nature animals of great obstinacy and perseverance, and which have often paid the forfeit of their lives for these innate qualities, where the shepherd was a man of morals and fair dispositions. It is said that on the continent they have schools wherein young shepherds are instructed in the necessary

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cessary knowledge of their butinets, as well as the anatomy and physiolog of sheen, the food and treatment proper for them in different seasons, and the nature of their diseases, and the common operations respecting them, especiially regarding the parturgion of the eyes, &c. And in the General Treatise on Cattle, it is remarked, that the method of encouragement, adopted in some districts, of allowing the shepherd to posselfs a small flock, or as many eves as his means will allow, is probably one of the most powerful. It gives him that steadiness appertaining to property, and is an additional and strong incentive to the attainment of knowledge in his business. A shepherd should be naturally active, both in body and mind, clear-headed and clear-sighted; such an one, for instance, as can distinguish the individual countenances of a numerous flock, and running over them with his bodily and mental eye, instantly give the exact number and condition; or perceive at a glance, a bird's nest in the thickest quickset. Fond of animals and attractive to them, the latter quality of which is well known to inhere in some perfons; polishing a musical voice and thrill whistle; hardly, patient, watchful; satisfied with little sleep, and temperate in drink. It is conceived that he ought never to be suffered, if he prospers, to practise physic, nor any but the most easy and common operations, a farce that too often ends in a tragedy; for if of two evils we ought to choose the leaf, the office of medical practice had better devote on the matter. And for his comfort in the severe weather, in some situations, the moveable wooden houfe on wheels may be of use. Alfo that he ought to be clad during winter, withSubstantial woolen next his skin, from his feet upwards, as the belt defence against those rheumatic ails to which he must be necessarily subject; and he should always go provided with the instriments proper to his profficion, ready for immediate occasions, namely, scissors, knife, steel, sleaves, valve-box, &c. And in folding, as the shepherd will have the flock perpetually under his eye, the first writer thinks, he will be capable of judging with certainty and precision respecting the rate of every individual, fo that the earliest remedy may be applied to every disorder, and such sheep may be turned out of the fold which are found not to be able to go through their work without manifelt injury to their health; and if a sheep or lamb be feized with a dangerous and incurable malady, to kill and drefs it immediately; for it is one part of the business of a shepherd to be truly skilled in the butcher's trade, to be able to slaughter, dres, and dres a sheep on occasion. Further, that a good shepherd will be careful that his flock be driven late to fold of an evening, and released early in the morning from their confinement, in order that they may enjoy the coolest parts of the day on the food. He will be cautious that they are allowed a sufficient time to graze in the uplands previous to their being driven into the fold, that they may retire to rest with full bellies, by which the quantity of the dung and urine will be considerably augmented. He will likewise be careful in reviewing the hurdles, and providing that there are fixed in the ground, left by any accident they should be thrown down during the night, and the flock by these means get into mischief, or intermix with other sheep; he will count his sheep regularly every evening when he drives them to the fold, and take a fresh tale in the morning, when he turns them on their feed; he will, previous to dishing them from the fold, worry them gently round the flame, in order to caufe them to dung and itale plentifully, that the manure may be left in the field, otherwise the greaste part of the trudles will be drop on the road, or carried on to the mirth, where lying thin, this dressing can do but little service, and where in truth it is not wanted; he will bellow a particular attention on every individual in his flock, and for those which shew any appearance of being flung by the fly, he will be prepared with a pair of fleers to clip away the wool from the part, and having taken out the maggots, will anoint the place with a mixture of train-oil and stradion; but if slightly attacked, he will destroy the maggots by drawing on them powder of white lead; and if any of the flock should haply break with the scab, a diforder to which folding sheep are continually subject, and which seldom fails to shew itself in the spring and fall, he will be provided with a proper remedy to keep it under, and prevent the contagion from spreading. See Scab.

It is likewise thought, that one shepherd will be able to look after three hundred sheep.

In respect to the necessity of a dog, as an affillant to the shepherd, Mr. Lawrence thinks, that it has of late very rationally become a questration among the most intelligent sheep-masters: it may probably be thus settled,—there can be no occasion for such aid, nor any necessity for incurring the danger of it, amidst convenient inclosures, or where quiet breeds of sheep are kept, and where it is made an object to render them tame and docile: and if upon extensive wastes and mountain districts, the service of dogs cannot well be dispensed with, it ought to be made a main point, that they be trained early to a kindnes for the sheep, and to view them rather as their companions, than their prey; a thing which he knows by experience to be most easy; and he also knows that such dogs are infinitely of the greater use, as the sheep, far from dreading or shunning, will run to them, in cafe of need, for protection; and he has often witneffed the carefles and symbols of thefe and the lambs, with a delight which he never experienced in the combats of animals.

Shepherds of Egypt, Shepherd kings, or royal Shepherds, in Ancient History, the denomination of a clafs of inhabitants of a part of Egypt, concerning whole origin, place of abode, and migration, ancient and modern writers have entertained different opinions. Some sketches of their history, will be found under the articles Auritfe, Cush, Dispersion of Mankind, and Egypt. The learned Bryant has publifhed, besides several notices that occur in his "Analysis of Ancient Mythology," an elaborate "Difcription" on this subject. Differing from others concerning the situation of the land of Cushen, (see Cushen,) he conveys it to have been the Nome called the Arabian, from the Arabian shepherds who had formerly settled in those parts, and held them for many years, and denominated by the LXX, ΤΟνΑ ΤΗΣ ΔΡΦΗΕΩΝ. The province of Arabia, says this author, was one of the three most remarkable names, the other two being those of Bubastis and Helipolis. These three names were contiguous to each other, and towards the summit of Lower Egypt. The nome of Helipolis, according to his statement, was a Mediterranean district; and consequently two provinces, or that of Phacuas (i.e. the Arabian nome), and that of Bubastis, that are always mentioned with the former, were loke likewise. Phacuas, mentioned by Strabo only as a village, was the province at whose summit the Nile was first divided, where stood the city of Cercarca. It was called the Arabian nome for the reason above-mentioned, and had for its metropolis Phacuas, and the places situated upon its borders were Babylon, Helipolis, and Heroaum. From Syncellus we learn, that Egypt had been in subjection to a three-fold race of kings, who are termed the Aurite, the Melites, and the Egyptian. The Aurite were the Arabian shepherds and their kings, who reigned here a considerable time, maintaining themselves by force; till, after many struggles, they
they were finally expelled by the natives. According to Manetho, the whole body of the people bore the appellation of Hukites, that is, royal shepherds; the first syllable, in the faced dialect, signifies a king, and the latter, in the popular language, signifies a shepherd; and by a composition of these two words was formed the word Hukites. These people are said to have been Arabians. Josephus further informs us from Manetho, that the shepherds maintained themselves in Egypt 111 years. At last the people of Upper Egypt rose in opposition to them, and after some time expelled them the country. However, on their departure, they were afraid of going towards Assyria, and therefore returned to the country called afterwards Judea, and built Jerusalem. We learn also, from the same authority, that another class of people foun'dered in Egypt in the reign of Amenophis; and that they were treated as slaves by the prince of the country, because they were infected with the leprosy. As their number very much increased, he employed them in the hene quaries that lay on the east side of the Nile, in company with some of the Egyptians. Upon a remonstrance afterwards made to him, he granted them a retreat the city of Abaris, where the former shepherds had refixed, that now lay desolate. The people belonging to each of the two classes now mentioned were shepherds; the firfl shepherds were lords and controllers of the others were servants, to whom was assigned the city which the former had evacuated. The latter were Israelites, as appears from the name of their leader and lawgiver, Moses; and the former were Arabians, who are said to have come from the East, and that they are, without doubt, the Aurites, who founded the city of Auran or Abaris, which is no other than the city ΕΥΩΡ ΟΥΡ or Aur, signifying light and fire, of which element the Aurites must have been worshippers, as all the Arabians were. Their chief god was Aburas, (Al Orus.) the god of fire. According to the shepherds were called Aurites from the chief object of their worship, and their kings were styled priest of Abaris, or, according to the Greeks, priests of Vulcan. Hence it has been inferred that they came from Babylonia, a country that lay due east from Egypt, which country was the original seat of the genuine Arabians, and the true source whence their religion flowed. The two principal cities of that country were Ur or Ur, and Babylon: in memory of which they built two of the same name in Egypt. Wherever they refixed, they introduced the Tzeba Schanain, or Zabian worship, together with the worship of fire. Hence we are informed by Herodotus, that Vulcan was particularly honoured at Heliopolis and Memphis, which places they are said to have built. The true name of these people, says Bryant, who were called by the Greeks and Romans Arabians, was Cufian or Cufars, the name that they gave to the province where they settled. (See pro.) These strangers, therefore, who settled in Egypt, were no other than the Cufars; and they have been styled Arabian shepherds, because all the primitive Arabians were Nomades, or shepherds. These people becoming lords of the country, undoubtedly chose that part which was the most eligible, and their profession would lead them to the best land for pasturage; in respect of which Gothen had not its equal. For it was part of the ΚΑΛΟΝ ΑΓΕΝΔΟΝ, the rich campaign of Egypt; so that this circumstance among others would induce one to think that they settled here. This is confirmed by the worship which they settled on these parts; the cities they built; and the names which they bequeathed to the province. According to the Mosaic account, the land of Gothen is repeatedly said to be in the land of Egypt, "in the bell of the land;" and yet the LXX call it ΕΥΩΡ ΟΥΡ, which could be owing to another reason besides its being the land of Cufians. (Cufars,) which was interpreted Arabian; for in Arabia it was not situated. Hence it has been concluded, that the place where the children of Israel refixed in Egypt was the principal Arabian nome, at the extreme and highest part of Lower Egypt, called Cufians.

This was the land to which the children of Israel succeeded after it had been abandoned by its former inhabitants; but it is uncertain at what interval. It appears to have been an unoccupied district; and as it was the bell of the land, there is no accounting for its being unoccupied but by the felicitation of the Cufians, whose property it had lately been. Accordingly Manetho expressly affirms, that the second shepherds succeeded to the places which had been deserted by the former; and he moreover says, that the city of Abaris, which had been built by the first shepherd king, was given to those of their body who were employed in the quarries.

Bryant fuggels, that the migration of the shepherds was about the time of Serug or Nahor: and this is the time when archbishop Uthor says it to have happened, who refers it to the year of the world 10920, according to the Hebrew computation, in the 10th year of the life of Serug, the 7th from Noah, and the 53rd year of Terah, 53 years before the birth of Abraham. Bishop Cumberland supposes that the shepherds invaded Egypt A.M. 1797, in the time of the fame patriarchs, according to the Hebrew chronology. Our author has alleged several arguments to prove, that the Arabian shepherds were distinct from the Israelites, and prior to them. When the Arabians came into Egypt, they are said to have been 240,000 in number, whereas the Israelites were but 70 perfons. The former took possession by force, the latter were invited, and had a grant of all that they possessed. The one held the people in slavery; the others were themselves enslaved. The Arabians were driven out of the land; the Israelites were not suffered to depart. See Bryant's Observations and Inquiries, &c. Cont. 1767.

Shepherd's Islands, in Geography. See New Hebrides.

Shepherd's Dog, a variety of the common dog, used in guarding flocks, or driving herds of cattle. See Dog.

Shepherd's Needles, or Venus's Comb, in Botany. See Scandia.

Shepherd's Pouch, Burra poflorin, a common weed in moat parts of England, which propagates itself by feet, as not to be easily elected where they are permitted to lie; for it so far do the feed ripen, and the plants come up, that there are commonly four or five generations of them in a year; they cannot, therefore, be too carefully rooted out of a garden or field. It is early, and lasts most part of the year. It may be destroyed by frequent ploughing, and preventing its going to feed. In the Linnaean system, this is a species of the ibadyn.

This is an officinal plant; its juice has been reputed astringent and vulnerary, and as such is used against hemorrhages, dysenteries, diarrhœas, &c.

The country people apply it to cuts and fresh wounds, and some hold it of great virtue when made up into a cataplasm, and applied to the wounds against tertians and quarcans; but Dr. Lewis observes, that he could perceive no pungency or astringency, either in the leaves of this plant, or in the extracts made by water and rectified spirit, and that a decoction of them strikes no degree of blackness with solution of chalkybeate vitriol. Hence he infers, that there seems to be no foundation for the strong hypotptic virtues, for which this herb has been generally recommended by writers.
in the materia medica, or for the acid inflammatory power which some (probably misled by its botanic affinity with mulled, and some other acid vegetables) have ascribed to it. Lewis's Mat. Med.,

Shepherd's Staff, or Shepherd's Rod. See Træcle.

Shepherdstown, in Geography, a post-town of America, in the state of Virginia, and county of Jefferson, on the S. side of Patowmaack river. Its situation is agreeable and healthy, and the neighbouring country fertile and well cultivated. It is said to contain 1033 inhabitants, chiefly of German extraction.

Shepherdsville, a post-town in Bullitt county, Kentucky: 640 miles from Washington.

Sheppick, in Agriculture, the provincial name of a prong or fort of hay-lork, employed in some places.

Sheppey, in Geography. See Shepey.

Shepreve, John, in Biography, an English poet, was born in Berkshire, and educated at Corpus Christi college, Oxford, where he took his degrees in arts, and became Hebrew professor about the year 1558. He had a moit surprifing memory, and was one of the most learned men in his time. He died in the year 1542. His works are "Summa et Synopsi Novel Test." &c.; "Hippolytus Ovidiam Phaedra respondens," &c. Wood.

Shepton Mallet, in Geography, a market-town in the hundred of Whitecliffe and county of Somerset, England, is situated about five miles E. from the city of Wells, and 115 W. by S. from London. This town has been long celebrated for its manufacture of woollen cloths and knit stockings, which affords employment to upwards of 2000 persons resident in the town or its vicinity. Edward II. granted a charter for a market to be held here on Monday, weekly; but it is now kept on Friday; besides which there is an annual fair, called Silver-freet fair, which takes place on the 8th of August. The market-place is remarkable for a very curious stone cross, which appears, from an inscription upon it, to have been erected in the year 1500, by "Walter Buckland and Agnes his wyff." It consists of five arches, supported by pentagonal pillars, with an hexagonal column in the centre. From the roof, which is perfectly flat, rises a lofty pyramidal spire, adorned with Gothic niches, and crowned with an oblong entablature, on which are repreffed figures of our Saviour on the cross between the two malefactors; also thofe of several saints. Lands of considerable value are appropriated for the repair of this fingular structure. The church here is a large and handsome edifice in the pointed style of architecture, and composed of a nave, chancel, north and south side aisles, and tranfept, with a tower at the west end, ornamented with effigies in niches of the Virgin Mary, St. Peter, and St. Paul. The pulpit and font are each cut out of one fold stone, and from the rudeness of their workmanship would feem to be of very great antiquity. In two of the windows are some remains of stained glafs, displaying the mutilated effigies of knights Templars, faid to repreffent the two Williams Mallet, who had commands in an expedition to the Holy Land during the reign of king Henry II. The monuments in this church are numerous, but none of them are particularly remarkable, either for their style of execution, or for the charafter of the person they commemorate.

Shepton Mallet, in ancient times, formed part of the manor of Pilton, which king Ina gave to the abbey of Glastonbury, A.D. 705. At the time of the Conquest it was held from the abbot by Roger de Carcelle; but four afterwards paffed into the polleffion of the barons Mallet, from whom it derived the latter part of its name. After a

variety of changes, this manor was divided into two moieties, one of which came to the crown, and was annexed to the duchy of Cornwall, to which it still belongs. The other moiety became the property of the family of Shepton.

Shepton Mallet is noted as the birth-place of three men of distinguished talents and learning; viz. Hugh Inge, D.D. archbishop of Dublin, and chancellor of Ireland, who died in 1528; Dr. Walter Charleton, an eminent physician, and author of Chorea Gigantum, or an account of Stonehenge, who died in 1707; and Simon Browne, a learned difenting minister, celebrated for his controversial writings against Woolfston and Tindal, who died in 1732.

The parish of Shepton Mallet is of small extent, but populous, containing, according to the parliamentary returns of 1811, 1129 houses, and 4638 inhabitants. Within its bounds are situated the county Bridewell, and a large parish workhouse. The History and Antiquities of the County of Somerset; by the Rev. J. Collinson, F.A.S. iv. vol. iii. Bath, 1791.

SHERARD, William, in Biography, a very learned and munificent botanist, on whom the titles of prince and Marcellas of botany have been, more justly than usual, bestowed, was the son of George Sherwood, (for so it seems the name was written by the father,) of Buffby, in Leicestershire.

He was born in 1659; educated first at Merchant Taylors' school, and then at St. John's college, Oxford, where he entered in 1677. He subsequently became a fellow of this college, and took the degree of Bachelor of Law, December 11, 1683. Being appointed travelling tutor, successively, to Charles, afterwards the second vicount Townshend, and to Wriothesley lord Howard, son of the murdered lord Ruffell, who in 1700 became the second duke of Bedford, Sherard made two succeflive tours through Holland, France, Italy, &c. returning from the latter, with the usual, not much before the year 1700, when his last-mentioned pupil was twenty years old.

Dr. Pulteney supposes him to have come back in 1693, led perhaps by the date of Ray's Sylloge Stirpiunm Europaeorum, printed in 1694, to which Sherard communicated a catalogue of plants gathered on mount Jura, Saleve, and the neighbourhood of Geneva. These were probably collected in his first journey; for it should seem by Collins's Peerage, that the lord Howard, so created on account of his union with the heirs of the Howard family, was married to her in May 1695, when he was little more than fourteen years of age. He was made a peer June 13, 1695; "after which," says Collins, "he travelled into France and Italy." So youthful a bridegroom was, doubtless, sent in the hands of his tutor, in a distant country from his, still more youthful, spouse. The subject of our memoir is said to have fulfilled his trust to the satisfaction of both the noble families who confided in him. His visit to his friend Sir Arthur Rawdon, at Moira, in Ireland, was apparently made in the interval of these two foreign journeys. Long before either of them, he had travelled over various parts of England, and proceeded to Jersey, for the purpose of botanical investigation; and the fruits of his discoveries enriched the publications of the illustrious Ray; see that article.

Botany was ever the prominent pursuit of Sherard in all his journeys. He cultivated the friendship and correspondence of the most able men on the continent, such as Boerhaave, Hermann, Tournefort, Vaillant, Micheli, &c. He is universally believed to have been the author of a 12mo. volume, entitled Schola Botanica, published at Amfterdam in 1689, and reprinted in 1691 and 1699. This is a philomatic catalogue of the Paris garden. Its preface, dated London, Nov. 1688, is signed S.W.A., which the French
French writers have interpreted Samuel Wharton, Anglia, under which name the book occurs in Halliwell's Bibliotheca Britannica, v. i. 445. But as no one ever lived of such a name as Wharton, and the preface is, in question dispels the obscurity and defects of one of the first rank, who could certainly not be genuine in falsity, the above notices are presumed to be William Sherard, to whom these indeed, with or without a signature, that prefixed could belong.

Its writer is described as having attended three courses of Tournefort's botanical lectures, in 1686, 87, and 88, all which years, he says, he spent at Paris. In the summer of 1688 he describes himself as having passed some time in Holland, collecting specimens of plants from the rich gardens of that country and getting them named by professor Herman himself, who allowed him to peruse the manuscript rudiments of his Paradisi Bataevum, to examine his herbarium, and to compose a Prodromus of that work, which is subjoined to the little volume now under our consideration. All this can apply to Sherard only, who became the editor of Herman's book itself, and who in his preface, dated from Geneva in 1697, appears under his own name, and speaks of himself as having long enjoyed the friendship and communications of that eminent man, whose judgment and talents he justly commemo rates, and of whose various literary performances, as well as of his botanical principles, he gives an account.

Dr. Polteney conceives this preface to have been written during a third tour of its author to the continent; but we presume him to have then been with the young lord Howland, and consequently on his second tour only.

Sherard communicated to the Royal Society, in 1700, a paper relative to the making of Chinese or Japan varnishes, which is printed in the Philosophical Transactions, v. 22. The information which it contains was sent by the Jesuits to the grand duke of Tuscany, and probably obtained by our author at Florence.

He now entered on a more public walk of life, becoming one of the commissioners for sick and wounded seamen at Portsmoutb, and about the year 1702, or soon after, was sent out as British consul to Smyrna. Here his botanical taste met with fresh gratification; nor was he neglectful of other curiosities of science or literature. He visited the seven churches of Asia, copied several ancient inscriptions, and communicated to the Royal Society an account of the new volcanic island, near Santorini, which rose out of the sea May 12, 1707.

Botany, however, continued to be his leading object. He had a villa at Sedekis, near Smyrna, where he could with the more ease resign himself to the contemplation of plants, and where he began to treat of his book of which we shall speak hereafter. Hafcielqui visited this spot, with the devotion of a pilgrim, in the spring of 1740. He saw the house, with a small garden laid out by Sherard, but not enriched at any great expense, nor stored with extensive collections of exotics. Many of the latter indeed might, in the course of thirty-two years, have disappeared. Whatever specimens Sherard could obtain from Greece, and the neighbouring countries, he here carefully preserved; and being well aware of the insufficiency of Baudin's Pinnia, as a clue to the botanical knowledge then in the world, he is said to have here formed the project of continuing it, and even to have made some progress in that arduous undertaking, before he returned to his native country in 1718.

Soon after his return he received at Oxford the degree of L.L.D.

In 1721 Dr. Sherard revisited the continent. Vaillant was now in a declining state of health, and died in May 1722. Previous to his death he concluded, through the mediation of Sir John, the first royal society in the dominions of Paris, part of a subscription, and in 1729 the splendid Transactions of Paris. This is not the place to enter into the cultivation of his talents, would doubtless have been his happiness, neither the superintendence of Sherard, who pulled a face with Boerhaave in revising the manuscript. Our author had already dedicated a more pertinent fervor to his favourite science by his friend with him from Geneva, in August 1721, the celebrated Dillenius, in the same year.

By a comparison of dates, it appears that Sherard made several visits to the continent. He went from Paris to Holland in 1721, and thence with Dillenius, the same year, to England. He stayed some time with Boerhaave in 1724, or perhaps 1725. We know not precisely when or where it happened that he was, like Leibnitz in Norway, in danger of being shot for a wall, or a thief, by some half-humanized rude, akin to the thievish and Oxfordshire justices, who seized upon another illustrious botanist, of our time, as a highwayman.

What principally attached Sherard to Dillenius, was the fineness of their talents respecting the subtlest tribes of vegetable, now termed cryptogams. To the latter the author of both had long been directed, and hence originated the cultivation, which this line of botanical study he received, from that period, in England and Germany. This taste, however, was not exclusive; for these friends and fellow labourers left no department of botany unimproved. James Sherard, seven years younger than his brother, who had acquired opulence by medical practice, first as an apothecary, and then as a physician, in London, had a great fondness for the same pursuit, and resided at his county seat at Eltham, a number of exotic plants, from every climate. Hither the more learned subject of our present article frequently resorted. He had acquired influence by his public appointments, but his style of living was simple and private. Devoted to the cultivation of knowledge in himself, and to the diffusion of that of others, he lent his aid to all who required it, without coming forward condescendingly as an author. He shielded Catesby with information and with money, to bring out his Natural History of Carolina, though neither that work, nor the Historia Elbammenfis of Dillenius, appeared till some time after his decease, which happened on the 12th of August, 1722, when he was 69 years of age. Of the place of his interment we find no mention. His brother died Feb. 12, 1737, aged 72, and is buried in Evangston church, near Lislecleric, with his wife, whose maiden name was Lockwood, by whom he had no children.

The most observant and splendid service to botany, though it for a long time yielded but little fruit, was rendered by the will of Dr. William Sherard, who left 5000l. to found and support a botanical professorship at Oxford, of which we have spoken under the biographical article Dillenius. He bequeathed to this establishment his choice botanical library, his ample herbarium, and the manuscript of his Pinda, the completion of which he intended should be one of the objects and duties of the new professor. We have already expressed our doubts whether the failure of the latter, in this point, were any great loss to science. Nevertheless, the manuscript, as Sherard left it, would probably have been a great acquisition to the world, and might still be worthy of publication. Dillenius accomplished more appropriate, and perhaps more difficult designs; but every scientific object slept with his successor for forty years. Sherard has sometimes been blamed for excluding clergymen from
from his professorship, and it is usual to hear a complaint at Oxford, that this order of men has no interest therein. If by interest is meant the acquisition of a very moderate stipend, which only one can enjoy, the complaint is just: but surely the more important interest of a whole university confisits in having this, or any other, science taught in the best manner. Sherard therefore would have done much more wisely, instead of limiting the appointment at all, to have left it open, like the Cambridge professorship and garden, to all the world; and to have placed the choice in the hands of those who would perceive their own advantage, and probably feel some sense of duty, in not making any professorship a sinecure or a job.

The herbarium of Sherard is perhaps, except that of Linnaeus, the most ample, authentic, and valuable botanical record in the world. In it may be seen original specimens from Tournefort, and all the writers of that day, named by themselves, accompanied by remarks, or by queries scarcely less instructive. He collected also copies of original drawings, from botanists whose specimens were not to be had, such as Plummer. The most rare, and even unique, books are to be found in his library, as the first volume of Rudbeck's Campfj Elpis. (See REDBECK.) All these precious collections are still in good preservation, though the noble stone building, originally constructed to receive them, was faciijed a few years since to public convenience, that the adointing street might be widened.

The name of Sherard has been commemorated by Vail- lant, in some plants referred by Linnaeus to Verbena. Dillenius established a Sideraria, which has remained; see the next article. Pulteney's Sketches of Botany. Haller's Letters, and Bibl. Bot. Aikin's Gen. Biog. S.


Gen. Ch. Cal. Perianth superior, small, with fix teeth, permanent. Cor. of one petal, funnelf-shaped; tube cylin- drical, various in length; limb flat, in four acute deep seg- ments. Stam. Filaments four, inserted into the top of the tube, between the segments of the limb, anthers roundish, two-lobed. Pfl. Germen inferior, oblong, two-grained; stylic thread-shaped, divided at the upper part; filaments blunt. Peric. none. Fruit oblong, crowned, separating lengthwise into two parts. Seeds two, oblong, convex at the outside, flat on the other, each crowned with three points.

Eff. Ch. Corolla of one petal, funnelf-shaped, superior. Seeds two, naked, each crowned with three teeth.

1. S. arenifos. Blue Sherardia, or Little Field Madder. Linn. Sp. Pl. 149. Wildl. n. 3. Fl. Brit. n. 1. Engl. Bot. t. 891. Curt. Lond. falc. 5. t. 13. Fl. Dan. t. 439. (Asperula flore carneo, acuto folio; Barrel. Ic. t. 54.)—All the leaves whorled. Flowers terminal.—Native of cultivated or fallow fields, throughout Europe, from Sweden to Greece, flowering all summer long. The root is annual, fibrous, small. Herb generally hairy. Stems several, branched, leafy, angular, spreading in every direction, from three to five inches long; stem slender at the base. Leaves spreading, mostly fix in each whorl, elliptical or obovate, pointed, entire, roughish at the edges and keel. Flowers from four to six or eight, in a little termi-
SHERBORNE.

SHERBORNE.

On London. It is a town of very high antiquity, but its origin is not precisely ascertained. Baxter contends that it was the Arianus, or Aramus of Ravenstall, deriving its name from "Arian Urfe, Argenticus Fluxus Aquar," or "Iona Clarus." This opinion, however, is refuted entirely by the most complete and authentic records of the Saxons in the town. It seems, therefore, more probable that it had its commencement in Saxon times, and was colonized from a religious motive, in order to check the conversion of the Saxons to Christianity. This monastery was reckoned as one of the noblest and largest in the kingdom, and was composed of the sons of kings and great officers of the nation. At the dissolution, its revenues were rated, according to Speed and Dugdale, at £120 14s. 7d. per annum.

Sherborne was further distinguished in ancient times, as the seat of an episcopal see, having been constituted such by King Ina, on the division of the bishopric of Winchester, A.D. 764. The first Bishop of this diocese was Aldhelm, bishop of Ina, who is reported to have been a man of extraordinary talents, and a great benefactor to the see. His successors have been differently named by different writers, so that much uncertainty prevails respecting them. The most probable view of the subject, however, is, that they were twenty-five in number, and conjointly presided over a period of 506 years. The most celebrated among them was Aelfwine, who wrote the life of Alfred the Great, and aided him in his literary pursuits. In his time the see of Sherborne comprehended the counties of Dorset, Bucks, Wilts, Somerset, Devon, and Cornwall; but, in 904, shortly after his death, the three latter counties were separated from it, and united to other bishoprics, by a bull of Pope Gregory III. Herman, the 22d Bishop, attempted to remove the seat of the bishopric to Malmesbury, but his intentions were thwarted by Godwin, earl of Kent, and the monks of that church. He succeeded, however, in effecting its removal some years afterwards, viz., in 1055, to Old Sarum, a consequence of the edict of the council of London, which directed that all bishops' seats should be transferred from chiefer places to the most important town in each diocese.

SHERFORD.

SHERFORD.

From the great eagerness of Herman to quit Sherborne, it might reasonably be inferred that it become a town of much less extent and importance than it was under his predecessors. Accordingly such is the fact, and the circumstance is easily accounted for; it being flated by historians, that it was laid in ashes by the Danes, under King Sweyne, during one of his vindictive excursions through this part of the kingdom. Befides, both Matthew of Westminster and William of Malmesbury describe it as "a small street, in which was nothing agreeable in number of inhabitants, or pleasantness of situation; and that it was matter of reproach and wonder that an episcopal see had continued there so long." In this situation it appears to have remained for several centuries; but in the time of Edward II. it had recovered itself very considerably, as we find Sherborne mentioned in his Itinerary as the most frequented town in the county, and that in which the woollen trade was turned to the best account. After his time, however, this branch of business was much decreased; and the manufacture of buttons, haberdashery wares, and bone-lace, introduced in its stead. These trades have also decreased, and

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Besides the established church, there were formerly in Sherborne two meeting-houses for dissenters; but at present there is only one, situated in Long-street. The other public structures here are the market-houfe, the work-houfe, an almshoufe, and a free grammar-school. The almshoufe was formerly a religious hospital dedicated to St. Augustin, and has a chapel attached to it, which appears to have been erected in the fifteenth century, and contains a very curious ancient painting upon oak in high preservation. This picture consists of three pieces, representing three of our Saviour's most remarkable miracles, and is characterized by Mr. Hutchins, in his History of Dorsetshire, as "very beautiful, and evidently executed by a masterly hand." The free grammar-school was founded and endowed by King Edward VI., and the government of it vested, by charter, in twenty principal inhabitants of Sherborne. At present, there are two masters attached to this school, who must be clergymen, and graduates of one or other of the universities. The buildings occupy the site of part of the ancient abbey, some considerable portions of which are still standing. The plan of education adopted here is similar to that of Eton. There are likewise in Sherborne two charity-schools on a contracted scale, three benefit societies, two for men, and one for women; and an institution of rather an unusual kind, called the Green Girls' Society, which, from its excellent tendency, deems it more generally adopted. It was established in 1771. The members pay into it a small sum weekly, and wear, till they arrive at a certain age, green gowns and straw hats. When a girl attains the age of eighteen, she is at liberty to leave it, and if married before she is twenty-five, is entitled to 12l. on her wedding-day, and 1l. on the birth of her first child. If unmarried till twenty-five, she is then entitled to the full sum, provided she has lived a sober and virtuous life, otherwise her claims are forfeited to the society. The founder of this institution was the late Mr. John Toogood.

The parish of Sherborne extends about three miles and a half in length, and two miles and a half in breadth, and contains, according to the population census of 1811, 597 houses, and 3370 inhabitants, of whom above 2000 reside in the town. The late eminent Dr. Joseph Towers is generally flated to have been born at Sherborne, but we know from authority that he was not even a native of the county.

In a hamlet, or suburb called Caileton, about half a mile eastward from the town, stood the ancient castle of Sherborne. This fortres was built by Roger, third bishop of Salisbury, and occupied a rocky eminence on the north bank of the river Tre. The area contained within the deep fosse, which inclosed the whole works, measured about four acres in extent. Few castles surpassed this in strength and magnificence of structure. It was one of the three, erected by the fame bishop, which William of Malmsbury mentions among the wonders of the world. It was of an octagonal form, and had seven courts, with strong battlements surrounding it, and was built after the plan of a spider's web. It had also a tower at each angle, there being sixteen in all without the citadel, and appears to have been in every respect admirably calculated for security and defence; for if any one of the courts were scaled or taken, the folders in the gallery above would so annoy the assailants with their arrows and other missile weapons, as to render it impossible for them to retain possession of it. But notwithstanding the strength and importance of this castle, it does not appear to have been the scene of any events of interest in the history of the kingdom, till the reign of Charles I., when it was one of the first besieged by the parliament, and one of the last which abandoned the cause of the king. Since that time it has been gradually falling into ruin, so that only a few fragments of it now remain.

The manor of Sherborne was very early granted to the fee, and continued attached to it, during its successive removals, till the reign of King Henry VIII., who compelled bishop Pieris to alienate it to the crown. Queen Elizabeth granted it to Sir Walter Raleigh, on whose unjust execution by King James I. it was seized and given to the favourite Carr, notwithstanding the intercession of various distinguished individuals to obtain it for the family of its great, though unfortunate possessor. It afterwards became the property of Sir John Digby, whose descendants still continue to enjoy it. The History and Antiquities of the County of Dorset, by John Hutchins, M.A., 2d edition, corrected and improved by Richard Gough, esq. and John Bowyer Nichols, esq. vol. iv. fol. 1815.

SHERBURN, a market-town in a parish of the same name, partly within the liberty of St. Peter of York, and partly in the upper division of the wapentake of Barkston Ash, Welf Riding of Yorkshire, England, is situated at the distance of 14 miles S.W. from the city of York, and 181 miles W. by N. from London. The market is held on Friday weekly, but is little frequented, and there is only one annual fair, on the 25th of September. This place was formerly, however, much more important, and was distinguished by a palace belonging to the archbishops of York, of which not a vestige now remains. It is only at present, therefore, remarkable for a particular species of plum called the Winefour, which grows in the vicinity. Sherburn township, according to the parliamentary returns of 1811, contains 188 houses, and 558 inhabitants. Beauties of England and Wales, vol. xvi. by John Bigland, 1812.

SHERBURN, Edward, in Biography, an ingenious writer, was born in London in 1618, and educated under Farnaby, after which he went abroad, but returned in 1641, and succeeded, on the death of his father, to the office of clerk of the ordnance. He was imprisoned for some time by the parliament, and, on his recovering his liberty, joined the king, whom he served with fidelity and great bravery, by which he suffered considerably in his estate. After the battle of Edgehill he went to Oxford, where he was created master of arts. At the restoration he recovered his situation under government, was knighted, and made commissary-general of the artillery. He died in 1702. He translated Seneca's tragedies, the Sphere of Marcus Manilius, and other works, into the English language, and was author of a volume of poems.

SHERBURN, in Geography, a poll-town of America, in Chenango county, New York; containing 1282 inhabitants. — Alto, a town in the state of Massachusetts, and island of Nantucket. The island contains 6587 inhabitants. (See Nantucket.) — Alto, a town in Middlesex county, Massachusetts, containing 770 inhabitants; 18 miles S.W. of Bolton. — Alto, a town of Herkimer county, New York; containing, by the census in 1796, 483 inhabitants. — Alto, a town of Rutland county, Vermont; containing 116 inhabitants.

SHERBATO, Prince; in Biography, a learned Ruffian nobleman, who published several works in his own language, the chief of which is "The History of Ruffia from the Earliest Times," which is said to be well arranged, and faithfully drawn up. Mr. Cox, in speaking of this writer, says, several perfons have published collections of flat-papers and other documents, but the honour of composing a complete history of Ruffia is probably deserved for prince Sherbato; who, if we except Mr. Muller, has contributed
III, order.

The learned editor of a work of "A Journal of Peter the Great," vol. iv. which he founded in the archives, and published by order of the emperors of the Russian fable, in The Ruffian History, by an ancient Annalet, from the beginning of the reign of Vladimir Monomachus, 1114 to 1172; "The Life of Peter the Great," in the Russian language, first published at Venice, which the prince reprinted in 1724, and, according to his usual custom, enriched with many historical observations. Of his History, already referred to, our author says, "I have read the German translation of this performance, which appears to me a most valuable addition to the history of the North. The author has had access to the imperial archives; he draws his information from the most ancient and unquestionable sources, is particularly exact in quoting his authorities, and ranges the events in a chronological series with great pertinacity." *Coxe's Travels*, vol. iii.

SHERET, in Geography, a town of Asia Minor, in the province of Trebizond, 30 miles S.W. of Trebizond.

SHEREFZOUR, or Sherezour, or Scherezour, a town of Curdish, the capital of a government, and residence of a Turkish pasha; 150 miles N. of Bagdad. N. lat. 35° 46'. E. long. 44° 25'.

SHERIDAN, see Sherrin.

SHERIDAN, Thomas, in Biography, was born probably about the year 1684, in the county of Cavan, where his parents lived in such a state of indigence, as not to be able to afford him the advantages of a liberal education; but being observed to give early indications of genius, he attracted the notice of a friend to his family, who sent him to the college of Dublin, and contributed towards his support, while he remained there. Afterwards he proceeded to a doctor's degree, and took orders, and set up a school in Dublin, which long maintained a very high degree of reputation, as well for the attention bestowed on the morals of the scholars, as for their proficiency in literature. He does not appear to have had any considerable preferment; but his intimacy with Swift procured for him, in 1725, a living in the south of Ireland, worth about 150l. per annum, which he went to take possession of; and, by an act of inadvertence, it is said, destroyed all his future expectations of rising in the church: for being at Cork on the 1st of August, the anniversary of the king's birth-day, he preached from the text "Sufficient for the day is the evil thereof." The report of the fact was spread abroad: he was struck out of the list of chaplains to the lord-lieutenant, and forbidden the castle. He afterwards changed his living for that of Dunboyne, which by the knavery of the farmers and power of the gentlemen in the neighbourhood, fell in value to 80l. per annum. He willingly refrained it for the free-school of Cavan, where he might have lived well; but the air being moist, and as he thought unhealthy, and being disgusted with some of his parishioners, he sold the school for about 400l.; and having spent the money, he fell into ill health, and died September 10th, 1758, in the 55th year of his age. He is thus characterized by lord Corke: "Dr. Sheridan was a schoolmaster, and in many influences perfectly adapted to that situation. He was deeply versed in the Greek and Roman languages, and in their customs and antiquities. He had that kind of good nature, which absence of mind, insouciance of body, and carelessness of fortune, produce; and though not over-horic in his own conduct, yet he took care of the morals of his scholars, whom he led to the university remarkably well grounded in all kinds of classical learning, and not ill instructed in the local duties of life. He was clever, indigent, and cheerful."

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He saw books much better than men, but he knew the value of every book of all. In this situation, and with this debt hanging, Swift fell upon him as upon prey, with which he intended to ruin his fell, when he, in spite, should profect his. Dr. Sheridan published a prose translation of Periplus, to which he added the last verses of former editors, together with some very judicious notes of his own. He also translated the Histories of Sopher.

SHERIDAN, Thomas, son of the preceding, was born at Quakes, in the county of Cavan, in Ireland; and there lived, for his god-father, dean Swift. The early part of his education he received from his father, who afterwards sent him to Westminster school, and at a time when he could very ill afford it. Here, upon examination, he attracted notice; and although a mere stranger, he was elected a king's scholar, on account of his merit. But their maintenance sometimes running short, the doctor was too poor that he could not add fourteen pounds, to enable his son to finish the year; which if he had been able to have done, he would have been removed to a higher class, and in another year would have been sent off to a fellowship at college. Being thus reduced to Dublin, he went to the house of Mr. Spence, where he obtained an exhibition, and in 1738 he took his degree of M.A. Having no interest in the church, nor the means of preparing himself for one of the liberal professions, he resolved to seek a support on the stage. He was received with great applause, and in a short time became manager of the Dublin theatre; in which capacity he successfully undertook the curbing of that licentiousness, which had long reigned with an almost unlimited empire behind the scenes, and the putting a stop to the liberties daily taken by the young men with the female attellies. During eight years Mr. Sheridan policed this important office of manager of the Dublin theatre with all the success, both with respect to fame and fortune, that could well be expected, when an unfortunate circumstance led him to oppose the wishes of the public, which obliged him to withdraw from the management of the theatre, and even to quit the country. He continued in England till the year 1756, when he returned to Dublin, and was again received on the stage with the highest applause; but he did not continue long in that situation, being opposed and ruined by rival actors.

In 1757 he published a plan, in which he proposed to the Irish the establishment of an academy, for the accomplishment of youth in every qualification necessary for a gentleman. In the formation of this design he included oratory, as one of the essentials; and in order to give a stranger idea of the utility of that art, he opened his plans to the public in some orations, which were so well written, and so admirably delivered, as to give the highest proofs of the ability of the proposer, and of his fitness for the office of superintendent of such an institution, for which post he had offered himself. Nevertheless, though the plan was, in a measure, carried into execution, Mr. Sheridan was excluded from any share in the conduct of it. He now came again to England, and delivered lectures on elocution and oratory in the theatres of Oxford and Cambridge, to very numerous audiences, and with the highest reputation. From thence he again came to London, where he was engaged as an actor and a lecturer. In 1778 he published "A Pronouncing Dictionary of the English Language," and after this he became a manager of the Drury-lane theatre, under his son, the present Mr. Sheridan, who was then one of the patentees. He died in August, 1788. His works are as follow: 1. "A Dictionary of the English Language," 2. "Lectures on the Art of Reading." 3. "British Education, or the Source of the Disorders of Great Britain." 4. "A Difficitation on the Causes of the Difficulties in
which occur in learning the English Tongue.” 5. “A Course of Lectures on Eloquence.” 6. “The Life of Swift,” prefixed to an edition of his works, edited by Mr. Sheridan. 7. “Elements of English.” His wife Frances, whose maiden name was Chamberlaine, was a very ingenious woman, and was author of a novel, entitled “Sidney Biddulph;” a moral romance, entitled “Nourjahad;” “The Difcovery,” a comedy; and another, entitled “The Dupe.” She died at Blois, in 1767.

Sheridan, the late Mrs., was daughter of the excellent musician, Mr. Linley, so well known at Bath, by his professional merit as a matter, by the beauty and talents of his family, and by his vocal compositions, particularly his Elegies. If this were a place to celebrate the beauty and fascinating manners of Mrs. Sheridan, we could dwell upon them as long as on her voice and musical talents; but to these we must confine ourselves. There was a brilliancy, a spirit, and a mellifluous sweetness in the tone of her voice, which infantly penetrated the hearts of her hearers, as much as her angelic looks delighted their eyes. Her voice was perfect, her modulation truth itself, and the agility of her throat equal to any difficulty and rapidity that was pleasing. But in Handel’s pathetic songs, in Purcell’s “Mad Bel,” in the upper part of serious glees, or whatever vocal music had impassioned words to express, she was sure to make them felt by every hearer poifossed of intelligence and sensibility.

She knew music so well, that she was sure to do justice to every kind of Italian composition, as much as a foreigner ever did to a language not her own; though the energy and accent given by the natives of Italy, particularly in recitative, is ever comparatively deficient in the bell fingers of all other countries; as nothing but a long residence, early in life, in a foreign country, can acquire the correct pronunciation of its music, any more than of its language. It was observed by Sacchini, who heard Miss Linley sing at Oxford for the last time, that if the had happened to have been born in Italy, she would have been as much superior to all Italian fingers, as she was then to those of her own country.

Sheriff, in the Egyptian Orders, the relations of Mahomet, the same tribe of persons called emir by the Turks.

The word is Persian, and signifies great or noble; and these persons have the privilege of being exempt from appearing before any judge but their own head; and if any of the military orders are obliged to punish them for any misdemeanor, they will take off their green turban, in respect to their character; and the same is done even when they are punished by their own magistrate.

The sheriff, sherriff, or sefherif of Mecca, is the title of the descendants of Mahomet by Haffan ibn Ali. Although this branch of the potters of Mahomet has never attained to the dignities of caliph or imam, it appears to have always enjoyed the sovereignty over most of the cities in the Arabian province of Hedsjas. The family of Ali-Bunemi, being one branch of the descendants of Haffan ibn Ali, and consisting of at least 300 individuals, enjoys the sole right to the throne of Mecca. This family is likewise subdivided into two subordinate branches, of which sometimes the one, sometimes the other, has given sovereigns to Mecca and Medina, when these were separate states; but the Turkish sultan is indifferent about the order of succession in the family, rather willing to favour the strongest, that he may weaken them all. As the order of succession is not absolutely fixed, and the sheriffs may all aspire alike to the sovereign power, this uncertainty of right, aided by the intrigues of the Turkish officers, occasion frequent revolutions. The grand sherriff is seldom able to maintain himself on the throne; and it still seldom happens, that his reign is not disturbed by the revolt of his nearest relations. The dominions of the sherriff comprehend the cities of Mecca, Medina, Jambo, Taaf, Sadie, Guhufude, Halil, and thirteen other less considerable, all situated in Hedsjas. As these dominions are neither extensive nor opulent, the revenue of their sovereign cannot be considerable. He finds a rich resource, however, in the imposts levied on pilgrims, and in the gratuities offered him by Mussulman monarchs. Every pilgrim pays a tax of from 10 to 100 crowns, in proportion to his ability. The Grand Mogul remits annually 60,000 rupees to the sheriff, by an arrangement on the government of Surat; but since the English have made themselves masters of this city, and the territory belonging to it, the nabob of Surat has no longer been able to pay the sum. The power of the sheriff extends not to spiritual matters: these are entirely managed by the heads of the clergy of different sects, who are resident at Mecca. Rigid Mussulman, such as the Turks, are not very favourable in their sentiments of the sheriffs, but suspect their orthodoxy, and look upon them as tacitly attached to the tolerant sect of the Zeids. See Sheriff.

Sheriff, or Shire-reeve, an officer in each county of England, of very great antiquity; his name being derived from the two Saxon words fære, province or fære; or rather from fēor, to divide, and gerefa, grave, reeve, or prefect; the sheriff being demominated from the first division of the kingdom into counties.

He is called in Latin vice-comes, as being the deputy of the earl or comes, to whom the custody of the shire is said to have been committed at the first division of this kingdom into counties: but the earls being afterwards unable, by reason of their high employments, and attendance on the king’s person, to transact the business of the county, the labour was committed to the sheriff; who now performs all the king’s busineses in the county; and though he be still called vice-comes, yet he is entirely independent of, and not subject to, the earl: the king, by his letters patent, committing e working, confirms to the sheriff.

Sheriffs were formerly chosen by the inhabitants of the several counties; in confirmation of which, it was ordained by 28 Edw. I. c. 8, that the people should have election of sheriffs in every shire, where the sheriffalty is not of inheritance; for anciently in some counties the sheriffs were here- ditary as judge Blackstone apprehends they were in Scotland, till the statute 20 Geo. II. c. 43, and still continue in the county of Wiltshire as such to the present day: the city of London having also the inheritance of the sheriffalty of Middlesex vested in their body by charter. This election, says the same author, was, in all probability, not absolutely vested in the commons, but required the royal approbation. For in the Gothic constitution, the judges of their counties (which office is exercised by our sheriffs) were elected by the people, but confirmed by the king; and the form of their election was thus managed: the people, or inole ter- ritorii, chose twelve electors, and they nominated three persons, ex quibus rex eum confirmabat. But with us in England, these popular elections growing tumultuous, were put an end to by the statute 9 Edw. II. r. 2, which enacted, that the sheriffs should henceforth be assigned by the chancellor, treasurer, and the judges, as being persons in whom the same truth might with confidence be repose. By statutes 14 Edw. III. c. 7, 23 Hen. VI. c. 8, and 21 Hen. VIII. c. 20, the chancellor, treasurer, president of the king’s council, chief justices, and chief baron, are to make this election on the morrow of All-Souls in the exchequer; and the king’s letters patent, appointing the new sheriffs,
SHERIFF.

used commonly to bear date the sixth day of November.
12 Edw. IV. c. 1.

And the custom now is, which has obtained since the time of Henry VI. that all the judges, together with the other great officers, meet in the exchequer chamber on the morrow of All Saints yearly (which day is now altered to the morrow of St. Martin, by the last act for abbreviating Michaelmas term), and then there propound three persons to the king, who afterwards appoint one of them to be sheriff.

This custom of the twelve judges proposing three persons, seems borrowed from the Gothic constitution before-mentioned; with this difference, that among the Goths the twelve nomines were first elected by the people themselves: which usage of ours was probably founded upon some statute, though not now to be found among our printed laws. But notwithstanding an unanimous resolution of all the judges of England to this purpose, entered in the council-book of 3 March, 34 Hen. VI. and the statute 35 & 36 Hen. VIII. cap. 26. feet. 61. which expressly recognises this to be the law of the land; some of our writers have affirmed, that the king, by his prerogative, may name whom he pleases to be sheriff, whether chosen by the judges or not. This is grounded on a very particular case in the fifth year of queen Elizabeth, when, by reason of the plague, there was no Michaelmas term kept at Westminster, so that the judges could not meet there in ergo animat., to nominate the sheriffs; upon which the queen named them herself, without such previous assembly, appointing for the most part one of the two remaining in the last year's list. And this case, so circumstance, is the only authority in our books for making these extraordinary sheriffs.

However, it must be acknowledged, that the practice of occasionally naming what are called pocket-sheriffs, by the sole authority of the crown, hath uniformly continued to the reign of his present majesty, George III.; in which, says Blackstone, few, if any, instances have occurred.

By four several statutes it is enacted, that no one shall be sheriff, except he have sufficient land within the shire to answer the king and the people in any manner of complaint. 9 Edw. II. fl. 2. 4 Edw. III. c. 9. 5 Edw. III. c. 413 & 14 Car. II. c. 21.

It has been judged, that an attorney is exempted from the office of sheriff, by reason of his attendance on the courts of Westminster.

By 3 Geo III. c. 20. no person, during the time he is acting as a militia-officer, shall be obliged to serve the office of sheriff.

Protestant dissenters, who are exempted by the Toleration act from the obligation of complying with the requirishment of the Corporation act, and who can plead their non-compliance as a reasonable and sufficient excuse, are not compellable to serve this office, nor of course to pay any fine for refusal. See Furnace's Letters to Blackstone, ed. 2. and particularly the Appendix, containing lord Mansfield's speech in the house of lords 1767, on the cause between the city of London and the dissenters, when the house affirmed the unanimous judgment of the commissioners' delegates, who delivered their opinions feriatim on the 6th of July, 1762, after hearing counsel several days.

By a by-law of the city of London, palled in a common-council June 13th, 1799, amending an act of April the 7th, 1748, no Freeman chosen sheriff, &c. shall be excused, unless he voluntarily swears he is not worth 20,000l. &c. which oath shall be attested by the oaths of six other freemen; and if he refuses to take the office, he incurs a forfeiture of 400l. and twenty marks towards the maintenance of the ministers of the several prisons within the city, together with the usual fines. If, however, he shall afterwards take upon himself the office of an alderman of the city, he shall be eligible to the said office of sheriffalty, notwithstanding the foregoing payment.

The sheriff, before he exercises any part of his office, and before his patent is made out, is to give security in the king's remembrancer's office in the exchequer, under penalty of 200l., for the payment of his proctors, and all other profits of the sheriffwicke; he must also take the oaths of allegiance and abjuration, and all, except the sheriffs of Wales and Cheflcr, an oath appointed by 3 Geo. I. cap. 15. sect. 18. for the due execution of their office. This oath may be administered in pursuance of a writ of dolium prefectum.

Sheriffs, by virtue of several old statutes, are to continue in their office no longer than one year; and yet it hath been said, that a sheriff may be appointed durante bene placito, or during the king's pleasure, and for the form of the royal writ; therefore, till a new sheriff be named, his office cannot be determined, unless by his own death, or the demise of the king.

And by 1 Anno. fl. 1. c. 8. all officers appointed by the preceding king may hold their offices for his months after the king's demise, unless sooner displaced by the successor.

We may farther observe, that by 1 Rich. II. c. 11. no man, that has served the office of sheriff for one year, can be compelled to serve the same again within three years after.

The power and duty of a sheriff are those that belong to him as a judge, as a keeper of the king's peace, as a ministerial officer of the superior courts of justice, or as the king's bailiff.

In his judicial capacity he is to hear and determine all causes of forty shillings value and under, in his county-court; and he has also a judicial power in divers other civil causes. He is likewise to decide the elections of knights of the shire (subject to the control of the house of commons), of coroners, and of verderors; to judge of the qualification of voters; and to return such as he shall determine to be duly elected, but incapable of being elected himself for the county, &c. of which he is returning officer.

As the keeper of the king's peace, both by common law and special commission, he is the first man in the county, and superior in rank to any nobleman therein, during his office. He may apprehend and commit to prison all persons who break the peace, or attempt to break it; and may bind any one in a recognizance to keep the peace. He may, and is bound, ex officio, to pursue and take all traitors, murderers, felons, and other misdemeanours, and commit them to gaol for safe custody. He is also to defend his county against any of the king's enemies when they come into the land; and, for this purpose, as well as for keeping the peace and pursuing felons, he may raise the pell motius.

However, by the express directions of the great charter, the sheriff, together with the constable, coroner, and certain other officers of the king, are forbidden to hold any pleas of the crown, or, in other words, to try any criminal offence; for it would be highly unbecoming, that the executioners of justice should be also the judges; should impose as well as levy fines and amercements; should one day condemn a man to death, and personally execute him the next.

Neither may he act as an ordinary justice of the peace during the time of his office, for this would be equally ineffectual, he being in many respects the servant of the justices.

In his ministerial capacity, the sheriff is bound to execute all process issuing from the king's courts of justice. In the commencement of civil causes, he is to serve the writ, to arrest, and to take bail: when the cause comes to trial, he must
must summon, and return the jury; when it is determined, he must see the judgment of the court carried into execution. In criminal matters, he also arrests and imprisons; he returns the jury; he has the custody of the delinquent; and he executes the sentence of the court, though it extend to death itself.

As the king's bailiff, it is the sheriff's business to preserve the rights of the king within his bailiwick; for so his county is frequently called in the writs. He must feize, to the king's use, all lands devoted to the crown by attainer or eleetion; must levy all fines and forfeitures; must feize and keep all waifs, wrecks, elrays, and the like, unless they be granted to some subject; and must also collect the king's rents within his bailiwick, if commanded by process from the exchequer.

To execute these various offices, the sheriff has under him many inferior officers, an under-sheriff, bailiffs, and gaolers, who must neither buy, sell, nor farm their offices, on forfeiture of 500l. 3 Geo. I. c. 15.

The under-sheriff usually performs all the duties of office, excepted, with regard to which the personal presence of the high sheriff is necessary. But no under-sheriff shall abide in his office above one year by 42 Edw. III. c. 9, and if he does, by 23 Hen. VI. c. 8. he forfeits 200l.; and no under-sheriff, or sheriff's officer, shall practice as an attorney during the time he continues in such office, by 1 Hen. V. c. 4. But these regulations are evaded, by practising in the names of other attorneys, and putting in them deputies by way of nominal under-sheriffs.

The under-sheriff, before he enters upon his office, is to be sworn, by 27 Eliz. c. 12. And by 3 Geo. I. c. 15. sect. 19, it is enacted, that all under-sheriffs of any counties in South Britain, except those in counties in Wales, and the county palatine of Chester, shall take an oath for the due execution of their office. Blackf. Com. b. 1.

Sheriff's Court. See County Court, and Mayor's Courts.

Sheriff's Tourn, or Turn. See Turn.

Sheriff, Affidavt of. See Affidavit.

Sheriffs, Office on. See Issues.

Sheriff, in Commerce. See Sheriff.

SHERILL, in Geography, a town of Asiatic Turkey, in the province of Diarbekir, on the Euphrates; 20 miles E. of Anah.

SHERILLA, a town of Africa, in Kaarta. N. lat. 14° 29'. W. long. 6° 25'.

SHERLING, or Shirling Lambs, in Rural Economy, the practice of cutting or flearing the short woolly coats or coverings of these young animals in the summer season, about the time at which the old sheep are clipped. Both the term and the custom are common in the northern districts, though they are scarcely known in the more southern parts of the island. Probably the greatest part of the lambs which are brought to Smithfield market, as well as of those which are bought by the butchers of the metropolis, are never fleared or freed from their coats, by which a very great individual as well as national loss is sustained. Perhaps the lambs are more saleable when kept in their full coats. The practice is, however, worthy of being more attended to in all situations.

The clipping or shirling of the lambs in some districts has, however, been considered as injurious, by the operation's hurting the growth of them; though no such effect has been discovered to take place in the South Down sheep tract of the county of Suffiao, or those of many other parts of the north. The profit in the above district is, however, thought to be trifling, or such as only to repay the expenses, and a little more; but it has a tendency to improve the wool, and cause it to throw out a more luxuriant staple. See Wool.

SHERLOCK, WILLIAM, in Biography, an eminent divine in the English church, was born in London in 1641. He was educated at Eton, and thence he went to Peter-House, Cambridge, where he applied himself with much avidity to his studies, obtained a great reputation, took orders, and officiated as a curate till the year 1669, when he was presented to the rectory of St. George's, Botolph Lane, London. He flooded high in character among the London clergy, when he published "A Discourse concerning the Knowledge of Christ, and our Communion with Him," being intended as a confirmation of the Antinomian doctrine, which brought upon him several antagonists, against whom he vindicated himself with judgment and zeal. In 1668 he took the degree of D.D. and in the following year he obtained a prebend in the cathedral of St. Paul's. The discovery of what was called the Rye-house plot, having called forth the spirit of loyalty, Dr. Sherlock appeared as an apostle of the doctrine of non-resistance, in a work entitled "The Case of Religion in order to the Supreme Powers dated and refolved, according to the Doctrines of the Holy Scriptures." In this piece he maintained that the authority of the sovereign was in his person, and not in the law; and that he does not receive his authority from the laws, but that the laws receive their power from him; and that it does not become a man who can reason at all to talk of the authority of the laws in derogation to the authority of the sovereign power. From these principles he did not in the least swerve, even after the accession of James II. had filled more endangered the public liberties and religion of the country. His notion of passive obedience did not, however, prevent him from opposing Popery, for he was among the first who, in those times, engaged in controversy with the Papists, in which he wrote a great number of tracts.

After the revolution, Dr. Sherlock for some time remained firm in his high monarchical principles; and refusing to take the oaths to the new government, was suspended from all his preferments, among which was the mastership of the Temple. It was during this suspension from his labours as a preacher, that he published the treatise on "Death," to which he is chiefly indebted for celebrity as an author. It was entitled "A Practical Discourse concerning Death," and few works have been more popular among all classes. It went through thirty editions in a short space of time, has been printed in all fizes and forms, and has been applauded by the most able critics.

Not long after the publication of this work, Dr. Sherlock's scruples with respect to government gave way; he took the oaths, and was reinstated in all his preferments.

This step of course exposted him to the censure of the party with whom he had long acted, and to vindicate himself he published a piece, entitled "The Case of the Allegiance due to sovereign Powers dated and resolved." In 1692 he published his "Vindication of the Doctrine of the Holy and Ever-blessed Trinity." In this he maintained that there were three eternal minds, which exposted him to the charge of tritheism; it did not, however, prevent his promotion to the deanship of St. Paul's, on the recommendation of Dr. Tillotson, who was raised to the archbishopric of Canterbury.

This rife in the church exasperated still more those who were already indigested against him for his defection of his former principles, and Dr. South published in 1693, Antidotes upon Dr. Sherlock's Book, &c. An eager controversy followed, in which the university of Oxford took part, by confounding in a public decree the hypothesis of Dr. Sherlock, as maintained by a preacher that place. The contest being carried on with great acrimony, the king, at the
the office of the bishops, interpreted with a prohibition of the
use of new terms in the exposition of the doctrine of the
Trinity.
In 1684 Dr. Sherlock published "A Discourse on the
Immutability of the Soul," in which he made an attack on
Locke's opinion concerning fate ideas. He died in 1698,
in the 76th year of his age. After his death, his remains,
which had been printed during his life, were collected, and
with others printed in two volumes, 8vo.
Sherlock, Thomas, a distinguished prelate, all of the
proceeds, was born in London in 1678. He received his
classical education at Eton, and from thence he removed
to Cambridge, and, about the year 1693. In process of
time he became a fellow of that college, entered into
orders, and, upon the resignation of his father in 1704,
his succeeded to the office of master of the Temple. In
the duties of this office he exerted himself with so much suc-
cess, that few English divines have acquired a high reputa-
tion for pulpitu oratory, in the qualities of strength and
fidelity of reasoning, and forcible and manly eloquence.
He commenced his duties in 1690, and in 1714
was elected master of Catharineholt. Being promoted
to the dignity of Chancellor in 1716, he lost after made his
dignitary appearance in print, as a champion of the establishment,
in "A Vindication of the Corporation and Test Acts, in
answer to the Bishop of Bangor's Reasons for the Repul-
se of them." This was replied to by the worthy prelate, and
supported in a rejoinder by the dean.
Dr. Sherlock's next work was entitled "The Use and
Intent of Prophecy in the several Ages of the World,
which was the subject of a sermon preached in the
Temple church, occasioned by the controversy between
Collins and several divines on the subject of prophecy. In
1728 he was promoted to the see of Bangor, in which he
succeeded his antagonist Howland, as he did, in 1738, in that
of Salisbury. As a member of the upper house, he took
an active part in its debates, and was always a supporter of the
interests of the crown and the church. He was con-
 sidered, in parliament, as a great authority in ecclesiastical
law, and frequently led the judgment of the house; and
such at length was the reputation which he had in the episco-
copal character, that upon the death of archbishop Potter,
in 1747, he was offered to succeed him in the see of Can-
terbury, which he declined on account of ill health, but after-
wards recovering, he accepted the see of London in 1749.
In 1751 he refused the leadership of the Temple; and was
very soon after incapacitated for any very active service: he
nearly lost the use of his limbs and speech, but still retained
the vigour of his understanding, and was capable of revising
and correcting a volume of sermons: this was followed by
four others, which are in high estimation. The bishop died
in 1761, in the 84th year of his age.
SHERMA, or CHERMA, in Geography, a province of
the kingdom of Morroco, which lies between the province
of Eia and that of Morocco, and has been dismembered
from that of Eia. See SHERMA.
SHERMAN, a town of America, in the state of Con-
necticut and county of Fairfield, containing 940 inhabi-
tants.
SHERMAN, a town of America, in the state of Con-
necticut and county of Fairfield, containing 940 inhabi-
tants.
SHERMANSII, a town of Atlantie Turkey, in Na-
tolia; 48 miles W. of Bursa.
SHERONIA, a town of Egypt, on the right bank of
the Nile; 8 miles N. of Abu Gargé.
SHERRINGTON, in Biography, a composer of songs
in parts during the reign of Henry VHI, which have been
preferred with those of other contemporary composers in
the Fairfax MS. the most ancient book of the kind that we
have ever been able to discover. See FAIRFAX.
SHERRELL, a coast town of Africa, in the
kingdom of Allaba, generally 100 to 120 miles north of
Jamaica, and by the younger Juba named Carthage, in compli-
nance to Antinous. The town, was Dr. Shaw saw it, in
the year 1740, was of great extent for building, clear
water, and, such iron tools as are wanted in the
neighborhood; but a few years afterwards (1758) it was
entirely torn down by an earthquake. The town which
this town was situated, is not far from it to the
of Carthage; and we may likewise conceive that the
upper part of its town was founded from the river Niger.
and water's edge, and the same Moljac inscriptions,
that are very well preserved. They have a tradition,
that the ancient city was destroyed, as the new one was
lately, by an earthquake; and that the part, formerly very
large and considerable, was destroyed by the asenical
and other adjacent buildings being thrown into it by the
shock. The cotton, or sedenial harbor, that had a
communication with the western part of the town, is the bell
of this tradition; for when the sea is calm, and the water low,
(as frequently happens after long storms or earld s) all
over the area of it to many miles pillar and pieces of great
walls may be seen, that it cannot well be conceived how
they should have there without such a concurrence.
The port is nearly of a circular form, of 200 yards in diameter;
but the sealest part of it, which, till of late was towards
the coast, is now filled up with a bank of sand, that daily
increases. However, there still lies in the mouth of it a
small rocky island, which at present is the main shelter and
defence against the northern tempest. N. lat. 36° 35'.
E. long. 2° 30'.
SHERVEN, a town of Peria, in the province of
Irk; 32 miles N. of Confor.
SHERWOOD FOREST. See SHERWOOD FOR.
SHERZOUR. See SHEREZ.
SHEBEQUIN, a port-town of America, in Luzerne
county, Pennsylvania; 80 miles N.W. of Philadelphia.
SHEHMO-BAND, a town of Persia, in the province
of Senzatan; 50 miles W.S.W. of Ferah.
SHEMHEGA, a town of Peria, in the province
of Khorasan; 55 miles W. of Tabas-Kikek.
SHETABA, a town of Hindostan, in the Carna-
tie; 40 miles S. of Tanaore.
SHETERU, a town of Hindostan, in Comibore;
5 miles N.W. of Eroxon.
SHETLAND ISLANDS. See ZETLAND ISLANDS.
SHETLAND SHEEP, in Agriculture, a breed of fine-woole
sheep peculiar to the Shetland islands. See SHEEP.
SHEETUCKET, in Geography, a river of America,
in Connecticut, formed by the junction of Willimantic
and Mount Hope rivers, which after running E. a few miles
pursues a southern course, and meeting with Quinnabog
river discharges itself into the Thames, in the southern part
of the township of North.
SHEVADY, a town of Hindostan; 8 miles W.N.
W. of Pulmanare.
SHEVAGUNDA, a town of Hindostan, in Mysore;
25 miles N.W. of Bangalores. N. lat. 13° 0'. E. long.
77° 13'.
SHEVAGURY, a town of Hindostan, in Madura; 15
miles N.W. of Colpetta.
SHEVALORE, a town of Hindostan, in Malabar; 8
miles N.W. of Trinamool.
SHEVALPETORE, a town of Hindostan, in Ma-
rawar; 32 miles N.N.W. of Ramnagar.—Also, a
town of Hindostan, in the province of Madura; 35 miles
S.S.W. of Madura.
SHEVA-
SHI

SHEVAPORUM, a town of Hindooftan, in the country of the Navies; 15 miles E. of Tellicherry.

SHEVGUNDA, a town of Hindooftan, in Marwar; 20 miles S. of Travancore.

SHEVITOON INDIANS, Indians of North America. N. lat. 47° 40'. W. long. 124° 35'.

SHEW-Box for Prints. See Camera.

SHEWAGE. See Scavage.

SHEW-BREAD, in the Jewish Economy. The Hebrew (Exod. xxv. 30.) ד"^Josh 12", signifies literally "bread of faces, or of the faces." This denomination was given to the loaves of bread, which the priest of the week placed every Sabbath-day on the golden table in the sanctuary, before the Lord. These loaves were of a square form, with four faces, as the rabbins say, and were twelve in number, representing the twelve tribes of Israel. They supplied the place of those which had been expounded the whole week, and none could lawfully eat them but the priests. This offering was accompanied with frankincense and salt. Of the first fruits and tenth presented by the Israelites to the priests, the latter took that which was necessary for making the shew-bread, and for supplying the service of the temple with any thing else which it was their duty to furnish.

SHEWIN, or SEWIN, in Ichthyology. See Grey.

SHIGIGATCHEE, in Geography. See Sigighetee.

SHIBAB, a town of Arabia, in the province of Hedsja; 84 miles S.E. of Calcut at Mollah.

SHIANDAMANGALY, a town of Hindooftan, in the province of Tinvelly; 10 miles S. of Tutacorn.

SHIANSHIA, a town of Egypt; 25 miles S. of Maffora.

SHIANT ISLANDS. See Shiants.

SHIBBOLETH, or Sibboletli, a Hebrew word which signified spica, or an ear of corn. It was used by way of distinguishing the Ephraimites from the men of Gil-lead. For the latter having killed a great number of the former, sent guards at all the pales of Jordan; and when an Ephraimite, who had escaped, came to the water-side, and desired to pass over, they asked him if he was not an Ephraimite? If he said no, they bade him pronounce Shibbolet. But he pronouncing it Shibboleth, according to the manner of the Ephraimites, and thus not enunciating the first letter, was killed on the spot: on this occasion, 42,000 Ephraimites were killed. By thus not distinguishing between the ש and the ח, the hebra and the shin, they exposed themselves to this massacre: hence the terms have been used to denote the trivial grounds on which contending parties, particularly in theological disputes, often proceed, and do so, till they can no longer imagine there could be, and actually to perforce, another one another.

SHIBKAH, in Geography, an extensive salt-plain of Algiers, overflowed in winter, but dry in summer; 10 miles S. of Oran.

SHICARAN, a town of Aftalian Turkey, in the province of Diarbekir; 18 miles W.S.W. of Hazon.

SHIDES. See Shingles.

SHIEL, Loch, in Geography, a lake in the parish of Ardnamurchan, and county of Inverness, Scotland; extending ten miles in length, and two in breadth. Near its centre rises an islet, called Island Fian, which contains the ruins of a chapel dedicated to the saint of that name. This lake discharges its waters into the Western ocean at Castle Tiorn, by the river Shiel. Statistical Account of Scotland, by Sir John Sinclair, vol. ii. 1792.

SHIELD, an ancient weapon of defence, in form of a light buckler, borne on the arm to fend off lances, darts, &c.

The form of the shield is represented by the escutcheon in coats of arms.

The shield was that part of the ancient armour on which the perions of distinction in the field of battle always had their arms painted; and most of the words used at this time to express the space that held the arms of families, are derived from the Latin name for a shield, suetus. The French escuyer, and esquifon, and the English word, escutcheon, or, as we commonly speak it, scutcheon, is evidently from this origin; and the Italian scudo signifies both the shield of arms, and that used in war.

The Latin name escusus, for the same thing, seems also to be derived from the Greek word ἔστου, to engrave; and it had this name from the several figures engraved on it, as marks of distinction of the person who wore it.

The shield in war, among the Greeks and Romans, was not only useful in the defence of the body, but it was also a token or badge of honour to the wearer, and he who returned from battle without it, was always treated with infancy afterwards.

People have at all times thought this honourable piece of armour the properest place to engrave or figure on the shields of dignity of the polifer of it; and hence, when arms came to be painted for families in after-times, the heralds always chose to represent them upon the figure of a shield, but with several exterior additions and ornaments, as the helmet, supporters, and the rest.

The form of the shield has not only been found different in various nations, but even the people of the same nation, at different times, have varied its form extremely; and among several people there have been shields of several forms and fizes in use, at the same period of time, and suited to different occasions.

The most ancient and universal form of shields, in the earlier ages, seems to have been the triangular, vulgarly called the heater shield, from its resemblance to that instrument of houfieyry. This we see instances of in all the monuments and gems of antiquity: our own most early monuments shew it to have been the most antique figure also with us, and the heralds have found it the most convenient for their purposes, when they had any odd number of figures to represent; as if three, then two in the broad bottom part, and one in the narrow upper end, it held them very well; or if five, they stood as conveniently, as three below, and two above. Most of the monumental figures of croisled legged knights are armed with triangular shields, which are generally a little convex, or curved in their breadth; their upper extremity terminated by a Line parallel to the horizon, and their sides formed by the interference of the segments of two circles. Such are generally represented on ancient feals and windows: sometimes, though not often, their surfaces are flat. On the inside of the Norman shields were two or more loops of leather, or wooden handles, through which the arm and hand were passed, when the shield was bared, and prepared for use; at other times it was carried by a leathern thong worn round the neck. The other form of a shield, now universally used, is square, rounded, and pointed at the bottom: this is taken from the figure of the Samnite shield used by the Romans, and since copied very generally by the English, French, and Germans. See Target.

The shield, though it was not entirely relinquished so long as the use of the long and short bows continued, seems to have undergone some alteration in its form; the triangular, or heater shield, gradually giving place to those of a circular or rectangular figure. Shields were first left off by the cavalry; they were, however, used in the army of King Edward I., at the siege of Karlavok, in the year 1300. A fort
A list of shields was worn by the Scots at the battle of Musselburgh, in the first year of Edward VI. Shields or bucklers seem to have been used in arrays and private quarters, by persons in the civil war, as late as the reigns of Elizabeth and King James I. The common appellation for a quarrelsome or fighting fellow about that period was a swallbuckler, that is, a breaker orehler of bucklers. Maurice, prince of Orange, was a great advocate for the shield, and even attempted to revive the use of it. This company of Dutch guards was armed with targets and roundels, and he formed a regular plan of exercise for them. The target and broad sword were the favourite arms of the Scotch Highlanders as late as the year 1746, and even after. Swords and bucklers were annually borne before great military officers, as insignia of their dignity: those carried before King Edward III. in France, are shown in Weilminster Abbey. The shield borne before the commandant of the forces on board the Spanish Armada, is preferred in the Tower, and a sword was borne before the bishop of Norwich, as commander of the troops with which he intended to serve King Richard II. Many of the ornamented metal shields, and many of the very large swords, were designed for this use.

The Spaniards and Portuguese have the like general form of shields, but they are round at the bottom, without the point; and the Germans, beside the Samnite shield, have two others pretty much in use: these are, 1. The bulging shield, distinguished by its swelling or bulging out at the flanks; and, 2. The indent shield, or shield chancree, which has a number of notches and indentings all round its sides. The use of the ancient shield of this form was, that the notches served to retl the lance upon, that it might be firm while it gave the thrust; but this form being less proper for the receiving armorial figures, the two former have been much more used in the heraldy of that nation.

Another form of shield derived its name rounded, or rondache, from its circular figure; it was made of ovals, boards of light wood, finewor or ropes, covered with leather, plates of metal, or flueck full of nails, in concentric circles, or other figures. The shields and roundels of metal, particularly those richly engraved or embossed, seem rather to have been insignia of dignity, anciently borne before generals or great officers, than calculated for war; most of them being either too heavy for convenient use, or too light to reflect the violence of a stroke either from a sword or battle-axe. Although most roundels are convex, yet there are many that are concave, and consequently an umbo. The handles are placed as in the shield and target. The roundel seems, in many instances, to resemble the Roman palm. For another form of shield, see PAVIAN.

Besides this different form of the shield in heraldry, we find them also often distinguished by their different positions, some of them standing erect, and others standing various ways, and in different degrees; this the heralds express by the word pendent, hanging, they seeming to be hung up, not by the centre, but by the right or left corner. The French call these en pendent, and the common antique triangular ones en ancien. The Italians call this fuoco pendente; and the reason given for exhibiting the shield in these figures in heraldry is, that in the ancient tilts and tournaments, they who were to joust at these military exercises, were obliged to hang up their shields, with their armories or coats of arms on them, out at the windows and balconies of the houses near the place; or upon trees, pavilions, or the barriers of the ground, if the exercise was to be performed in the field. Those who were to fight on foot, according to Columbier, had their shields hung up by the right corner, and those who were to fight on horse-back, had theirs hung up by the left.

This position of the shields in heraldry is called en aile by some writers, though by the generality pendente.

It was very frequent in all parts of Europe, it is even given between the eleventh and fourteenth centuries; but it is to be observed, that the hanging by the left corner, as it was the token of the owner's being to fight on horse-back, for it was esteemed the most honorable and noble situation; and all the pendant shields of the tom of the royal family of Scotland and England, and of our nobility, at that time, are thus hanging from the left corner. The hanging on this corner was a token of the owner's being of noble birth, and having fought in the tournaments before; but no sovereign ever had a shield pendant any way, but always erect, as they never formally entered the lists of the tournament.

The Italian generally have their shields of arms of an oval form; this seems to be done in imitation of those of the popes, and other dignified clergy; but their herald, Petrou Saneto, seems to regret the use of this figure of the shield, as an innovation brought in by the painters and engravers, as most convenient for holding the figures, but derogatory to the honour of the popes, as not representing either antiquity, or honours won in war, but rather the honours of some citizen, or person of learning. Some have carried it so far, as to say that these, who either have an ancient title to nobility, or have fulfilled it by any unworthy action, cannot any longer wear their arms in shields properly figured, but were obliged to have them painted in an oval or round shield.

In Flanders, where this author lived, the round and oval shields are in the direst he speaks of; but in Italy, besides the popes and dignified prelates, many of the first families of the laity have them.

The secular princes, in many other countries, also retain this form of the shield, as the most ancient, and truly expressive of the Roman clypeus. Niflet's Heraldry, p. 12. Componille, Herald.

SHIELD, in Heraldry, denotes the escutcheon, or field whereon the bearings of the armoury are placed. See ESCUTCHEON.

SHIELDRAKE. See TADorna.

SHIELDS, WILLIAM, in Biography. Though this musical professor, for the happiness of his acquaintance, still ranks with the living, and we can tell our contemporaries nothing concerning his worth and talents which is not already well known, yet as his name has penetrated into Germany, and has furnished an article in Gerber's Continuation of Walther's Musical Lexicon, we cannot refuse confessing the account given of his compositions in that work.

SHIELDS, North, in Geography, a market-town and sea-port in Cottleward, county of Northumberland, England, is situated near the entrance of the river Tyne, on its northern bank, at the distance of half a mile W.S.W. from the town of Tynemouth, and 279 miles N. by W. from London. This town is indebted for its origin to the monks of Tynemouth priory, who erected a number of houses here, and encouraged the settlement of ship-owners and tradesmen, early in the reign of Edward I. They at the same time formed a harbour here for lading and unloading of ships, and established a weekly market and fairs; but the exercise of these privileges having been disputed by the corporation of Newcastle, they were prohibited by a decree of the inferior judges. From that period it continued to be a mere fishing village till the middle of the seventeenth century, when new efforts were made to render it an important sea-port, for which purpose its situation is admirably adapted. Cromwell, who then held the reins of government, with the consent of
parliament passed an act, in which it was ordered, "that sufficient and well-fenced ballast-ponds, quays, and slipways, be built at Shields," and "that North Shields be made a market-town two days in the week, for the relief of the country and garrison of Tynemouth, and for all the great confluence of people and fleets of ships."

In consequence of this act, North Shields would soon have become a place of great commercial importance; but on the reformation, the rights claimed by the corporation of Newcastle were restored; and North Shields was deprived of its markets and fairs. From that time every mean which a narrow and illiberal policy could devise, was employed to retard the growing prosperity of this port; but towards the conclusion of last century, many of the unjust restrictions which formerly prohibited were removed, and the different trades permitted to be followed without molestation. It was only, however, in the year 1804, that North Shields obtained the privilege of holding a weekly market and fairs, by petition of the inhabitants to the duke of Northumberland, as lord of the manor of Tynemouth, in which the feite of North Shields is included. The day of the first opening of the market was ushered in with great rejoicings, and at noon a salute of cannon announced the completion of the long wished-for event. The market-day is Friday, and the fairs are held on the last Friday in April, and the first Friday in November.

North Shields, from these circumstances, and the patriotic exertions of the duke of Northumberland, is become, in the course of a few years, a large and populous town. It contains many handsome streets, and two elegant squares, besides the market-place, lately formed, which may rival any provincial market-place in the kingdom. On one side is a spacious quay, with a crane for the delivery of goods, where ships of 500 tons burden may discharge or take in cargoes with perfect safety. Another side is adorned with a noble flone building, which is now used as an inn, and is surmounted with the Percy arms. North Shields, forming part of the parish of Tynemouth, has no parish church, but it poifesses several chapels of ease, and meeting-houses for almoft every class of dissenters. The other public structures and establishments here are a theatre, a dispensary, and a large school-house, erected by subscription, in commemoration of the royal jubilee, where a great number of boys and girls are educated on the Lancastrian plan. Here are likewise many well-conducted and flourishing benevolent societies, an asylum for sick and friendless seamen, and a lying-in-hospital. A subscription library has also been opened in North Shields, and is said to contain an extensive collection of valuable books.

The harbour of North Shields is calculated to accommodate 2500 fall of ships; and in spring tides, vessels of 500 tons burden can pass the bar without danger. The vessels belonging to this port, exclusive of small coalers, are stated in the "Historical View of Northumberland," to amount to 1000; but this number, we presume, includes the shipping of Newcastle and South Shields also, of which North Shields may justly claim one half. One great inconvenience complained of by the commercial interest here and at South Shields, is the want of an independent custom-house; which obliges the captains of all vessels falling from this port to clear their ships at Newcastle, a distance of ten miles up the river.

The principal trade of North Shields, as of the river Tyne generally, consists in the exportation of coals to London, and other parts of the eastern coast of England; but some vessels are likewise employed in the Baltic and American trade; and during the late wars, a great number was hired to government for the transport service. The manufactures established here are chiefly such as depend upon the shipping interest, as ship and boat-building, rope and sail-cloth making, brewing, baking, &c.; but there are likewise in North Shields a foundery for cast iron, an extensive tannery, one kilnery, a tobacco manufactury, a glove manufactury, and five hat manufactories.

The feamen of this port are frequently very riotous and turbulent, when they want a rife of wages, or are in any way dissatisfied with the conduct of the ship-owners. In these instances they have generally acted upon a regular plan; forcing every sailor to remain on board, and preventing any vessel from proceeding to sea until their demands were complied with. An alarming combination of this kind was formed in the months of September and October last, (1815,) and threatened such serious consequences, as to render government interference necessary, when order was happily restored without bloodshed.

North Shields, according to the parliamentary returns of 1811, contains 824 houses, and a population of 7699 persons.

For some further account of this port and the adjoining country, see the articles Newcastle, Tyne, Tynemouth, and South Shields. A Historical and Descriptive View of the County of Northumberland, &c. two vols. 8vo. Newcastle, 1812.

Shields, South, a market-town and sea-port in the parishes of Jarrow, east division of Chelfer ward, and county palatine of Durham, situate directly opposite to North Shields, at the distance of 21 miles N.N.E. from the city of Durham, and 278 N.N.E. from London. Like North Shields, it owes its importance chiefly to the coal trade and shipping interest, but the proportion of manufactures carried on here is greater than at the former town. About fifty years ago this place was divided upward of two hundred salt pans, but that branch of businefs has greatly declined, and others of higher importance are substituted in its stead, as ship-building, and the manufacture of glass, soap, &c. South Shields was constituted a market-town by bishop Trevor, in the year 1770. The market-day is Wednesday, and there are two annual fairs, on the 24th of June and the 4th of September. The vessels belonging to this port amount to about 300 in number. The church, which is a chapel of ease under Jarrow, is evidently a structure of great antiquity; the style of its architecture being that of the Anglo-Norman era. Some antiquaries are of opinion that there was a Roman station at the point of land near South Shields, which formed the southern entrance into the Tyne, and the conjecture is certainly probable, though by no means authenticated as a fact.

South Shields, like North Shields, has of late years greatly increased in population and extent; but it is deficient of many of the advantages possessed by the other. Here are, beside the established church, several dissenting meeting-houses; also several benefit societies and charity-schools. The petty feclions for the east division of Chelfer ward are held in the town-house here, which is a respectable building, situate in the centre of the market-place. Most of the Iterets of this town, however, are narrow, and the houses very indifferently built. According to the parliamentary returns of 1811, it contains 528 houses, and a population of 9501 persons.

About two miles to the westward of South Shields is the village of Jarrow, celebrated for its monastery, which was originally founded about the year 683; but has since been frequently rebuilt. This religious house was dedicated to St. Paul, and appropriated to the reception of Benedictine monks.
works. Its remains, together with the church of Jarrow, occupy the summit of an elevated ridge, but display little worthy of notice. The History and Antiquities of the County Palatine of Durham, by W. Hutchinson, 1815.

SHIFRAL, a market town in the parish of Shifnal, hundred of Bridleway, and county of Salop, England, is situated at the distance of 19 miles E. by S. from Shrewsbury, and 143 miles N.N.W. from London. The market day here is Friday weekly, and there are fairs on the 1st of August and the 22d of November. The petty fairs for Shifnal division of the hundred are held here; but in other respects this town is a thriving place, the whole parish, which is extensive, and includes four townships, containing, according to the parliamentary returns of 1811, only 868 houses, and 4,061 inhabitants.

SHIFT, a term in Music, used for conducting the hand on the finger-board of the violin, and instruments with a neck.

By moving the left hand a little towards the bridge, and placing the first finger where the second was, on the second string of the violin, in the natural position of the hand, it will produce C unaltered in B, and the little finger will then produce C on the first string, its octave; and this is called the half shift. The first, or whole shift, is placing the first finger where the third was, in the natural position of the hand, which will produce D on the second string, and the little finger its octave on the first. The next movement of the hand towards the bridge is placing the first finger on E of the second string, when the little finger will give its octave on the first string, and this is termed the double shift; each shift commanding all the intermediate notes of an octave to the first finger. By this means a half, a whole note, or any number of notes, may be gained upwards upon each string, to the end of the finger-board. A readiness at these shifts, on short notice, in all keys, and in true intonation, is said to be knowing the finger-board well. At present (1809) high lute parts for the violincello are written in the treble clef.

Shifts, in Ship-Building, a term applied to disposing the butts of the planks, &c. so that they may over-arch each other, without reducing the length, and so as to gain the most strength. The planks of the bottom, in British-built ships of war, have a fix-feet shift, with three planks between each butt, so that the planks run twenty-four feet long. In the bottoms of merchant-ships, they have a fix-feet shift, with only two planks between each butt, making but eight feet planks in length. The shift of the timbers is from three feet to ten feet six inches in length, according to the size of the ship.

SHIFTED, in Sea Language, denotes the state of a ship's ballast or cargo, when it is shaken from one side to the other, either by the violence of her rolling in a turbulent sea, or by an extraordinary inclination to one side, when under a great preflure of wind. This circumstance rarely happens, unless to those cargoes which are loaded in bulk, as corn, salt, and such materials.

Shifter, as expressed of the wind, implies altered.

Shifter, a person appointed to assist the ship's cook, particularly in washing, steeping, and shifting the salt provisions.

SHIFTING, in Ship-Building, the act of setting off the length of the planks, &c. of a ship, so that the butts may over-arch each other, as to produce a good shift. (See Shift.) Replacing old fluff with new is also called shifting.

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mer. In performing the business, it is mostly proper to remove the plants from the smaller to the larger pots, with the balls of earth about the roots, either wholly, or some of the outward old earth, the dry or matted radical fibres only being carefully trimmed away, so as not to disturb the principal roots in the bodies of them, as by this means the plants receive but little check in their growth by the removal. Sometimes, when any particular plants, shrubs, or trees, &c. in their pots, discover by their tops that they are in a declining state, as probably the defect may be either in the root, or the old balls of earth, it may be proper to shake all the earth entirely away, in order to examine the roots, and to trim and dress them as the case may require, replanting them in entire fresh compost or mould.

And in preparing for this sort of work, where necessary to give larger pots, &c. it is proper to provide them of suitable sizes, in some regulargradation larger than the old ones, according to the nature and growth of the plants, the whole being placed ready, with a proper quantity of fresh compost earth, in proportion to the number and size of the plants intended to be shifted; then let the whole plants intended to be removed with balls, be taken out of their old pots separately, with the whole balls or clumps of earth about the roots as entire as possible; and when large, or tolerably full, with a knife trim off some of the outward loofed earth, and the extreme fibres of the roots; but when small, and adhering together compactly, the whole may be preferred entire; and in either case, where there are very small, dry, or decayed fibres surrounding the balls, they should be trimmed as it may seem necessary: in those of a fresh lively growth, the loose straggling parts only should be cut away. The requisite pruning, trimming, or dressing in the heads or tops, should also be given where it may seem proper, according to the state of growth, and the natural habit of the different plants; but many sorts require little or none of this sort of attention.

Then having prepared the intended pots for the reception of the plants, by placing some pieces of tile or oyster-shell, &c. loosely over the holes at bottom, and laid in a little fresh earth, two, three, or four inches deep, or more, according to the size of the pot, the plant should be set in with its ball of earth, as above, filling up around it with more fresh mould, raising it an inch or two over the top of the ball; and giving directly a moderate watering, to let the earth close about the ball and roots regularly in every part, in a proper manner. If such cafes where the ball in particular plants appears very compactly hard and binding, it may be proper to loosen it a little, by thrashing a sharp-pointed stick down into the earth in different parts, giving it a gentle wrench, to open the earth moderately; or sometimes it may also be proper to trim away some of the old earth on the top and sides, then planting it as above, and filling up round and over the ball with fresh earth, and watering it afterwards.

Also, in shifting hardy or tender, shrubby, succulent, or herbaceous plants, when any appear of a fickle, weak, or unhealthy growth, it may be advisable to clear off a considerable part of the outward old earth from the balls about the roots, or, in some cafes, to shake it wholly away, that the defects in the growths, occasioned either by faults in the roots or in the earth, may be removed by pruning out any decayed or bad parts of the roots, and replanting them wholly in fresh earth.

And sometimes particular sorts of plants in pots require shifting, more for the advantage of having fresh earth, than for want of new, or larger pots; and as in this cafe some of the fame pots may be still of an eligible size to repot them in, these pots should be well cleaned from all the adhering parts of the old earth, and be replenished with entire new, at the time of repotting the plants; which being removed out of their pots, either with the entire balls about the roots, and part of the old mould cleaned off all round, to admit of a larger portion of fresh earth in the pot at replanting; or in some, appearing of an injurious or declining habit, the whole balls of old earth displaced clean to the roots; then having furnished the pots with fresh earth, the plants should be replaced in them, filling up the pots regularly with a sufficiency of the fame fresh mould, and fulfilling with a moderate watering to settle the whole close about their roots.

Likewise after shifting, when the plants are not watered at the time, a moderate watering, both to the earth in the pots to settle it close about the roots, and in mossy forts highly over the tops or heads of the plants, should be given, in order to wash off any fineness, then the pots of plants should be let in their respective situations in the garden, &c.: the hardy kinds, if warm sunny weather, may be placed in a shady border for two or three weeks, till they have fresh fresh root in the new earth: the tender sorts should be placed in their places among the green-house and house-plants, or to have the benefit of those in the middle of hot sunny days, till fresh struck, or probably some of the more tender particular sorts may require to be plunged in a hot-bed or bark-bed, especially some of the flou kinds: some principal sorts of the more curious or tender green-house plants, in order to expedite their fresh-rooting more effectually; and sometimes tender annuals in hot-beds, potted in their early young growth, may require to be replanted in the hot-bed to fresh strike, and forward them till June; but generally all the full ground or open air plants only require a little occasional shade in hot dry weather the first two or three weeks, and some shifted with full balls about the roots, only need occasional watering; afterwards, on the whole, both the hardy and tender kinds should have repeated moderate waterings given them, according to their kinds.

SHIFTS, such parts of a farm as are allotted for the reception of either rock or crops. It is also a term applied to the rotations of cropping lands: thus we have three, four, five, and fixe-course shifts. See Course of Crops.

SHIASCHEKOTAN, in Geography. See S ASKUTAN. SHIITES, in the History of Mohammedan Sects, were the opponents of the Kharijites; see that article. This name properly signifies feilqciras or adherents in general, but is peculiarly used to denote those of Ali Ebn Abi Taleh; who maintain him to be lawful caliph and imam, and that the supreme authority, both in spirituals and temporals, of right belongs to his descendants, notwithstanding they may be decried of it by the injustice of others, or their own fear. They also teach, that the office of imam is not a common thing, depending on the will of the vulgar, so that they may fet up whom they please; but a fundamental affair of religion, and an article which the prophet could not have neglected, or left to the fancy of the common people; nay some, thence called Imamians, go so far as to assert, that religion conficts solely in the knowledge of the true imam. The principal sects of the Shiites are five, which are sub-divided into an almost incredible number; so that some understand Mohammed's prophecy of the seventy odd sects, of the Shiites only. Their general opinions are, 1. That the peculiar designation of the imam, and the testimonies of the Koran and Mohammed concerning him, are necessary points. 2. That the imams ought necelarily to keep themselves free from light sins as well as more grievous. 3. That every one ought publicly to declare who it is that he ad-
here to, and from whom he separates himself, by word, deed, and instrument, and that hence there should be no dissimulation. But in this last point some of the Zendases, a fact to named from Zend, the seat of Ah, turned Zoroaster, and great grandchild of Ah, differed from the rest of the Shiites. As to other articles, wherein they agreed not, some of them were pretty near to the notions of the Mozaffarites, others to those of the Moplillah holies, and others to those of the Sunnites. Among the latter of those, Mohammed al Baker, another son of Zoroaster, seems to claim a place: for, in opposition to the will of God, that was, that God will the something on us, and the something from us, and that he will the from us to be hath revealed to us, for which reason it thought it proper that we should employ our thoughts about these things which God will have in us, and neglect the other in which he will have us; and as to God's decree, he held that the way lay in the middle, and that there was neither compulsion nor free liberty. A sect of the Khattabians, or disciples of one Ibn Khattab, is too peculiar to be omitted. These maintained a paradise to be no other than the pleasures of this world, and kill-fire to be the pains thereof, and that the world will never decay: which propitious being first laid down, it is no wonder they were further, and declared it lawful to indulge themselves in drinking wine and whoring, and to do other things forbidden by the law, and also to omit doing the things commanded by the law.

Many of the Shiites carried their veneration for Ali and his descendants so far, that they transgressed all bounds of reason and decency; though some of them were less extravagant than others. The Gholaites, who had their name from their evergreen zeal for their imams, were so highly transported therewith, that they raised them above the degree of created beings, and attributed divine properties to them; transgressing on either hand, by deifying of mortal men, and by making God corporeal: for one while they liken one of their imams to God, and another while they liken God to a creature. The sects of these are various, and have various appellations in different countries. Abd'allah Ebn Saba, (who had been a Jew, and had adhered the same thing of Josua the son of Nun,) was the ring-leader of one of them. This man gave the following salutation to Ali, viz. Thou art thou, i.e. thou art God: and hereupon the Gholaites became divided into several species; some maintaining the same thing, or something like it, of Ali, and others of some of one of his descendants; affirming that he was not dead, but would return again in the clouds, and fill the earth with justice. But howsoever their disagreements in other things, they unanimously held a metamorphosis, and what they call Al Haqul, or the defects of God on his creatures; meaning thereby that God is present in every place, and speaks with every tongue, and appears in every individual person; and hence some of them affected their imams to be prophets, and at length gods. The Nofarian, and the 19shans taught that spiritual substances appear in großer bodies; and that the angels and the devil have appeared in this manner. They also affect that God hath appeared in the form of certain men; and since, after Mohammed, there hath been no man more excellent than Ali, and, after him, his sons have excelled all other men, that God hath appeared in their form, spoken with their tongue, and made use of their hands, for which reason, say they, we attribute divinity to them. And to support these blasphemies, they tell several miraculous things of Ali, as his moving the gates of Khabar, which they urge as a plain proof that he was endowed with a particle of divinity, and with sovereign power, and that he was the person in whole from God appeared, with what he had created all things, and with what things he was possessed; and hence they say that he was a god, not of earth and earth. In this respect, if they speak well these things, which are God himself, they apply them to Ali. This was the case among the Shiites, however, in making their faith in the divine nature, and the property of God, of the divine character, and far from being pernicious to this faith, that most of the other Mohammedans that are treated with the same mode: they have many famed among them, and among the Shiites especially, who pretend to be really related to heaven, and who hold of strange revelations before the credulous people. To this account of the Shiites of the first and second father, a brief mention of the great schism at this day following between the Sunnites and the Shiites, or partisans of Ali, and maintain on either side with implacable hatred and furious zeal. Though the difference arise at first on a political occasion, it has, notwithstanding, been so well supported by additional circumstances, and the spirit of contradiction, that each party denied and anathematized the other as abominable heretics, and farther from the truth than the heathenish or the Jews. The Shiites point wherein they differ are, 1. That the Shiites reject Ali, Omer, Osman, and Othman, the three first caliphs as usurpers and intruders; whereas the Sunnites acknowledge and respect them as rightful imams. 2. The Shiites prefer Ali to Mohammed, or, at least, esteem them both equal; but the Sunnites admit neither Ali, nor any of the prophets, to be equal to Mohammed. 3. The Shiites charge the Shiites with corrupting the Koran, and neglecting its precepts; and the Shiites retort the same charge on the Sunnites. 4. The Sunnites receive the Sana, or book of traditions of their prophet, as of canonical authority; whereas the Shiites reject it as apocryphal and unworthy of credit. And to these disputes, and some others of less moment, is principally owing the antipathy which has long reigned between the Turks, who are Sunnites, and the Persians, who are of the sect of Ali. Sale's Koran, introd.

SHILACON, in Geography, a town of Egypt, on the E. side of the Nile; 8 miles N. of Cairo.

SHILL, in Agriculture, provincially to separate the rind, bulk, or skin, as of cats, or other crops. It also signifies the turning a small portion of milk into curd.

SHILLAY, in Geography, a small island near the W. coast of the island of Lewis; 5 miles W.S.W. of Toe Head. N. lat. 53° 48'. W. long. 7° 14'.

SHILLELAH, a town of Algiers, anciently Taraphtium; 10 miles S.W. of Burg Hamza.

SHILLER-STONE, or Shiller-Spar, in Mineralogy, the disseh metalloid of Halyj, a mineral nearly allied to serpentine. (See SERPENTINE.) It is considered by some mineralogists as a crystalline variety of that rock; in which it generally occurs, either in beds or disseminated. Its colour is commonly olive-green, with a shining luster, which is sometimes semi-metallic. The structure is lamellar, with joints in one direction: it yields to the knife. In the vicinity of New Radnor, in Wales, there is a rock of this mineral intermixed with slate.

SHILLING, an English silver coin, equal to twelve pence, or the twentieth part of a pound.

Froboesus derives the Saxon seilling, whence our shilling, from a corruption of sambia; proving the derivation by several texts of law, and among others, by the twenty-sixth law, De annuis legatis. Skinner deduces it from the Saxon field, shield, by reason of the escutcheon of arms upon it.

Bishop Hooper derives it from the Arabic fede, signi-
SHILLING.

fying a weight; but others, with greater probability, deduce it from the Latin *sicilicus*, which signified in that language, a quarter of an ounce, or the forty-eighth part of a Roman pound. In confirmation of this etymology, it is alleged, that the shilling kept its original signification, and bore the same proportion to the Saxon pound, as *sicilicus* did to the Roman and the Greek, being exactly the forty-eighth part of the Saxon pound; a discovery which we owe to Mr. Lambard. *Explicatio Rerum et Verborum in Legg. Sax. voc. Libra*.

Others say, that the shilling was at first a German appellation, *schelling*; coins of which name had been struck at Hamburg in 1407.

However, the Saxon laws reckon the pound in the round number at fifty shillings, but they really coined out of it only forty-eight; the value of the shilling was five-pence; but it was reduced to four-pence above a century before the Conquest; for several of the Saxon laws made in Athelstan's reign, oblige us to take this ultimate. Thus it continued to the Norman times, as one of the Conqueror's laws (Legg. Sax. p. 221.) sufficiently ascertains; and it seems to have been the common coin by which the English paymen was adjusted. After the Conquest, the French solide of twelve-pence, which was in use among the Normans, was called by the English name of shilling; and the Saxon shilling of four-pence took a Norman name, and was called the *great*, or great coin, because it was the largest English coin then known in England.

The *great*, from the French *gros*, a large piece, was introduced by Edward III. in 1354, and continues, though not in common circulation, to this day. The half-*great*, or two-pence, is of the same date and continuance. In Scotland, about the year 1553, were first coined *teltouns*, or shillings, bearing the bust of the queen, and the arms of France and Scotland on the reverse: they being of the same intrinsic value as that of England, were then worth four shillings, and the half-*teltoun* two, Scotch money.

It has been the opinion of bishops Fleetwood and Gibson, and of the antiquaries in general, that though the method of reckoning by pounds, marks, and shillings, as well as by pence and farthings, had been in constant use even from the Saxon times, long before the Norman conquest, there never was such a coin in England as either a pound or a mark, nor any shilling or *teltoun*, till the year 1553, 1504, or 1505; but in the twentieth year of King Henry VII. (A.D. 1505) a few silver shillings, or twopence, were coined, being about one-half the size of the modern shillings, or forty out of a pound weight of silver, which were fair and broad pieces. These, however, it is said, have long since been solely confined to the cabinets of collectors.

Mr. Clarke combats this opinion, alleging, that some coins mentioned by Mr. Folkes, under Edward I. were probably Saxon shillings new minted, and that archbishop Aelfric (Gram. Sax. p. 52, at the end of Sommer's *Saxon Diction*), expressly says, that the Saxons had three names for their money, *viz.* manceues, *schellings*, and *pennies*. He also urges the different value of the Saxon shilling at different times, and its uniform proportion to the pound, as an argument, that their shilling was a coin; and the testimony of the Saxon gospels, in which the word we have translated *pieces of silver*, is rendered shillings, which, he says, they would hardly have done, if there had been no such coin as a shilling then in use. Accordingly, the Saxons expressed their shilling in Latin by *sicilus* and *argentus*.

He farther adds, that the Saxon shilling was never ex-preffed by *solidus*, till after the Norman settlements in England; and howsoever it altered during the long period that elapsed from the Conquest to the time of Henry VII. it was the most constant denomination of money in all payments, though it was then only a species of account, or the twentieth part of the pound *sterling*; and when it was again revived as a coin, it lefled gradually as the pound *sterling* lefled, from the twenty-eighth of Edward III. to the forty-third of Elizabeth. Clarke on Coins, &c. p. 120. 152. 155. 200. 376.

Silver farthings sealed with Edward VI., but the silver half-pence continued the folc coins till Charles II. The silver penny was much used to the end of the reign of George I., and so far from being no where to be found, as Hume affirms (Hist. vol. vi.), is superabundant of every reign since that period, not excepting even the present reign of George III.

In the year 1560, there was a peculiar fort of shilling struck in Ireland, of the value of nine-pence English, which passed in Ireland for twelve-pence. The motto on the reverse of thefe is, *POSUI DEUM, ADUOTORUM MEUM*.

Eighty-two of these shillings, according to Malynes, went to the pound, they therefore weighed twenty grains one-fourth each, which is somewhat heavier in proportion than the English shilling of that time, sixty-two of which went to the pound, each weighing ninety-two grains seven-eighths; and the Irish shilling being valued at the Tower at nine-pence English, that is, one-fourth part less than the English shilling, it should, therefore, proportionably weigh one-fourth part less, and its full weight be somewhat more than sixty-two grains; but some of them found at this time, though much worn, weighed sixty-nine grains. In the year 1598, five different pieces of money of this kind were struck in England for the service of the kingdom of Ireland.

There were shillings to be current in Ireland at twelvepence each; half shillings to be current at five-pence; and quarter shillings at three-pence.

Pennys and halfpennies were also struck of the same kind, and went for the payment of the army in Ireland. The money thus coined was of a very base mixture of copper and silver; and two years after there were more pieces of the same kinds struck for the same service, which were still worse; the former being three ounces of silver to nine ounces of copper; and the latter only two ounces eighteen pennyweights, to nine ounces two pennyweights of the alloy. Simon's Irish Coins.

The Dutch, Flemish, and Germans, have likewise their shilling, called *fcheling*, *felling*, *faden*, &c.; but these, though of the same weight or fineness with the English shilling, are not current at the same value. See *SHILLING* and *SKILLING*.

The pound Flemish in accounts is divided into twenty shillings, and subdivided into twelve gros or pence Flemish. The coins in Holland are good shillings, or ecalins, and half ditto, at fix and three fivers; untampered or bare shillings reckoned at five and a half fivers, and called fifthealls. At Hamburg, accounts are kept in shillings, fixteen of which are equal to a mark, and each containing twelve pence. Sometimes in pounds, shillings and pence Flemish; the pound being equal to twenty shillings, and the shilling equal to twelve-pence or gros.

The English shilling is worth about twenty-three French sous; thole of Holland and Germany about eleven sous and a half; thole of Flanders about nine. The Dutch shillings are also called *sols de gros*, because equal to twelve gros. The
The Danes have copper bullocks, worth about one-fourth of a farthing per head. See Coins.

SHILLUK, in Geography, a town of Africa, in the kingdom of Senmara, on the E. side of the river Behr-el-Ahmad, and not far removed from it. This town is built of clay, and its inhabitants are idolaters. They have no other clothing than bands of long gowns, which they pull round the waist and between the thighs. They are all black, and those of both sexes have their heads. The people of Shilluk have the dominion of the river, and take toll of all passengers, in such articles of trade as pass among them. These people, who alone import corn from their command of the river, are represented as hospitable to those who come among them in a peaceable manner, and as never betraying to whom they have once avowed friendship; 50 miles W. of Senmara.

SHILOH, in Scripture Criticism, a term that occurs in Jacob's celebrated prophecy concerning the Messiah (Gen. xlix. 10.): concerning the etymology and application of which, biblical commentators have differed in opinion. "The sceptre shall not depart from Judah, and a law-giver from between his feet; till Shiloh come: and to him shall the gathering of the people be." The word Shiloh, says one writer (Mr. Mann), is a modern reading: unknown in any other part of the scripture, or any of the old commentators; coined by the Jewish correctors of the lxx into שילוח, a word of no figurative signification; whereas the LXX read שָׁלֹה, that is, שֶׁלֹה; he, to whom it is; he, to whom it: שֶׁלֹֹב, sceptre, belongs; שֶׁלֹה, he for whom it is referred, as it is in the original belt copy of the LXX version, as Justin Martyr long ago affirmed, (Dial. cum Tryph.), and as it now stands in the Alexandrian MS. And if this be the true meaning, it plainly refers to the king of the Jews; for whom the sceptre was referred, and to whom the people were to be gathered. Mr. Amworth and some others render Shiloh the prophetor or safe-maker; others the peace-maker, from שלום, all which agree to the same person. But the most probable interpretation, as the author of Mordecai's Letters, (Mr. Taylor,) apprehends, is given us by the very learned and judicious Dr. Delitzsch, professor of Arabic at Oxford. He understands the true etymology of the word Shiloh to remain in the Arabic שלום, which bears the same idea as the Hebrew שָׁלֹה, and is etymologically equivalent to it. According to this etymology, Shiloh will be the deliverer of dills from destruction: a title, which justly belongs to Jesus Christ, the Lord of life, and Saviour of the world. If it should be objected to this etymology, that the text (1) is wanting in the Septuagint and the LXX, he observes, that in the Samaritan copy of Genesis, xxxix. 10. the word is written without the final letter ש, as it is likewise in one of the most ancient Hebrew MSS. which Dr. Kennicott has consultated on this text. Some moderns have pretended, in order to evade the prophetic force of the text, that the sceptre departed from Judah before the advent of Christ, by its falling into the hands of foreigners, which objection is sufficiently answered by Cunæus (De Republ. Heb. l. 50. c. 9.) and others, who have shown, that the text only regards the continuance of the Jewish state; and that Jews, as separated from Israel, should remain a kingdom till the coming of the Messiah. On the other hand, Abrahavan and others suppose, that the sceptre is not yet departed from Israel; and Mæstlin and other scholars, that it is still in the hands of the tribe of Judah. The ancients undoubtedly understood this text of the Messiah. The Chaldean Paraphrast says, "He that hath dominion shall not be taken away from Judah, nor a tribe from his children's children, until the time when Christ shall come, as the dominion, and he shall the people that sat not upon a throne." And the Jerusalem Targum says, "Kings shall not sit from the house of Judah, nor doctors that teach the law from the children of the children of Judah, until the time that Christ shall come, whose kingdom is, and all the kings of the earth shall be before him." So that both the Targums confirm the literal sense, that the people (i.e. both Jews and Gentiles) shall gather about Christ; or, in other words, that the people spoken of shall be the prime that should reign over them. The LXX read this in place; and that this should happen before Judah should cease to be a kingdom, which is verified by fact. Ben Meriba's Letter, Letter iv.

SHILOH or SHEL, in Ancient Geography, a famous city of Ephraim (Josh. xiii. xvi. xxvi.), 12 miles distant from Bethlehem or Saksim, according to Eusebius, or 10 miles according to Jerome, and situated, according to both, in Arabatha. In Jerom's time this city was ruined, nothing remaining but the foundation of the altar of burnt offerings, which had been erected when the tabernacle was there. At Shiloh, Joshua assembled the people to make the second distribution of the land of promise. (Josh. xvi. 1, 2, 3.) Here the tabernacle of the Lord was set up, when the people were settled in the country. (Josh. xix. 1.) The ark and the tabernacle of the Lord continued at Shiloh, from A.M. 2560, when it was set up by Joshua, to A.M. 5888, B.C. 1116, when it was taken by the Philistines, under the administration of the high-priest Eli. At Shiloh Samuel began to prophesy. (1 Sam. iv. 4.) Here the prophet Abijah dwelt. (1 Kings, xiv. 2.) Jeremiah foretold that the temple of Jerusalem should be reduced to the same condition as Shiloh was. (Jer. vii. 12, 14. xxvi. 6, 9.) After the return of the ark out of the country of the Philistines, instead of returning it to Shiloh, it was taken to Kirjath-jearim. (1 Sam. vi. 21.) Mr. Roland conjectures, that from the name Shiloh, Paulinas (l. vii. c. 24.) took occasion to say, that Silenus, the companion of Bacchus, was buried in Palestine. Benjamin of Tudela affirms, that the tomb of Samuel was to be seen here.

SHIM in Agriculture, a tool of the tillage kind, used in ploughing down, and reducing the more stiff and heavy parts of land, as well as cutting up and clearing them from weeds. They are made in different forms and constructions, to suit different purposes. In the Hertford Agricultural Survey by the Board of Agriculture, the writer remarks, that a tool of this kind is in use by Mr. Calvert, of Albury, which differs from those usually employed, in which the cutting-iron or blade, for which the work it is adapted for, that of cutting up weeds on two-bout or four-furrow Exile ridges, or of clearing land without ploughing or burying the soil, is a small segment of a large circle. It dispatches a ridge at a time, and is an implement that performs its business well, and which deserves the notice of the tillage-farmer in other places. It is readily altered for that work, and is said to be had recourse to by other farmers with success in the same district.

And an useful tool of this sort has also been recommended by Mr. Young, in his Annals, the hint of which he took from the Berkshire one, and to which the beam and block is capable of being applied. In a wide interval, the three shares may be worked on a level. Between the rows of cabbages, after earthing up, the two external shares may be set to cut the weeds that are apt to ride on the side of the ridges, without disturbing too much earth, and the central share sunk to form the bottom of the furrow. The centre one may also be worked alone, between narrow rows. In forging the shares of all hams, he has well observed, that the
the blacksmith should be careful to give them tendency enough into the ground, by bending them downwards: for want of this caution, he has found many of them to work badly. The wheel in the beam counteracts this tendency sufficiently when at work.

These tools should be upon all tillage farms, in all their different and best constructions.

Shin Potatoes, a tool of the shin kind, used for cleaning potato crops.

Shin, Loch, in Geography, an extensive lake in the county of Sutherland, Scotland. This lake extends above 20 miles in length, but no where exceeds two miles in breadth, and feldom above a mile and a half. The banks are finely covered with natural wood, particularly the southern bank. It is connected with the Northern ocean, at Dornoch Frith, by the river Shin, which abounds with salmon, and forms several falls in the short course of eight miles. Sinclair's Statistical Account of Scotland, vol. xi. 1791.

Shinaas, a small town of Perâia, in the province of Larîtan. This and Boftana lie between Lînga and Cape Boftana; but though they are small towns, they afford some refreshment. Lînga, the chief town of the piratical tribe of Jocarins on the Perâian shore, is situated close to the fea, in N. lat. 26° 3', about eight leagues from Kîshm. It has a secure road, where ships may ride out a north-west gale in five fathoms water. Cape Boftana forms to the eastward the roadstead of the town of Mogoo, which is one of the most secure in the gulf; and this roadstead has to the westward the point improperly called Cortes. This roadstead is capable of holding the largest fleets.

Shindan, a mountain of Perâia, between the provinces of Adiríbeitzan or Azerbaijân and Ghilan.

Shingaran, a town of Africa, in the country of Sahara, where falt is found; 9 miles N. of Walet.

Shingleat, a town of Africa, in the country of Bergoo; 50 miles W. of Wara.

Shingle, in Agriculture, a term sometimes applied to the thinnings of fir and other timber trees, in the northern districts, and which are of much use for various purposes in farming, as the making of fences, &c.

Shingle, a substance found and collected on the sea-beach, or shore, which is used for several purposes, as baling of ships, filling surface hollow drains, protecting the foundations of embankments, and other similar uses. See Surface Drain, and Surface Draining.

It is said to be a very valuable substance for the use of filling drains, as being particularly durable in its nature. In the county of Suffex, as well as in Essex, much of it is made use of in this way; in the former, under the denomination of sea-beach, or beach.

Shingle Shool, in Geography, a fishal in the English Channel, near the coast of Hampshire. N. lat. 50° 38'. W. long. 1° 26'.

Shingles. See Shambles.

Shingles, or Shibas, in Building, small pieces of wood, or quartered oak boards, fawed to a certain scantling, or more usually cleft to about an inch thick at one end, and made like wedges, four or five inches broad, and eight or nine inches long. They are used in covering, especially for churches and steeples, instead of tiles or shingles.

This covering is dear; yet where tiles, &c. are very scarce, and a light cover is required, it is preferable to thatch. If made of good oak, and cleft, not fawed, and well seafoned, shingles make a fire, light, and durable covering.

The building is first to be covered all over with boards, and the shingles then nailed thereon.

Shingles, in Medicine, the popular appellation of a vesicular eruption, which appears on the trunk of the body, extending generally half round, like a belt: whence probably the term is a corruption of the Latin word cinguulus, or cingulum, signifying a belt. It is the herpes zoster of medical writers, the Greek word, ζώστερ, having the same signification. It is sometimes called simply zona, or zoster. For the description and treatment of this curious and harmless affection, see Herpes Zoster. See also Bateman's Practical Synopsis of Cutan. Diseases, p. 226.

Shingling, in the Iron-Works, in many parts of England, is the operation of hammering the low, or cast iron, into blooms. The tongs, used for holding the iron in this operation, are called shingling-tongs, and the iron to be thus wrought is called a loop.

Shining Mountains, in Geography, mountains that bound Louisiana on the west, which, though little known, are supposed to terminate in N. lat. 47° or 48°; whence spring a number of rivers, that discharge themselves into the North Pacific ocean, Hudson's bay, the waters which lie between them, or the Atlantic ocean. They are also called the "mountains of bright flones," on account of the immense number of large crystals floating from the rocks, and sparkling in the rays of the sun, so as to be seen at a great distance.

Shiobert el Temei, a town of Egypt, on the right bank of the Nile; 8 miles S.E. of Mahallet Kebir.

Shionkan, a town of Pegh; 8 miles N. of Sîrian.

Ship, a general name for all large vessels navigated with sails. Among people unacquainted with marine definitions, this term has a very vague and indiscriminate acceptation. In the sea-language, however, it is more particularly applied to a vessel furnished with three masts, each of which is composed of a lower mast, topmast, and topgallant mast; with the usual rigging and appendages thereto belonging.

The hue Aubin defines a ship, a timber building, consisting of various parts and pieces, nailed and pinned together with iron and wood, in such form, as to be fit to float, and to be conducted by wind and sails from sea to sea.

The invention of ships is very ancient, and, at the same time, very uncertain. Mythologists attribute it to Dædalus, and pretend that the wings he invented to save himself from the labyrinth of Crete, were nothing but sails, which he firk gave to vessels, and with which he eluded the vigilance and pursuit of Minos. Others give the honour to Janus, on the credit of some ancient Greek and Latin coins, on one side of which is represented his double face, and on the reverse a ship. Lastly, others look to Noah to have been the first ship-builder.

The most celebrated ships of antiquity are, that of Ptolemay Philopater, which is said to have been two hundred and eighty cubits (i.e. four hundred and twenty feet) long, thirty-eight broad, and forty-eight high: it carried four thousand rowers, four hundred sailors, and three thousand soldiers. That which the name Prince to fail on the Nile, we are told, was three hundred and twelve feet long, forty-five feet broad, with a mast one hundred and twenty feet high. Yet these were nothing in comparison with Hiero's ship, built under the direction of Archimedes, on the fructus of which Mofchion, as we are told by Snellius, wrote a whole volume. There was wood enough employed in it to make sixty galleys. It had all the variety of apartments
ments of a palace; frequenting rooms, galleries, saloons, foyers, parlors, saloons, halls, and lobbies. It was a place where one could see great works of art, with wide halls and large rooms decorated with marble, particularly so, which showed a line of the hundred pounds, or a shot twelve yards long, the price of half a mile; with many other particulars related by Athenaeus. Deipnosophists, lib. vi. p. 2344 &c., Ed. Cantab. 1657.

A ship is indeed the mild machine that ever was invented, and contains of many various parts, that to form some idea of its importance and qualities, will require the attention of the gentleman and the artist.

All ships at first were of the same form, whatever uses they were designed for; but the various ends of navigation, some of which were better answered by one form, some by another, soon gave occasion to build and fit out ships, not only different in size, but also in their construction and rigging; and as trade gave occasion to the fitting out large fleets of different kinds of merchant-ships, so ships of war became necessary to preserve them to their just owners.

The gradually improving state of shipping, in the last century, has kept pace with the regular advancement of every other branch of mechanical science. For, prior to that period, even our first-rate ships, now equal in perfection to those of any other rate, were then extremely defective, as their want of stability made their magnitude highly objectionable. These disadvantages have gradually obviated, since the usual causes of instability have been discovered, the dimension enlarged, and the practical management familiarized; and they are now, in general, especially those that have most stability, admirable ships in most respects; as they sail well, and combine almost every good quality. Large as they are, they are perfectly manageable; and their evolutions are generally made with wonderful facility.

Second-rate ships, or those about ninety guns, have too generally those defects in their construction, which contribute to instability, arising from want of that capacity which most of the first-rates possess. The French, on this account, have discontinued this class of shipping.

Third-rate ships, or those of eighty and seventy-four guns upon two decks, are altogether the most useful and valuable ships in the navy; and possessing, in an eminent degree, all the properties of capacity, stability, and swiftness; the particulars of which last property will be found hereafter under Ships-Building, and this ship may be considered as the first of its class, from its great length and superior capacity.

The above are particularly distinguished as line-of-battle ships, and are found in general to suit the most powerful exigencies of the naval services. About ten years ago an additional lieutenant was appointed to the line-of-battle ships. See Rate.

Fourth-rate ships are those of fifty guns. They may be employed, if necessary, in the line-of-battle, but most suitable to be stationed amongst the foreign colonies, or on expediency of great service, since their vessels are often kept at sea for a considerable period of time.

First-rate ships, or those of one hundred and fifty guns, are the sum-total of all the former classes, and contain, as well as those two and two, a deck, and even one more. As soon as the number of guns in vessels exceeds one hundred, and the length of the ship is considered, the superior advantages of the galley-oar, which are very great, will disappear in the lead, and the conveyance of men and stores, to provide and to carry, to cruise and do battle, is to be expressed with less severity.

The first-rate ships are the second most valuable of the fleet, being made to come up against one, to confound all to have the various qualities which probably be wanted in one ship; if have, but not, her breadth and height are so proportioned to her length, that the may be brought down in the water to that depth which is allowed to be the best face in the ships in general. Ships of fifty and thirty-eight guns have four lieutenants. See Rate.

The fast-rate includes all the smaller class of vessels in the navy, except the yachts, fire-speeds, and fast-boats; they are claffed as fifth-rates, to increase the pay; the lesser by way of distinction, the latter on account of the dangers to which they are exposed. Frigates of twenty-eight, twenty-four, and twenty guns, are in this class, but those with the thirty-two gun ship, in the former class, are inferior to the forty-four and thirty-six gun frigate, and not to deceive notice nor contemn by a great maritime power. Ships of twenty guns, and all vessels upon the establishment of the fleet of war, have two lieutenants. See Rate.

The large troop of war and brig are very serviceable vessels to cruise against privateers, contraband trade, and for small convoys. Some of the latter have lately been built in this country, and are admirably adapted for good sea-boats, as well as good failers; they perform their upper works being light, all unnecessary top-hamper avoided, having a flaring stern, and apparently every good quality that can be expected in a vessel of this description.

One of these vessels, the Raven, upon being fitted for sea at Woolwich, under the directions of her very ingenious and active commander, Captain William Layman, had, agreeably to his recommendation and wishes, among other alterations, the two foremost ports closed up, and the guns taken away; in lieu of which was fitted in midships, immediately before the fore-card, a fifty-eight pounder carronade upon a fixed traverse carriage, so as to fire in almost every direction clear of the gunwale; and, in lieu of the two lars-shafts, a carronade of the same power, upon an inclined plane abait. The wonderful acception of force derived from these alterations, and the great advantages to be derived from them in chace, in clearing an enemy's coast, &c. are too obvious to need comment.

Ships in the royal navy are commanded by full-capitains to 22 guns; floops by master and commander.

The following Table furnishes a correct list of the dimensions of ships of different rates. See Rate, under which article a less perfect table is inserted.
SHIP.

<table>
<thead>
<tr>
<th>Guns</th>
<th>Three Decks.</th>
<th>Two Decks.</th>
<th>Frigates.</th>
<th>Sloop.</th>
<th>East India Ships</th>
<th>West India Ships</th>
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<tr>
<td></td>
<td>1st Rate.</td>
<td>2nd Rate.</td>
<td>3rd Rate.</td>
<td>4th Rate.</td>
<td>5th Rate.</td>
<td>6th Rate.</td>
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<td>or lower deck, or</td>
<td>Ft.</td>
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Yacht, as a vessel of state, is usually employed to convey princes, ambassadors, or other great personages, from one kingdom to another, or even kings, to take pleasure in; of which our present gracious majesty was very fond. The Royal Sovereign yacht was launched for the particular service of his majesty at Deptford, in the year 1804; a ship whose exterior and interior are of incomparable beauty, but whose ornaments, splendid as they are, will scarcely be considered by the artilt as more than adequate to the beauties of her form; and her qualities as an excellent faier and good sea-boat, from experiment, is unrivalled. We have, therefore, given a plate of this excellent vessel, by a quarter of an inch scale.

Yachts, as may be expected from the purposes for which they are designed, are the most beautiful of all vessels which navigate the ocean; nor are they superb embellishments and flately apartments their highest excellencies. They are models, in which may be seen a combination of the best principles of the art.

The fire-ship differs but little in its outer construction from a sloop of war. She may be built light and very clean for fast sailing; but the inner part is very differently fitted, in the manner described under the article Fire-Ship.

The bomb-veffel is particularly constructed for throwing shells from a mortar. They are built very strong, and firmly riddled; are usually fitted with two bomb-beds, which are platforms or strong frames of thick fluff and timber, laid transversely over large beams, and are rabbed and solidly bolted all together. The mortar-bed, or carriage which carries the mortar, traverses on a large iron pivot, in the centre of the bomb-bed, in a circular excavation. The sides of the bomb-bed, round the mortar, are fitted with strong cheeks of oak, of an octagonal form; in every square of which are driven two ring-bolts, for traversing the mortar in any direction. The bomb-bed underneath, to support the shock in throwing the shell, has three ranges of large pillars, fix in a range, tenoned at the head and heel into large carlings fore and aft the bed, along the middle and fides, which are scored on the riders below, and into the beams above the pillars, flanding double in the middle of the bed athwart-ships.

A strong compartment, called the shell-room, is built round the outside of the pillars. See Shelf-Room. See also Bomb-Vessel and Ketch.

SHIP, Armed. See Arm.

SHIP, Guard, is a vessel of war appointed to superintend the marine affairs in a harbour or river, and to see that the ships which are not commissioned have their proper watch kept duly, by sending her guard-boats around them every night; she is also to receive seamen who are imperilled in time of war.

SHIP, Hospital, a vessel fitted up to attend on a fleet of men of war, and receive their sick or wounded; for which purpose
parpose her decks should be high, and her parts sufficiently large; her cables ought also to run upon the upper deck, to the end that the beds or cradles may be more commodiously placed between decks, and admit a free passage of the air, to deprive that which is offensive or corrupted.

Falconer.

Ship, Lee-ward. See Lee-ward Ship.

Ship, Merchant, a vessel employed in commerce, to carry commodities of various sorts from one port to another.

Merchant shipping, in general, being largely defendable into distinct classes, we cannot speak with that degree of precision of them as of those of the royal navy; because their respective forms and dimensions are dependent, almost entirely, on the local practice or ideas of their respective owners or contractors, and fluctuate accordingly. Those belonging to the East India Company are by far the largest, and are very fine ships, and of course rank in the first class of merchant ships.

Well India ships are little inferior to the former, but in size; and some of the largest have been employed occasionally either to the East or West Indies.

The East India ship (Plate XI.) has been actually built, and found upon trial to answer every purpose expected from her.

Some ships of a very fine model, being less burthenless than Well India ships, are employed in the Straits' trade; and others used in the East country trade, for carrying of timber, exceed either of the latter for size, the largest of them being no less than 720 tons.

Ship of War, Private. See Privates.

Ship, Store. A vessel employed to carry artillery or naval stores, for the use of a fleet, fortresses, or garrisons.


Ship, Troop. See Troop Ship.

We shall here observe in general, that it is highly necessary to the health of seamen, that ships should be cleared of foul air; for it has been found by frequent experience, that air shut up, and confined in a close place, without a succession and fresh supply of it, becomes unwholesome, and unfit for the use of life. This is more forcibly so, if any flagrating water be kept up with it. But it grows still worse as a result of this, in a mixture of impure air; that is, becomes more mephitic, and boggolised, by passing and repassing through the lungs.

The bad effects, in different degrees, according to the different manner in which air is included, are observed in many cases, particularly in deep wells and caverns of the earth, in prisons or close houses, where people are shut up with heat and no air; but most of all in large ships, in which, with the stench of water in the hold, many men being crowded up in those quarters, all the mentioned circumstances concur in producing greater mischief than would follow from any of them singly. For an account of Mr. Sutton's contrivance for clearing the holds of ships of the bad air contained in them, we refer to the article Air-Pipes.

The mixture used sometimes for covering the bottom and sides of ships is made of one part of tallow, of one part of brimstone, and of three parts nearly of resin. The tallow and resin are melted together, and the brimstone is shrunken into them; one hundred and forty pounds of brimstone will serve for a vessel of one hundred and forty tons. See Paux.

To prevent ships, whose bottoms are worn, eaten, from leaking, this method has been proposed. Caull well the inside planks or livers, then fill the vacant spaces between the timbers, and the out and inside planks, with boiling pitch or resin, so high as the main gun-deck. The pitch being put in very hot, will run into the filled crevices, and seal the ship as tight as a bottle. There will be no water for turning, as rats, &c., and the pitch will leave for other uses when taken off; therefore the expense will be but small. Phil. Trans. N. 476. p. 352.

For the laws relating to ships, &c. See Act of Trade. Navigation. See also Freight, Mariners, and Navy.

Ship, ball, broadside, cannon, clerk, company, corporate, flag, gun-casting, master, mine, register, rigging, run, fouling, spinnaker, play, forward, warp, esailing away, weather, in reference to a ship, see the respective articles.

For further particulars respecting ships, the reader is referred to the article Ship-Building.

Ships, The, in Sea Language, is used either actively, as to embark any person, or put any thing aboard ship; or passively, to receive any thing into a ship, as we shipped a heavy sea, &c.

To ship also implies to fix, as a thing in its place, as to ship the oars, to ship the swivel guns, &c., to fix them in their sockets, &c.

Ship of Pleasure, among the Ancients. See Thalassaeus.

Ships, in the Salt Works, is a large cistern, out of which the salt-pan's are supplied for boiling.

This cistern is built close to the faltern, and is made either of wood, brick, or clay; and it ought always to be covered with a shed, that the sea-water, contained in it, may be kept clean from foot, and other impurities, and not mixed with fresh water in rains; and it must be always placed so high, that the water may easily run out of it into the pans, to supply them for boiling.

Ship Gun. See Cannon.

Ship Cove, in Geography, a cove of Queen Charlotte's found, in the southern island of New Zealand. This harbour, according to captain Cook, is not inferior to any found, either for convenience or safety. It lies on the west side of the island, and is the southernmost of three coves, that are situated within the island of Motuara, which bears the same name as the famous cove in New York. Ship Cove may be entered either between Motuara and a long island called by the natives Hamotu, or between Motuara and the western shore. In the left of these two channels are ledges of rocks, three fathoms under water, which may be easily known by the sea-weed that grows upon them. S. lat. 42° 10'. E. long. 175° 45'.

Ship Island, a small island in the gulf of Mexico, near the coast of West Florida, nine miles long and two broad. It produces pine-trees and grass, and has a tolerable well of water. N. lat. 30° 3'. W. long. 88° 48'.—Alto, a small island of Upper Canada, in lake Erie.

Ship Point, a cape on the coast of North Carolina. N. lat. 35° 55'. W. long. 76° 30'.

Ship-Building, or Naval Architecture, is the art of constructing and rasing, or building, that noble fabric called a ship.

This science, or whatever relates to navigation, is, without doubt, one of the most important and most useful employments of the human mind; especially in a country whose marine is its bulwark, and its commerce the admiration, and we may add, the envy of the world.

Nevertheless, the scientific part of ship-building has been too much neglected; and although some few years have elapsed since mathematicians (particularly in France) have laboured with some success, yet their discoveries are so much developed in profund calculations, that ship-builders, in general, have scarcely been able to derive any advantage from them.

It must be allowed, that an exact knowledge of the
true principles upon which the construction of ships, so as to answer the particular purposes of war or commerce, is founded, must conduce to remedy all the present defects, to render the theory more perfect, and enable the English artificers to become as eminently skilful in the scientific, as they now confessedly are in the practical branches of shipbuilding.

In order to smooth the way in a science thought to incomprehensible, our readers must be made familiar with the several draughts and plans requisite to construct and raise to noble a body of architecture; for the proportional size of every part must be laid down, from whence the form and dimensions of the several timbers, and every particular part that enters into the construction, are to be obtained. Therefore, as a ship has length, breadth, and depth, three different plans at least are necessary to represent the form of the several parts of her; as in the fleer-draught, Plate I., of Ship-building, which comprehends the fleer-plan, the body-plan, and the half-breadth plan.

The fleer-plan, or, as it is called in civil architecture, the plan of elevation, is a vertical section passing through the vessel in its whole length, or fore and aft. Upon this plan the length and depth of the keel are represented, also the height and rake of the stem and stern-post; the situation and height of the midship and other frames; the waterlines; heights of the decks, gun-ports, and wales; the centres of the masts; the situation of the channels; length and depth of the head and rails, quarter-galleries, rudder, &c. &c.

The body-plan, or plan of projection, to the left of the fleer-plan, is a transverse section of the ship at the midship-frame, or broadest place perpendicular to the keel. The several breadths, and the particular form of every frame-trimmer, are described on this plan. Now as the two sides of the ship are, or should be, exactly similar to each other, it is therefore unnecessary to represent both; hence the frames contained in the fore-body, between the midship-frame and the stem, are described on the right-hand side of the middle line, and the aftermost frames on the left of the said middle line.

The half-breadth or floor-plan, under the fleer-plan, and parallel thereto, or as it is frequently called, the horizontal plan, contains the several half-breadths at every frame-trimmer, at the different heights of the water-lines, main-breadth, top-fide, ribband-lines, &c.

The consideration of these three principal plans is so much the more important, as it comprehends a sufficient knowledge of the figures of all vessels. For although these three plans do not really determine the figure of the vessel, and may belong to an infinity of different kinds, yet all these differences cannot exceed certain limits sufficiently confined; so that whatever idea we might form of the figure of the vessel, it cannot deviate considerably from the truth.

In order to explain this better, we will proceed to construct the fleer-draught, Plate I.; and here the nature, and all the properties of the vessel, according to her design for war or commerce, must be taken into consideration, upon which the whole theory of the art depends: such are, capacity, flability, velocity, and ease in the sea or at anchor. These properties are not to be adopted merely from speculative theory, but from those that have actually been demonstrated by repeated experiments. That our readers may have the clearest conception of the various parts of a ship, represented by the plates of the 74-guns ship, we will endeavour to describe them in as familiar a manner as possible, introducing also all that is necessary to be known as we proceed. The 74-guns ship is preferred as the medium between the first-rate and the frigate, and is esteemed the most useful of all others.

Therefore, the first thing to be determined is the length on the gun-deck; and here sufficient dilance must be allowed for the ports, which are fifteen in number, three feet five inches wide, or fore and aft, each, so as to have a sufficient dilance between each port for working the guns, which is about seven feet eight inches; likewise room forward, between the foremost-port and the stem, for the manger; and also abaft the after-port, to the tran-om: these considered make the length on the gun-deck 180 feet.

Draw therefore, as in fleer-plan, Plate I., a straight line, which represents the upper edge of the keel, and in naval ships the upper edge of the rabbet (East India ships and merchant-ships in general have the rabbet in the middle of the keel), leaving under this line sufficient space for the main and false keels, false, and half-breadth plan. Upon this line square up a perpendicular towards the right hand, leaving a sufficient space to represent the head, and call it the foremost-perpendicular; then, at 23 inches abaft it, square up the after-perpendicular, which is 185 feet by one-eighth of an inch to a foot, or the length on the gun-deck, from the after-fide of the rabbet to the fore-fide of the rabbet at the stern-post. Below the upper edge of the keel, and parallel thereto, let down two feet for the main and false keel, and under it draw the scale of equal parts, of one-eighth of an inch to a foot, and from this scale let off all the following dimensions. Observing, draughts in general are drawn from a scale of one quarter of an inch to a foot, but this, for convenience, to one-eighth.

The length between the foremost and aftermost perpendiculars, in merchant-ships, is given from the after-fide of the stern-post, at the height of the wing-tranom, to the fore-fide of the item, at the fame height.

The item, or fore-boundary of the ship, may now be drawn, and a segment of a circle for its lower part has long been considered as the belt form for dividing the fluids; therefore, fix its centre so that the after-fide of the rabbet (which is in the middle of the item, towards the upper part) may intersect the foremost-perpendicular at the height of the gun-deck; thus, set off from the foremost-perpendicular, as in Plate I., upon an horizontal line, 24 feet above the upper edge of the keel, 24 ft. 3 in.; and from thence, as the centre, draw an arc of a circle from the upper edge of the keel-line, and another arch 18 inches before it, from the same centre; then will the moulding, or fore and after-fides of the item, be represented: sweep likewise the rabbet, as in Plate I.; then set off 36 feet for the height of the head of the item, and at that height set forward 15 inches from the foremost-perpendicular; from thence draw a faint curve, to intersect with the foremost segment, and the fore-part of the item will be shown: continue upwards another parallel thereto, and the after-fide or whole item is completed, except the lower end or boxing, which will be determined hereafter.

The stern-post, or after-boundary under water, may be next drawn; thus, set up from the upper edge of the keel-line 26 ft. 10 in., which is the upper fide of the wing-tranom at the after-perpendicular, and upon that line set off from the perpendicular 1 ft. 10 in., and upon the upper edge of the keel, six inches before the after-perpendicular; then a line drawn through these points will represent the after-fide of the stern-post; another line, drawn at fourteen inches before the after-fide of the stern-post, at the wing-tranom, and at two feet one inch on the upper edge of the keel, will be the
the aft-side of the rabbet; and another line parallel thereto, before it (or at the thickest of the bottom back) in the fore-side of the rabbet, which will perfect the after-perpendicular at the stern-deck. Thus far the stern-post is perfect.

Having fixed on the length of the gun-deck, the next principal dimension to be considered is the main-breath, and this, in ships at war in general, is about three-eighths of the laid length for their moulded breadth, and a rule almost universally the three-twelfths of their length; excepting cutters and smaller vessels. The moulded breadth given in Plate 1 of the 74-gun ship, is 48 ft.

Before we proceed, it will be necessary here to remark, that much has been said in regard to the breadth to be given to a vessel in respect to her length, and in what part of that length it is best to place it; as being the section of the greatest area of the whole vessel, its true situation becomes an object of importance.

Those who would diminish the breadth have alleged, and truly, that a narrow vessel meets with less resistance in passage through the water, and by increasing in length, the vessel will drive less to leeward, and the water-lines consequently be more delicately formed to divide the fluid; that a long narrow ship will require less sail to gain velocity, consequently the masts will be lower, the rigging lighter, and the vessel navigated by fewer hands. On the contrary, a ship's being broader at the line of floatation will admit of being narrower on the floor, particularly at the fore and after parts, that by being broader it shall carry more sail, and more readily ride upon the waves than a narrow one. The breadth, and its situation, when determined on, require much skill in narrowing therefore, as we approach the keel, particularly forward aft, to give that form to the body under water that shall best answer in dividing the fluid, enable her to carry the larger tier of guns sufficiently out of the water, prevent her pitching, and give a free passage to the rudder, that she may readily answer her helm.

Now to prevent the vessel pitching, the fore-body must be so shaped, that its bearings should catch the vessel in its defent, that is, the harpin should increase in breadth upwards, and the bow be so formed, as rather to throw off the sea than pitch or bury in it: a long floor, with little rising afore and abaft, the displacement of the fore-body to be duly proportioned to the after-body, and hollow water-lines, or inflected curves at the fore part, are to be carefully avoided. Taking into consideration the weight of the anchors on the bows, we may easily conceive, that with the pressure of the wind upon the sails, without sufficient bearing in the fore-body, the bow would be pressed down into the hollow of every sea; and if the greatest part or midship-bend were placed too far aft, the support would only be in the after-body, and this would tend to plunge her bows still deeper, and retard her velocity, and the free passage of the water to the rudder.

In order that the ship should steer well, and quickly answer her helm, the wing-tranom must not be placed too low, nor the fashion-pieces too full below the load-water-line: and the narrowing of the floor, or half-breath of the rising, not continued too full towards aft, but that the water-lines, as they approach the stern-post, may taper handsomely into the same, so that every succeeding water-line, as they approach nearer the keel, may have their curvatures more delicate, as may be seen by referring to the half breadth plan in Plate 1. It is also evident, that the prompt effect of the rudder must depend in a great measure on the cleanness of the ship's run, so that the fluid shall have an unimpeded passage to it, whereby its inclination shall have the greatest effect from the water.

That a ship may carry her guns well above the water, a long floor timber will be necessary, and to make her run, the midship-timber should be very full, upper floor-timbers nearly straight, upper water very light, and kept as low as possible, and the wing-timbers not placed too high.

To make a ship carry her guns well above water, carry much sail, be a well built, and likewise floor well, are four such rare qualities, as are hardly to be united at the same time; because it would require a very full bottom and great breadth to gain the two former qualities, and less breadth and a sharp or clean bottom to gain the latter; but if we consider that a full ship will carry more sail than a sharp one, we may perceive the possibility of so constructing the body, as to possess these qualities, and they may be so united, that each of them may be discerned in some degree of excellence, for it is not possible that all of them can be united in one body to a degree of perfection; we must, therefore, while we retain a portion of each, give the superiority to that which is most consistent with the purposes for which the vessel is particularly designed.

Hence it is plain, that judiciously placing the midship-bend is of the utmost consequence in the construction of ships' bodies; and its being placed nearer the fore, will, consequently, make the fore-body more full, and will best answer every purpose, especially that of velocity, and although it is plain, that by so doing the entrance of the ship will be more full, and prevent apparently more absolute force against the resisting medium: than when the midship-bend is placed nearer to the middle of the ship's length; yet by placing it more forward, the body will decline horizontally so much the quicker, and part of the effect of that resistance, caused by the lateral pressure of the water, will be lessened, which must certainly be of more service to the velocity, then what is lost by making the fore-part of the ship somewhat fuller, and this seems to promote the connection of capacity with velocity, the two great objects to be pursued in the formation of ships' bodies under water. In addition to this, by carrying the midship-bend forward, a ship will steer better, and the rudder have the more command to bear up the ship in a gale of wind; for when a ship is under a press of sail, the water is forced up at the bow above the horizontal, and the bow likewise pressed down, which amounts to nearly the same, with respect to her helm, as if the ship was trimmed by the head again, that carry their helm amidships in light winds, require more a-weather when the wind blows.

After all that has been written concerning the placing of the midship-bend, all agree to place it before the middle of the length, or about five-twelfths of the length abait the foremost-perpendicular; but in Plate 1, which ship has stood the test of experiment, it was placed at 65 feet abaft the foremost-perpendicular, consequently this is the broadest part of the ship; called the midships, or dead-flat, known by this character z, and where all the heights in midships are set up. From b 2 the stations of all the timbers may be set off; but it will only be necessary to square up a perpendicular at the joint of every frame-timber, their distance being double that of the room and space, which in Plate 1, is two feet nine inches.

The dead-flat in Plate 1, is a single timber, and the perpendicular, marked z, the middle of it: therefore, for the joints of the annexed frames set off before z, two feet nine inches for the joint of A, and two feet one inch for the joint of (11), square up perpendiculars from the upper edge of the keel; then from (A) continue setting off five feet six inches for the joints of frame B, C, D, & X, in the fore-body, and the same distance abaft (11) for the joints of

frame
SHIP-BUILDING.

frame (3), 2, 4, 6, to 36 in the after-body, as shown in Plate 1. Now (2), (A), (1), (2), and (3), are called flats, as they are the timbers which are placed in the flat part of the ship amidships, have no bevelings, and consequently do not partake of the rising.

The lower height of breadth is an imaginary line, not only to affilt in the construction of the body, but a line confining the greatest breadths in the ship, all fore and afts, and should next be determined upon. Its height at $P$ is 21 feet 3 inches above the upper edge of the keel; and that the said height of breadth should be higher afore and abaft is only reasonable as a reserve, to be a support to the vessel when heeling by the preasure of the wind upon the falls; for when a ship is close-hauled by the wind, and lies much over, the weather-side would lose much of the breadth, whereas, on the contrary, the lee-side would then gain considerably, and meeting with a greater refistance, be enabled to carry the greater fall; therefore forward at the rabbot of the item its height is 29 feet, and abaft to the counter-timber 29 feet 6 inches; and all the heights between should form a fair curve, like the ticked line in the figure, Plate 1.

It may here be remarked, that flat-floored ships do not require their height of breadth to be raited so high forward and aft, for by their construction they are fuller under fall, and carry their weight of cargo low down.

The body below the lower height of breadth may now be formed, as the frames or bends, when put together, and the joint placed to the fore-mentioned perpendiculars, the sides of every part will be formed so as to cut none of the principal timbers, and are so disposed as to weaken the ship as little as possible. Now as capacity, velocity, &c. depend upon the figure of the imdered part of the body, and because the properties which every ship ought to possess are, in a manner, subversive of, or in opposition to, each other, as before observed, the great art certainly is to form the body, that none of the defined qualities shall be omitted, giving, at the same time, preference to that which is most required. In ships of war, capacity, stability, velocity, and strength, are essentially necessary; the first and second we shall endeavour to prove by calculations hereafter; the third may be affirmed, as the vessel was actually built, and answered that purpose; and the last is now so well established in the British navy as to need little addition.

The half-breadth plan must be next drawn: thus, draw a straight line below the figure-plan, as in Plate 1., the whole length of the ship, and parallel to the upper edge of the keel, which line will represent the middle line of the ship, at any height passing fore and aft, or lengthwise; observing to keep the said middle line sufficiently below the scale, so as to admit of the main half-breadth line coming clear of it.

Then square down from the figure-plan all the perpendiculars or joints of the frame-timbers, to the middle line of the half-breadth plan, and likewise the foremost and after-perpendicular. The main half-breadth line may now be drawn, by setting-off from the middle line in the plan the following half-breadths at each respective timber; thus, at $P$, 24 feet; at $F$, 23 feet 11 1/2 inches; at $H$, 23 feet 11 inches; at $K$, 23 feet 10 inches; at $M$, 23 feet 5 1/2 inches; at $O$, 23 feet; at $Q$, 22 feet 2 inches; at $S$, 20 feet 4 inches; at $U$, 17 feet 6 inches; at $X$, 12 feet 6 inches; and to end this line at the fore part, let the height of the breadth-line in the figure-plan, where it intersects the aft-side of the rabbot at the item, be squared down to the middle line in the half-breadth plan, and likewise the fore part of the item: upon the lines last squared down, set off the half-lining of the item from the middle line and parallel thereto, which is ten inches; then, with compasses, take the thicksets of the bottom plank, which is four inches, and describe the rebate of the item by the triangle shown in the half-breadth plan; from thence a fair curve line drawn through the half-breadths set off, forms the half-breadth line to $P$. In the same manner set off the half-breadths abaft $P$, and draw in the remainder of the half-breadth line, as the ending of it abaft will be described hereafter.

Observe, the various curves represented on the several plans used in ship-building, except where they are segments of circles, such as the fore part of the main half-breadth, &c. are drawn by small pliable battens confined thereto by weights, or by thin moulds made of pear-tree veneers, whose edges are made to geometrical curves of all kinds.

Now the main half-breadth line being drawn, we have a half section of the ship lengthwise at the broadest place, that is at the height, and in the direction of the lower height of breadth line in the figure-plan, Plate 1.

The imdered part, or body of the ship under water, must be next formed, and the capacity of the vessel ascertained, before the upper works, or that above the water, need come under consideration; it is therefore necessary to describe in what manner the several forms of ship's bodies are to be constructed. In the royal navy, the midship parts of the body of ships are formed by segments of circles called sweeps; such are the lower and upper breadth-sweeps, floor-sweep, and reconciling-sweep, their several centres being given by lines, except the reconciling-sweep, whose centre is without the limits of the draught. The lower-breadth and floor-sweeps are joined by the reconciling-sweep, and make a fair curve from the lower height of breadth to the rising-line, by which the floor-sweep is governed; then, by drawing a straight or curving line from the upper edge of the rabbot of the keel to touch the back of the floor-sweep, the form of the midship part of the body below the lower height of breadth will be complete.

Observe, the floor-sweep forms the body at the floor-heads, particularly along the midship part of the body, and is limited by an horizontal line above the keel in the body-plan, and its distance above the keel at the midship-timber is called the dead-rising. The rising of the floor in the figure-plan is a curve line intersecting the dead-rising at the midships; and in flat-floored, or burthensome ships, it continues nearly parallel with the keel for some distance afore and abaft the midship-timber; and all the timbers, where the rising is parallel with the keel, are called flats, as before observed. The rising-line, which governs the floor-sweeps, is not the least interesting of the ferrules, because it exhibits, on many points, general deductions, and tends to establish theories which may serve to direct future observations; and the method of constructing the midship-flours of ships, where velocity is preferred, by lengthening the radii of the floor-sweep forward and aft, is preferable to the rising-line, as used in constructing merchant-ships for burden, where the radii of the floor-sweeps all fore and aft are of the same length as at the midship-timber; because by the former method, every floor-timber from the dead-flat is graduated by a larger circle. By the latter method, not only the construction, but the laying-off the ship is facilitated, because in any ship constructed by the fame length of radii, we may venture, so far as the rising-line is continued, not only to form all the lower part of the ship on the draught, but also on the mould-loft-floor, without running any ribband or horizontal lines till that part is finished. Again, this method affords a greater facility, as by it the floors may be constructed all fore and aft; but the floors near the midships only can be constructed,
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constructed, when the radius of the floor sweeps after much in their length.

Neither the rising-line in the floor-plan, nor the halfbreadth of the rising, would continue to be the curves as first constructed, if the form of the body still designed were to be altered in that part. It is evident, then, that the rising line may be drawn according to the judgment of the artist in the construction of any draught, observing to make it a fair elliptical curve, (for much depends on the construction of the lower part of the body,) by judiciously narrowing the floor-sweep, or half-breadth of the rising; for the more parallel it is kept with the middle line, the less will be the velocity of the ship. Again, the quicker this curve is, the less bearing will the ship have; and though it may be supposed, when the rising-line is drawn in the floor-plan, and likewise its half-breadth, it is reasonable to expect a fair body, yet we cannot be certain of its producing that form of body which is really intended agreeable to the use which the ship is designed for, unless by frequently designing of bodies we can form an exact idea before we proceed. Therefore the young artist should improve himself by drawing bodies constructed by the rising-line of ships of different properties, till he forms in his own judgment a perfect idea of this mode of construction. For instance, if it be required to make the ship cleaner, lift the rising-line in the floor-plan, and narrow its halfbreadth; and where it may be required to make the ship fuller, lower the rising-line in the floor-plan, and increase its halfbreadth; which sufficiently proves that the rising-line is as variable as the different forms of ships' bodies may require.

See for fulness the plate of the East India ship, the plates of the 74-gun ship, which is sharper, and also the frigate of 40 guns, which is sharper still; and we shall then find it a very complete method of constructing the lower parts of such ships fair, particularly those that require some provision or fulness of body to assist them in taking the ground. The further forward and aft the body is afforded by the risingline, the more merit there will be in the construction, and the greater certainty of producing a fair body: notwithstanding all this, some bodies are constructed without any floor-sweeps, which must be the case in very sharp bodies, such as cutters, &c.

It may be further observed, that the rising-line cannot, from its nature, be formed by any regular proportional method, from which there can be no variation without imprropriety; nor can it be constructed to any fixed proportion, unless ships of different classes were built exactly similar to each other, because the rising-line in ships of war, and those which are constructed for velocity, though suitable to the construction of the lower part of each ship, and likely to answer the purpose for which they are designed, cannot be equally proper for ships of the same length and breadth, if required chiefly for burden; as in the last case not only the form of the midship-bend, but every part of the bottom must be differently formed, which will be clearly seen by examining the plates of the 74 and 40-gun ships, and the plate of the East India ship, which was found to answer admirably well.

Whole-moulding was formerly a method of constructing the immersed part of ships' bodies, by the mould being made to the form of the midship-bend, which, with the addition of the floor-hollow, would mould all the timbers below the main-breadth in the square body. But since the art of ship-building has arrived to its present perfection, the method of whole-moulding, for the following reasons, has been justly laid aside. For by whole-moulding, more is narrowed at the floor than at the main-breadth, that is to say, the curves of each are kept parallel; nor must the rising-line in the floor-plan lift any more than the lower height of breadth, which, according to the form of the main-mold, would make a very ill-constructed body: for by continuing that nearly forward and aft, the ship would not only be incapable of rising in a heavy sea, but be deprived of a great measure of the more advantageous use of her rudder. Nevertheless this method is still continued in the formation of boats.

Proceed now to draw the plan of projection, or body-plan, thus: continue the line at the upper edge of the keel beyond the after-end of the floor-plan, as in Plate 1, and square up a perpendicular for the side-line of the fore-body, observing to keep it clear of the stern; from that perpendicular set off 4' feet, the ship's main breadth at dead-flat, and square up another perpendicular for the side-line of the after-body, and equally between both square up another perpendicular, which is the middle line to both bodies respectively; then the line prolonged from the upper edge of the keel is the base-line of the body-plan. Draw in the horizontal lines, as may be seen in the body-plan, Plate 1, at the lower heights of breadth, by transferring their heights from the floor-plan at the several frame-timbers: those before the dead-flat, let up in the body-plan to the right of the middle line, which are to represent the fore-body, and those heights abaft dead-flat, to the left hand for the after-body. Then from the half-breadth plan take the main half-breadth of each frame, and set it off from the middle line in the bodyplan, upon its corresponding height of breadth. The plan and from thence set off towards the middle line the length of their respective lower-breadth sweeps: thus, to describe the midship-timber, or dead-flat, extend the compasses to 18 feet 6 inches, the radius of lower-breadth sweeps at dead-flat, and draw part of a circle downwards, intersecting its main breadth at its horizontal height.

Then the centre heights of the floor-sweeps in the body-plan must be taken from the curve-line representing their heights in the floor-plan, which at dead-flat will be found to intersect the upper edge of the keel; but in the body-plan, its height at dead-flat is 11 feet 6 inches, and there in horizontal line is drawn to the distance of the centre, or its half-breadth from the middle line, and all the heights of centres are respectively set upwards above this line, on perpendiculars squared upwards at the half-breadth of the centre of each floor-sweep of its corresponding frame or timber, as taken from the half-breadth plan; and the reason for not keeping the said curve-line or heights in the floor-plan as in the body-plan, is because it would interfere with the curve-lines above. Now by inspecting Plate 1, it will be readily seen, that by raising the heights of those centres in the floor-plan, consecutively in the body-plan, and by narrowing their half-breadths in the half-breadth plan, their centres would be brought nearer the middle line in the body-plan, the floorrising would become quicker, and the ship have less bearing, and since very far more full and burthenone; thus must the rising and narrowing of the centres be adjusted till the body of the vessel has the capacity required for whatever service she may be designed.

But as in this mode of construction the centres only, and not the length of the floor-sweeps, are given, a diagonal ribband must be drawn in the half-breadth plan, as in Plate 1, by setting off from the middle line at A, 16 feet; at B, 15 feet 9 inches; at D, 15 feet 5 inches; at F, 15 feet 1 inch; at H, 14 feet 7 inches; at K, 14 feet; at M, 13 feet 8 inches; at O, 11 feet 11 inches; at Q, 10 feet 4 inches; at S, 8 feet 6 inches; at T, 6 feet 1 inch; and at X, 2 feet 5 inches. Then in the after-body, set off at 2, 15 feet 11 inches; at 4, 15 feet 13 inches; at 6, 15 feet 9 inches; at 8, 15 feet 6 inches; at 10, 15 feet 4 inches; at 12, 15 feet 1 inch; at 14, 14 feet.
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14 feet 11 inches; at 16, 14 feet 5 inches; at 18, 14 feet; at 20, 13 feet 9 inches; at 22, 12 feet 5 inches; at 24, 11 feet 7 inches; at 26, 10 feet 5 inches; at 28, 9 feet 1 inch; at 30, 6 feet 7 inches; at 32, 5 feet 10 inches; at 34, 4 feet; and at 36, 2 feet.

Now to end this diagonal, it muft be drawn in the body-plan thus: fet up the middle line from the bafe 12 feet 2 inches, and on the bafe, from each side of the middle line, 11 feet 9 inches, then draw the diagonal ticked line, as fhewn in Plate I. In draughts, diagonal lines are distinguished by red ink. Then in the body-plan draw the half-fiding of the item in the fore-body, and the half-fiding of the Stern-post in the after-body: for the latter fet up 26 feet above the bafe, and at that height fet off from the middle line 10 inches in the half-fiding of the poll at the head, and 9 inches in the fore-body, the half-fiding of the item at that height; and on the bafe line 7½ inches from each side the middle line, the half-fiding of poll and item at the heel; then draw ftraight lines to each spot fet off, and the half-fiding of the Stern-post and item will be represented in the body-plan. Now to complete or end the diagonal line on the half-breath-pan, its height or interfection at the poll and item muft be taken in the body-plan, and transferred repectively to the fore-side of the rabbet of the item, and aft-side of the rabbet of the poll in the fheer-plan, and from thence let them be squared down to the middle line of the half-breath-pan; then take with companions the half-thicknes of the poll and item in the body-plan, in the direction of the faid diagonal line, and let them off repectively from the middle line in the half-breath-pan, on the lines half squared down; and from the interfection as a centre, sweep an arc towards the midships, with companions opened to the thicknes of the rabbet taken diagonally; then a fair curve drawn through all the spots as above fet off, touching the back of the arcs, will form the diagonal line at the floor-heads, as fhewn in the half-breath plan, Plate I.

Now may the timbers, as far as the floor-sweepes are ufeful, be completed in the body-plan below the lower height of breadth, beginning at dead-flat: thus, take the half-breath of the floor diagonal at 9 in the half-breath plan, and fet it down the diagonal from the middle line in the body-plan; then take the half-breath of the floor-sweepes in like manner, and fet it off from the middle line in the body-plan on the horizontal line before drawn at its height, and from the interfection extend the companions to the half-breath of the floor diagonal, and sweep an arc upwards from the dead-rifing, which is fix inches at 9; then with the reconciling-sweep, which is of a long radius compared with the others, unite the lower-breath sweep and floor-sweep together; for the more the midship-frames deviate from the segment of a circle, the less will be the rolling motion of the ship; unite the floor-sweep with the upper edge of the rabbet of the keel with a curve or ftraight line, and the midship-timber will be formed below the lower breadth. In the fame manner may be formed the frame-timbers B, D, F, H, and K, in the fore-body, and 2, 4, 6, 8, 10, 24 in the after-body, by letting off the half-breath of each frame’s diagonal as at 9, their correffponding heights of breadths, main half-breath, and centres of each fweep, as before directed, and by reconciling the lower-breath sweepes and floor-sweepes together, and ending them into the rabbet at the keel; thus the midship part of the body will be formed from K forward to 24 abait.

Hence it may be readily conceived, that bodies full or sharp, either for boreth or velocity, may be conftructed by altering the radii of the different sweepes; and unlefs bodies of ships could be conftructed from fome geometrical figure, a more certain method than the above cannot be given.

The body being thus far formed, that is from K forward to 24 abait, proceed to prove it by horizontal lines, and fift the remaining part forward and aft. These lines are generally called water-lines, as the ship’s bottom at the aftr of the water, fupposing the keel kept parallel thereto, would be of the fame figure as these lines repreffented in the half-breath-pan, with the addition of the thicknes of the bottom plank in that direction. The upper one is called the load-water-line, or line of floatation, when the vellicel is fupposed fit for sea, which will be treated of more particularly hereafter; the other water-lines may be equally divided between the upper or load-water-line, and upperedge of the keel or rabbet. Although a ship may draw more water abait than forward for her bell falling trim, yet to keep the feveral water-lines horizontal, or parallel with the upper edge of the keel, is the moft ufefull in contradiction; and the water-lines, as repreffented in the half-breath-pan, form curves, limiting the various half-breathes of the ship at the heights of their correffponding lines in the body-plan. They are generally drawn with green ink, but in Plate I. with correffponding dotted lines, and are repreffented by ftraight lines in the fheer-plan; and if parallel with the keel they will be horizontal lines in the body-plan, but if the vellicel is to be con- struted to draw much more water aft than forward, the water-lines will not of course be parallel with the upper edge of the keel; then, owing to their various heights at each timber in the fheer-plan, they will form curves at those heights in the body-plan, and the more they vary from an horizontal line, the les accurate will the limits of their half-breathes be defcribed in the half-breath-pan.

In Plate I. the upper horizontal water-line is 20 feet above the lower edge of the keel; and between that and the upper edge of the rabbet of the keel, are equally divided four more water-lines, as in the fheer-plan. The water-lines may now be drawn in the half-breath-pan from the body-plan, and as far as the timbers are there formed; thus, continue the water-lines aft from the fheer-plan across the body-plan, then take off with companions, or a flip of paper and pencil, their various half-breathes from the middle line, to the places where the feveral timbers interfet each water-line, and let them off on their correffponding timbers from the middle line in the half-breath-pan; then to end each water-line square down where they interfet the fore-part of the rabbet at the item, and aft-part of the rabbet at the Stern-post in the fheer-plan to the middle line of the half-breath-pan; then take the half-fiding of the item and the Stern-post at each water-line from the middle line in the body-plan, and let them repectively on the lines half squared down from the middle line in the half-breath-pan; from thence, as the centre, with companions opened to the thicknes of the bottom plank, make a sweep, the back of which is the ending of the line. Then complete the fore and after ends of each water-line with curves, as in the half-breath-pan, avoiding all inflected curves or hollow water-lines at the fore part, as they may be drawn by arcs of circles, although their centres may be without the limits of the plates of ship-building.

Now the whole of the body may be completed under the lower height of breadth, observing to sweep each timber below its height of breadth, as before directed; then by taking off the half-breath of each timber, where they interfet the water-lines from the middle line in the half-breath-pan, and letting them off on their correffponding water-lines from the middle line in the body-plan, curves paffing through thofe spots will shape the timber; but to end them into the rabbet, or complete the heeling, the keel must
must be drawn in the body-plan; thus, set off one inch on the base line from each side of the middle line, being the half-sidings of the keel, and also eight inches below the base line, which squared will represent the two water-lin section of the keel in midship; then, with compasses opened to the thickness of the bottom plank, fix one leg where the keel intersects the base line, which is the upper side of the rabat, and sweep an arc within the keel to intersect the side, and from that intersection sweep another and so upward; then a triangle drawn with that arc, represents the rabat of the keel as much as, and all the timbers along the midship, until the rabat opens, end where the rabat intersects the base line; but when the rabat opens by the timbers rising forward and aft, they will end over the back of the sweep to the inner edge of the rabat. The timbers near the after end of the keel must be ended agreeably to the tapering of the keel, which tapers in the identity from 2 to 1 in 2 to 1 inches at the after end; thus must be set off from the middle line in the half-breadth-plan, and the half-sidings of the keel taken at each timber, and set off on the upper edge of the keel from the middle line in the body-plan; then set within the half-sidings of the keel the thicknesses of the bottom plank, and that ends the timbers. But as the frames in the fore-body before O-beek, upon the stem, their thicknesses must be taken in the frame-plan, where they intersect the lower part of the rabat, and the height fix up in the body-plan upon the half-thickness of the stem; then with compasses opened to the thickness of the bottom plank, fix one leg in the height; half set off, and sweep a circle within the middle, and the half planes over the back of the circle, and the rabat completed by a square applied to the line of the timber, as to intersect the height set up, as shown in the plan of the fore-body, Plate 1.

Now, as a further proof of the correctness of the after body, draw four or five perpendicular sections, or, as they are commonly called, buttock-lines; but first prove the heels of the after timbers by the heading-line, thus; represent the half-thicknesses of the dead or rising wood in the body-plan, by drawing a perpendicular from the base line to the head of the stern-post. Then from the base line take the heights where the after timbers cross the half thicknesses of the dead wood, and set them up from the upper edge of the rabat on their corresponding timbers in the sheer-plan; then draw a curve through those heights, to break in fair with the fore-side of the rabat on the stern-post, and this curve will represent the heading-line in the sheer-plan, and limits the heels of the after timbers, as far as they cut off or pay against the dead-wood.

The heels of the timbers being found to agree with the heading-line, from the fairness of its curve (observe, the term fair, to often used in the delineation of the several plans of a ship, signifies that the variety of curved lines therein used have no inequalities; they, but are even as a circle described from its centre, as most of the lines in the formation of ships’ bodies are curves, but many of their centres are too distant for application; and the fairness required is, that where every different curve unites no angle may be divisible), proceed to prove the after timbers by the buttock-lines; thus, square up from the base line in the after-body plan five perpendiculars, equally divided between the outside of the wing-transom, and the half-thicknesses of the dead-wood; that is, the outer buttock-line at 15 feet 10 inches, and the intermediate four at 3 feet 2 inches asunder.

Then take the heights at the first buttock-line, or that next the pitt, at the intersection of each timber from the base line in the after-body, and let them up from the upper edge of the rabat on the corresponding timbers in the sheer-plan; and to end the buttock-lines, the upper side of the wing-transom and margin-line will be drawn in the several places; thus, set up 2½ feet below for the height of the upper side of the wing-transom, in the sheer and body-plans, drawing a horizontal line at the stern-post and across the body-plan; then from the middle line off one foot, the half-sidings of the wing-transom, and at that place let down below the upper side of the wing-transom, three inches, and from the arc, whose centre will be in the middle line, and the round up of the upper side of the wing-transom will be represented as in the body-plan, Plate 1; from the same centre sweep another arc six inches below the upper side of the wing-transom, which is called the margin-line. Then in the half-breadth-plan, two in the middle line of side of the wing-transom; thus, square down from the first line the profile of the rabat of the stern-post; where it cuts the upper side of the wing-transom, to the half-breadth plan, and upon the line so squared down, let off the half breadth of the wing-transom from the middle line, and at that place set forward seven inches, and sweep the arc representing the round- aft of the wing-transom, the centre of which is in the middle line.

Draw an horizontal line at six inches below the upper side of the wing-transom in the sheer-plan, and upon it square up the round forward of the wing-transom in the half-breadth plan; and from hence draw a line to the upper side of the wing-transom, on the rabat of the pitt, and the upper side of the wing-transom will be shown, both to its round down and forward in the sheer-plan. Transfer the height of the margin line from the body to the sheer-plan, and there draw a line parallel to the upper side of the wing-transom last drawn, and unite them at the part of the wing-transom by a line parallel to the rabat of the pitt. The margin-line must next be shown in the half-breadth plan, by squaring it down from the sheer-plan, and making it a parallel curve to the aft-side of the wing-transom; the distance, however small, being equal to the rake of the rabat of the pitt, in the depth of the margin at the aft-side of the wing-transom. The margin-line being drawn in every plan of Plate 1, proceed to end the buttock-lines in the sheer-plan; thus, take the distance of the buttock-lines square from the middle line of the body-plan, and let them off the same from the middle line in the half-breadth plan, drawing lines parallel thereto from the bottom of the wing-transom to the after square timber, which will represent the buttock-lines in the half-breadth-plan; then, where those lines intersect the margin-line in the half-breadth plan, square up spots to the margin-line in the sheer-plan, which spots will give the true ending of the buttock-lines, also square up the interference of the buttock-lines with the water-lines from the half-breadth to the sheer-plan; then transfer all the heights of the buttock-lines, where the timbers cross them in the body-plan, to the sheer-plan, as before directed, and draw fair curves through all the spots set off to the landings, and the part of the ship will be represented in the sheer-plan, as cut by those perpendicular sections, as in Plate 1.

Now if the buttock-lines make fair curves, the after timbers will be proved correct, and likewise the water-lines abait in the half-breadth plan; but if the buttock-lines to be made fair curves deviate from the spots as set off, then must the timbers be altered accordingly, and consequently the water-lines. But as a further proof to the correctness of the buttock, or that part of the body chief aft, square up one or two imaginary or proof timbers, equally between the after frame timber 37 and the wing-transom at the side, as represented by the ticked lines in the sheer-plan, Plate 1. Then take the heights on a perpendicular from the upper edge of the keel in the sheer-plan, where the proof.
proof-timbers intersect the buttock-lines and boarding-line, and transfer them to the body-plan above the base line upon each corresponding buttock-line, and half-thickness of the dead-wood; take also the half-breath of the proof-timbers where they intersect the water-lines in the half-breath plan, and transfer them to their respective water-lines in the body-plan; but though the proof-timbers cross the flern-poil, their heels may be set off, as before directed for the after-timbers; then if the spots fo set off produce fair curves, as the ticked timber shown in the body-plan, Plate I., we may conclude that the after-body is sufficiently proved and its fairness accurate. The fore-body may be proved by vertical sections, in a similar manner as described above, only their ends will be determined by squaring up their interficctions with the main-breath line, from the half-breath plan to the sheer-plan.

Having completed the form of the body thus far, it will be necessary to ascertain the capacity and stability of the part immersed, as in all ships of war there is a fixed height for the lower fill of the midship port above the load-water-line, allowing for six months’ stores, provisions, &c. to be on board; and the capacity should be sufficiently adequate for this purpose; for the nearer this is approached unto, the more merit is due to the constructor: it should not be more, to avoid superfluous expense in the building, and the additional men required to navigate her; nor should it be less, from an obvious general insufficiency to answer the required purpofes: the bias should rather lead to increase than diminish in capacity. In ships for commerce, an exact eflimation of their capacity is more frequently required to regulate the port duties, and the contracts between merchant owners and builders, than to infure their liability, a fixed line of floatation, and fail failing, as the charge may be regulated by their ability to support it, and their load-water-line may be confiderably varied, without any hurtful interference with other essential qualities.

Let us at present suppose the 74-gun ship, Plate I., as floating upon the water in equilibriun, and the upper water-line upon a level with the surface of the water, by which the ship is divided into two parts, the one above and the other under the water, which we call the immersed part of the body. In order to judge of this state of equilibrium, in which we suppose the vessel to be, it is necessary to take into consideration all the forces which act upon the vessel; and first the weight of the whole vessel presents itself, by which it is pressed down vertically in a line passing through the centre of gravity of the vessel. This force must therefore be counterbalanced by all the efforts which the water exerts upon the surface of the immersed part, and consequently it will be necessary to determine the pressure that each particle of the immersed surface sustains from the water, which requires researches very embarrassing, and a long series of calculations: but the following considerations will easily lead us to the defired end.

As the vessel occupies the water, by its immersed part, the cavity formed by the body under the upper water-line, let us compare this cove with another, the above cavity being filled with water: it is at first evident, that this mass of water will be in a perfect equilibrium with the water that surrounds it; and it is also plain, that this mass sustains from the part of the surrounding water, the same efforts which the vessel suffers from it. From whence we fee, that these efforts of the water balance the weight of the mass of water which we have just substituted in the place of the vessel. Therefore, since these fame efforts sustain also the weight of the whole vessel, it follows that this weight is precisely equal to the weight of the mass of water which fills the same cavity as formed by the body of the vessel under the upper water-line; or rather, whole volume is equal to the volume of the immersed part of the vessel.

Here, therefore, is the first great principle upon which is founded the theory of the floating of bodies that swim upon the water. It is, that the immersed part must always be equal in volume to a mass of water, which would have the same weight as that of the vessel; and it is from this principle that we determine the true weight of a vessel, by measuring the volume of its immersed part in the water; for then, by reckoning 64,375 lbs. avoidy pesos for each cubic foot, we shall find the weight of the vessel expressed in pounds.

However, this principle, only, is not sufficient to determine the state of the equilibrium of the vessel; another must be still joined to it, and which we shall find with the same facility. We have only to consider in Plate I. the centre of gravity of the masts of water under the upper water-line; then we shall easily conceive that all the efforts of the surrounding water are in equilibrium with a force equal to the weight of the masts of water displaced by the bottom under the upper water-line, which should act in a perpendicular direction through the centre of gravity of the said masts of water downwards; therefore, in order that the vessel may be in equilibrium with the same efforts, it is necessary that the centre of gravity of the vessel be in the same vertical line in which the centre of gravity of the immersed part is found. For that purpose we have only to mark within the vessel the very point where the centre of gravity of the immersed part would be, if it was composed of an homogeneous matter, and this point we shall term the centre of cavity.

Now the state of the equilibrium of any vessel will be determined from these two principles: 1st, that the immersed part must be equal in volume to a mass of water, whose weight would be equal to that of the vessel; and, 2dly, that the centre of gravity of the vessel, and the centre of cavity, fall in the same vertical line, which is the vertical axis of the vessel. With respect to the centre of cavity, it is evident that it must always fall below the load-water-line; and if the immersed part should prefer, in defending, every where the same surface, or that it had either a prismatic or cylindrical figure, then the centre of cavity would fall in the middle of the vertical axis between the load-water-line and the keel. But if the extent diminished uniformly from the load-water-line to the keel, and it at last terminated in a right line drawn through the keel, equal and parallel to the load-water-line, then the elevation of the centre of cavity would be two-thirds of the immersed part above the keel; and if the same immersed part should terminate in a point at the keel as a pyramid revered, then the centre of cavity would be three-fourths of the immersed part above the keel; but with respect to the centre of gravity of the vessel, it may fall either above or below the load-water-line, according as the lading should be distributed throughout the body of the vessel. Thus in Plate I. of ships of war in general, where the guns constitute a considerable part of the weight, since they are placed above the water, the centre of gravity will be situated above its surface.

The bottoms, or immersed parts of vessels in general not strictly agreeing with any of the above-mentioned geometrical forms, it will be necessary to gauge the form of the immersed part of the vessel's bottom, or, which is the same thing, the quantity of water displaced by the bottom; the weight of which, as before observed, is equal to the weight of the ship, its rigging, provisions, and every thing on board. If, therefore, the exact weight of the ship when ready for sea be calculated, and also the number of cubic feet of water displaced by the ship's bottom below the load-water-line, it will then be known if the load-water-line is properly placed.
SHIP-BUILDING.

A Table of the Weight of the 74-Gun Ship, Plate 1, as fitted for S. A., with Six Months' Provisions, Guns, &c.

<table>
<thead>
<tr>
<th>Weight of the Hull.</th>
<th>Feet</th>
<th>lbs</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oak timber, at 57.8125 lbs. to the cubic foot</td>
<td>47.57</td>
<td>1256</td>
<td>208</td>
</tr>
<tr>
<td>Elm timber, at 37.95 to the cubic foot</td>
<td>402</td>
<td>7</td>
<td>1645</td>
</tr>
<tr>
<td>Lb timber, at 34.25 to the cubic foot</td>
<td>43.97</td>
<td>67</td>
<td>517</td>
</tr>
<tr>
<td>Copper bolts, rudder, brasses, &amp;c. &amp;c.</td>
<td>20</td>
<td>2</td>
<td>1748</td>
</tr>
<tr>
<td>Iron knees, bolts, nails, &amp;c. &amp;c.</td>
<td>28</td>
<td>20</td>
<td>2070</td>
</tr>
<tr>
<td>Lead work</td>
<td>2</td>
<td>2</td>
<td>160</td>
</tr>
<tr>
<td>Pitch, tar, oakum, paint, &amp;c. &amp;c.</td>
<td>13</td>
<td>13</td>
<td>116</td>
</tr>
<tr>
<td>Fire heath in galley, &amp;c. &amp;c.</td>
<td>2</td>
<td>2</td>
<td>330</td>
</tr>
<tr>
<td>Copper sheathing of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>{32 Ounces, 2000, weight 85 0}</td>
<td>12</td>
<td>12</td>
<td>728</td>
</tr>
<tr>
<td>{28 Ounces, 1826, 134 56}</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>{18 Ounces, 85, 5 80}</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheathing nails</td>
<td>21</td>
<td>21</td>
<td>2</td>
</tr>
</tbody>
</table>

Weight of the Furniture.

| Complete set of masts, yards, booms, &c. with the spare gear | 70 | 1820 |
| Rigging with spare | 30 | 1120 |
| Cables, hawfes, &c. | 13 | 1888 |
| Anchors, with their blocks, &c. | 37 | 32 |
| Blocks, pumps, and boats | 17 | 758 |

Weight of the Guns and Ammunition.

| Guns, with their carriages | 155 | 1557 |
| Powder and balls, powder-barrels, &c. | 48 | 76 |
| Implements for the guns, powder, &c. | 7 | 7 |

Weight of the Officers' Stores.

| Carpenter, gunner, and boatswain's stores | 21 | 560 |

Weight of the Men, &c.

| 600 men, including the officers and their effects | 95 | 95 |
| Ballast, iron and shingle | 30 | 30 |

Weight of the Provisions.

| Provisions for six months for 600 men, water, calls, &c. &c. | 395 | 600 |

Recapitulation.

| The hull | 1350 | 626 |
| The furniture | 1302 | 312 |
| Guns and ammunition | 2111 | 1427 |
| Officers' stores | 21 | 21 |
| Men and ballast | 395 | 600 |
| Provisions | 600 | |

Total weight | 1810 | 745 |
SHIP BUILDING.

By the preceding estimate, we find the 74-gun ship, Pl. I., weighs, when brought down to her load-water-line, 2810 tons 745 pounds, that is to say, when fitted for sea, with six months' provisions on board. It may now be known, with some degree of certainty, if the upper water-line on the sheer-draught, Plate I., be properly placed, only by reducing the immered part of the bottom into cubic feet; for, if the 74-gun ship, when brought down to the load-water-line, weighs 2810 tons 745 pounds, the quantity of water displaced might also be 2810 tons 745 pounds, or 6,295,145 pounds. Now a cubic foot of salt-water being supposed to weigh 64,375 pounds, we shall therefore find, that if we divide 6,295,145 by 64,375, the quotient will be 97,788 solid feet, which is the contents of that volume of water which she must displace corresponding to her weight.

Displacement or Capacity.

The solid contents of a ship's bottom, were it any regular figure, might be easily calculated geometrically; but as its curves are to various, the following rule, by approximation, may be near enough for practice.

Take the half-breadths of every other frame, and double them, from 26 to O, in the half-breadth plan upon the upper water-line; then find the sum of theses, together with half the foremost frame O, and aftermost frame 26. Now, the frames being equidistant, multiply that sum by 11 feet, the distance between every other frame, and the product is the area of the water-line contained between the frames 26 and O; then find the area of that part of the water-line afore O, and abaft 26, by taking the half-breadth of every timber, and proceed as before, and multiply by 2 feet 9 inches; find also the area of the stem, knee, and grips, before the foremost-timber, also the area of the stern-poilt and rudder abaft the after-timber; then these areas being added to the first found, will be the area of the surface of the whole water-line. Note, the thickness of the bottom plank, as taken in that direction, must be added.

The areas of the other water-lines may be found in the same manner; then the sum of all these areas, except the uppermost and lowermost, of which only one-half of each must be taken, being multiplied by 3.6 feet, the distance between the water-lines (these lines in the sheer-plan being also equidistant from each other), and the product will be the solid content of the space contained between the lower and upper water-lines.

Add the area of the lower water-line to the area of the upper side of the keel; multiply half that sum by the distance between them, the product will be the solid content of that part between the lower water-line and upper edge of the keel.

The solid contents of the keel must be next found, by multiplying the area by its depth; then the sum of these solid contents will be the number of cubic feet contained in the immered part of the bottom, below the upper water-line.

The reason of the above rule will be obvious, by referring to the article Stereometry; for there, to find the solid contents of any irregular body, the area of the surfaces must be taken by ordinates (and such are the joints of the frames of a ship), and those surfaces multiplied by the depth or depths (and such are the water-lines), which will give the solid contents required.

The application of this rule, in finding the cubic feet contained in the bottom of the 74-gun ship, below the upper water-line in Plate 1.

\[
\text{Area of the Upper Water-Line.}
\]

<table>
<thead>
<tr>
<th>Frame</th>
<th>Half Breadth</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>43 ft. 8 in.</td>
<td>21 in.</td>
</tr>
<tr>
<td>22</td>
<td>45</td>
<td>11 in.</td>
</tr>
<tr>
<td>18</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>46 ft. 2 in.</td>
<td>23 in.</td>
</tr>
</tbody>
</table>

\[
\times \text{by the distance between the frames} = \frac{526}{9} \quad 5794 \quad 3
\]

<table>
<thead>
<tr>
<th>Frame</th>
<th>Half Breadth</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>43 ft. 8 in.</td>
<td>21 in.</td>
</tr>
<tr>
<td>27</td>
<td>43</td>
<td>2 in.</td>
</tr>
<tr>
<td>28</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>38</td>
<td>6 in.</td>
</tr>
<tr>
<td>32</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>34</td>
<td>10 in.</td>
</tr>
<tr>
<td>34</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

\[
\times \text{by the distance between the timbers} = \frac{379}{6} \quad 1043 \quad \frac{7}{3}
\]

<table>
<thead>
<tr>
<th>Frame</th>
<th>Half Breadth</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>46 ft. 2 in.</td>
<td>23 in.</td>
</tr>
<tr>
<td>P</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>38</td>
<td>10 in.</td>
</tr>
<tr>
<td>T</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>19</td>
<td>4 in.</td>
</tr>
<tr>
<td>Y</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Half</td>
<td>0</td>
<td>10 in.</td>
</tr>
</tbody>
</table>

\[
\times \text{by the distance between the timbers} = \frac{316}{8} \quad 2 in. 9
\]

<table>
<thead>
<tr>
<th>Area</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>870</td>
<td>10 in.</td>
</tr>
<tr>
<td>873</td>
<td>10 in.</td>
</tr>
<tr>
<td>1053</td>
<td>9 in.</td>
</tr>
<tr>
<td>5794</td>
<td>3 in.</td>
</tr>
<tr>
<td>7721</td>
<td>10 in.</td>
</tr>
</tbody>
</table>

Area
### AREA OF THE FOURTH WATER-LINE.

<table>
<thead>
<tr>
<th>Frame</th>
<th>Area (sq ft)</th>
<th>Length (ft)</th>
<th>Distance to preceding frame (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame 26</td>
<td>2.2</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Frame 22</td>
<td>3.9</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Frame 18</td>
<td>4.4</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Frame 14</td>
<td>4.5</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Frame 10</td>
<td>4.8</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>Frame 6</td>
<td>4.8</td>
<td>70</td>
<td>2</td>
</tr>
<tr>
<td>Frame 2</td>
<td>4.0</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>Frame W</td>
<td>3.7</td>
<td>90</td>
<td>2</td>
</tr>
<tr>
<td>Frame K</td>
<td>3.7</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>Frame O</td>
<td>4.3</td>
<td>110</td>
<td>2</td>
</tr>
</tbody>
</table>

Area between 26 and O: 5143 sq ft

× by the distance between the frames: 521 sq ft

### AREA OF THE THIRD WATER-LINE.

<table>
<thead>
<tr>
<th>Frame</th>
<th>Area (sq ft)</th>
<th>Length (ft)</th>
<th>Distance to preceding frame (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame 26</td>
<td>1.7</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Frame 22</td>
<td>3.2</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Frame 18</td>
<td>4.2</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>Frame 14</td>
<td>4.4</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>Frame 10</td>
<td>4.5</td>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>Frame 6</td>
<td>4.6</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>Frame 2</td>
<td>4.0</td>
<td>80</td>
<td>1</td>
</tr>
<tr>
<td>Frame W</td>
<td>3.7</td>
<td>90</td>
<td>1</td>
</tr>
<tr>
<td>Frame K</td>
<td>3.7</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Frame O</td>
<td>3.7</td>
<td>110</td>
<td>1</td>
</tr>
</tbody>
</table>

Area between 26 and O: 531 sq ft

× by the distance between the frames: 542 sq ft

### AREA OF THE POST AND RUDDER.

| Area abaf 26 | 794 sq ft |
| Area of the post and rudder | 804 sq ft |

### AREA OF THE FLEET AND KNEE.

| Area of the fleet and knee | 729 sq ft |

### AREA OF THE THIRD WATER-LINE.

<table>
<thead>
<tr>
<th>Frame</th>
<th>Area (sq ft)</th>
<th>Length (ft)</th>
<th>Distance to preceding frame (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame 26</td>
<td>37</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Frame 22</td>
<td>33</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Frame 18</td>
<td>29</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Frame 14</td>
<td>26</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Frame 10</td>
<td>22</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Frame 6</td>
<td>20</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Frame 2</td>
<td>16</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Frame W</td>
<td>12</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Frame K</td>
<td>11</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Frame O</td>
<td>10</td>
<td>15</td>
<td>1</td>
</tr>
</tbody>
</table>

Area between 26 and O: 534 sq ft

× by the distance between the frames: 564 sq ft

### AREA OF THE THIRD WATER-LINE.

| Area of the fleet and knee | 729 sq ft |

Area between 26 and O: 545 sq ft

× by the distance between the frames: 546 sq ft
<table>
<thead>
<tr>
<th>Frame/Timber</th>
<th>Area (Ft. x In.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame 26</td>
<td>12 x 5</td>
</tr>
<tr>
<td>Timber 27</td>
<td>12 x 5</td>
</tr>
<tr>
<td>Frame 25</td>
<td>22 x 0</td>
</tr>
<tr>
<td>Frame 24</td>
<td>19 x 0</td>
</tr>
<tr>
<td>Frame 23</td>
<td>15 x 10</td>
</tr>
<tr>
<td>Frame 22</td>
<td>13 x 4</td>
</tr>
<tr>
<td>Frame 21</td>
<td>10 x 3</td>
</tr>
<tr>
<td>Frame 20</td>
<td>8 x 1</td>
</tr>
<tr>
<td>Frame 19</td>
<td>6 x 1</td>
</tr>
<tr>
<td>Frame 18</td>
<td>2 x 2</td>
</tr>
<tr>
<td>Timber 17</td>
<td>117 x 2</td>
</tr>
<tr>
<td>Frame 16</td>
<td>32 x 2</td>
</tr>
<tr>
<td>Frame 15</td>
<td>25 x 6</td>
</tr>
<tr>
<td>Frame 14</td>
<td>23 x 0</td>
</tr>
<tr>
<td>Frame 13</td>
<td>19 x 0</td>
</tr>
<tr>
<td>Frame 12</td>
<td>16 x 2</td>
</tr>
<tr>
<td>Frame 11</td>
<td>12 x 0</td>
</tr>
<tr>
<td>Frame 10</td>
<td>8 x 8</td>
</tr>
<tr>
<td>Timber 9</td>
<td>120 x 8</td>
</tr>
<tr>
<td>Timber 8</td>
<td>331 x 10</td>
</tr>
<tr>
<td>Frame 7</td>
<td>25 x 6</td>
</tr>
<tr>
<td>Frame 6</td>
<td>23 x 0</td>
</tr>
<tr>
<td>Frame 5</td>
<td>19 x 0</td>
</tr>
<tr>
<td>Frame 4</td>
<td>16 x 2</td>
</tr>
<tr>
<td>Frame 3</td>
<td>12 x 0</td>
</tr>
<tr>
<td>Frame 2</td>
<td>8 x 8</td>
</tr>
<tr>
<td>Timber 1</td>
<td>331 x 10</td>
</tr>
<tr>
<td>Timber 0</td>
<td>120 x 8</td>
</tr>
</tbody>
</table>

**Area of the Second Water-Line:**
- Frame 26: 12 ft. 5 in.
- Timber 27: 22 ft.
- Frame 25: 19 ft.
- Frame 24: 15 ft.
- Frame 23: 13 ft.
- Frame 22: 10 ft.
- Frame 21: 8 ft.
- Frame 20: 6 ft.
- Frame 19: 2 ft.
- Timber 17: 117 ft.
- Frame 16: 32 ft.
- Frame 15: 25 ft.
- Frame 14: 23 ft.
- Frame 13: 19 ft.
- Frame 12: 16 ft.
- Frame 11: 12 ft.
- Frame 10: 8 ft.
- Timber 9: 120 ft.
- Timber 8: 331 ft.
- Frame 7: 25 ft.
- Frame 6: 23 ft.
- Frame 5: 19 ft.
- Frame 4: 16 ft.
- Frame 3: 12 ft.
- Frame 2: 8 ft.
- Timber 1: 331 ft.
- Timber 0: 120 ft.

**Area of the First or Lower Water-Line:**
- Frame 26: 10 ft. 0 in.
- Timber 27: 8 ft.
- Frame 25: 7 ft.
- Frame 24: 5 ft.
- Frame 23: 4 ft.
- Frame 22: 3 ft.
- Frame 21: 2 ft.
- Frame 20: 1 ft.
- Timber 17: 47 ft.
- Frame 16: 130 ft.
- Frame 15: 139 ft.
- Frame 14: 139 ft.
- Frame 13: 139 ft.
- Frame 12: 139 ft.
- Frame 11: 139 ft.
- Frame 10: 139 ft.
- Timber 9: 57 ft.
- Timber 8: 157 ft.
- Timber 7: 157 ft.
- Frame 6: 164 ft.
- Area before O: 164 ft.
- Area after O: 164 ft.
- Area between 26 and O: 164 ft.
- Area of the lower water-line: 3764 ft.

**Area of the Item and Knee:**
- Frame 26: 337 ft.
- Frame 25: 331 ft.
- Frame 24: 4450 ft.
- Area: 5119 ft.

**Area of the Water-Line:**
- Frame 26: 404 ft.
- Frame 25: 111 ft.
- Frame 24: 10 ft.
<table>
<thead>
<tr>
<th>Area of the Upper Side of the Keel</th>
<th>10 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length on the upper side or place of the keel</td>
<td>177 2</td>
</tr>
<tr>
<td>from the aft side of the rudder</td>
<td>6</td>
</tr>
<tr>
<td>Multiplied by its thickness</td>
<td>205 9</td>
</tr>
<tr>
<td>Area of the upper side of the keel</td>
<td>205 9</td>
</tr>
</tbody>
</table>

**Displacement of the Bottom.**

| Half the area of the upper water line | 386 11 |
| Whole area of the fourth water line | 512 34 |
| Whole area of the third water line | 618 51 |
| Whole area of the second water line | 5119 96 |
| Whole area of the lower water line | 3704 84 |
| Half the area of the upper side of keel | 132 124 |

× by distance between the water-lines 26114 729

Area of the keel 265 ft. 9 in. × by 94010 6624
the depth, false keel included | 531 5 |

Cubic feet displaced 94542 162
× by pounds in a cubic foot of salt-water 64375

6880151 lbs.

As the estimated weight of the ship, with every thing on board, was 6,295,145 lbs. we find, by the above calculation, the upper water-line, as parallel with the keel, is placed too low, as the displacement is only equal to 6,086,151 lbs. Therefore proceed to find if the body of the ship is constructed to fail on an even keel, that is, whether the ship will be in her natural position when brought down to that line. For this purpose, let the centre of cavity, or centre of support, be next found, as then we may determine what proportion the displacement of the fore-part of the ship bears to the aft-part; for, should they not prove equal, the ship cannot be constructed to fail on an even keel.

**Method of finding the Centre of Displacement or Support.**

The centre of gravity of a ship, kept in the water, and in a state of equilibrium, is in a perpendicular line, passing through the keel, and dividing the upright into two equal and similar parts, in a certain distance from the stem and stern, above the keel.

To obtain the centre of displacement, or centre of gravity, of the immersed part of a ship's bottom or of any weight, as a rule of three, we have

<table>
<thead>
<tr>
<th>6295145</th>
<th>940106624</th>
</tr>
</thead>
<tbody>
<tr>
<td>5315</td>
<td>64375</td>
</tr>
</tbody>
</table>

Then to find the centre of gravity of the system, in respect to the aft-side of the rudder, which is allowed for the first term of the momenta, we need not find the centre of gravity of each parallelogram, but divide the whole surface into three sections, and multiply their sums, as before, by the difference between the ordinates, and the product will be the area of each section.

Then to obtain the sum of the momenta of all the elementary parts of the surface, multiply the breadth of each ordinate into its distance from the axis of the ordinates, or first ordinate, and then take the sum of all these products; and, by multiplying this sum by the distance between the ordinates, we shall have the sum of all the momenta of the elementary parts of the surface, which, divided by the sum of the ordinates, will give the distance of the centre of gravity of the whole surface from the axis of the momenta.

Lastly, the areas of the several parallels of surface, and their momenta, being found, divide one by the other, and the quotient will be the distance of the centre of gravity of the whole section from the aft-side of the rudder.
SHIP-BUILDING.

Operation for the Plane of the Upper Horizontal Water-Line.

To find the centre of gravity of the plane abait 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 37 ordinate is</th>
<th>Dist. from 37.</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>379</td>
<td>6</td>
</tr>
<tr>
<td>Multiply by</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Area</td>
<td>1043</td>
<td>7\frac{1}{2}</td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 379 6 ) 6557 1\frac{1}{2}

Centre of gravity - 17 3\frac{1}{2}

Distance of the ordinate 37 from the aft-side of the rudder - 6 9

Centre of gravity from aft-side of the rudder - 24 0\frac{1}{2}

Distance of the centre of gravity of the section of the rudder and stern-poil from the aft-side of the rudder is - 3 5

To find the centre of gravity of the plane between 26 and O, from 26, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 26 ordinate is</th>
<th>Dist. from 26.</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>526</td>
<td>9</td>
</tr>
<tr>
<td>Multiply by</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Area</td>
<td>5794</td>
<td>3</td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 526 9 ) 32120 0

Centre of gravity - 61 5\frac{1}{2}

Distance of the ordinate 26 from the aft-side of the rudder - 37 0

Centre of gravity from aft-side of the rudder - 98 5\frac{1}{2}

To find the centre of gravity of the plane before O, from O, its first ordinate.

<table>
<thead>
<tr>
<th>Half of O ordinate is</th>
<th>Dist. from O.</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>37</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>316</td>
<td>8</td>
</tr>
<tr>
<td>Multiply by</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Area</td>
<td>870</td>
<td>10</td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 316 8 ) 3367 7\frac{1}{2}

Centre of gravity - 10 7\frac{1}{2}

Distance of the ordinate O from the aft-side of the rudder - 158 0

Centre of gravity from aft-side of the rudder - 168 7\frac{1}{2}

Centre of gravity of knee before the stem is

Distance of the centre of gravity of the section of the knee, before the aft-side of the rudder, is - 186 6

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Ft. In.</th>
<th>Area of the after-plane 1043 7\frac{1}{2} Mult. by 24 0\frac{1}{2} its momentum = 25067 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1043</td>
<td>7\frac{1}{2} Mult. by 24 0\frac{1}{2} its momentum = 25067 9 Area of the midship-plane 5794 3</td>
</tr>
<tr>
<td>5794</td>
<td>3 Mult. by 95 4\frac{1}{2} its momentum = 570612 6\frac{1}{2} Area of the fore-plane 870 10</td>
</tr>
<tr>
<td>870</td>
<td>10 Mult. by 168 7\frac{1}{2} its momentum = 146844 3\frac{1}{2} Area of rudder and ptol 10 1\frac{1}{2}</td>
</tr>
<tr>
<td>10</td>
<td>10 Mult. by 3 5 its momentum = 34 7\frac{1}{2} Area of the knee 3 0</td>
</tr>
<tr>
<td>3</td>
<td>3 Mult. by 186 6 its momentum = 559 6</td>
</tr>
<tr>
<td>7721</td>
<td>Whole areas. Sum of momenta 743118 7\frac{1}{2}</td>
</tr>
</tbody>
</table>

Now 743118 7\frac{1}{2} in. divided by 7721 ft. 10 in. gives 96 ft. 2\frac{1}{2} in., the distance of the centre of gravity of the whole section of the upper horizontal water-line from the aft-side of the rudder.
SHIP-BUILDING.

Operations for the Plane of the Fourth Horizontal Water-Line.

To find the centre of gravity of the plane about 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th>Whole of 37 ordinate</th>
<th>11 L.</th>
<th>Distance from 26</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>3 7</td>
<td>Mult. by 1</td>
<td>3 7</td>
</tr>
<tr>
<td>35</td>
<td>3 7</td>
<td>2</td>
<td>26 2</td>
</tr>
<tr>
<td>34</td>
<td>3 7</td>
<td>3</td>
<td>39 0</td>
</tr>
<tr>
<td>33</td>
<td>3 7</td>
<td>4</td>
<td>97 4</td>
</tr>
<tr>
<td>32</td>
<td>3 7</td>
<td>5</td>
<td>141 8</td>
</tr>
<tr>
<td>31</td>
<td>3 7</td>
<td>6</td>
<td>188 0</td>
</tr>
<tr>
<td>30</td>
<td>3 7</td>
<td>7</td>
<td>238 0</td>
</tr>
<tr>
<td>29</td>
<td>3 7</td>
<td>8</td>
<td>280 8</td>
</tr>
<tr>
<td>28</td>
<td>3 7</td>
<td>9</td>
<td>340 6</td>
</tr>
<tr>
<td>27</td>
<td>3 7</td>
<td>10</td>
<td>391 8</td>
</tr>
<tr>
<td>Half of 26 ordinate</td>
<td>6 2</td>
<td>11</td>
<td>223 10</td>
</tr>
</tbody>
</table>

Sum - 288 11
Multiply by - 2 9
diff. between ordin. 2 9

Area - 794 64

Divide by the sum of the ordinates - 288 11 = 5495 7 2
Centre of gravity - 19 0 4
Distance of the ordinate 37 from the after-side of the rudder - 6 9
Centre of gravity from after-side of the rudder 25 9 4
Distance of the centre of gravity of the section of the rudder and items of the after-side of the rudder is 3 5

To find the centre of gravity of the plane between 26 and O, from 26, its first ordinate.

<table>
<thead>
<tr>
<th>Whole of 26 ordinate</th>
<th>11 L.</th>
<th>Distance from 26</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>4 3</td>
<td>Mult. by 1</td>
<td>4 3</td>
</tr>
<tr>
<td>18</td>
<td>4 3</td>
<td>2</td>
<td>8 6</td>
</tr>
<tr>
<td>14</td>
<td>4 3</td>
<td>3</td>
<td>13 4</td>
</tr>
<tr>
<td>10</td>
<td>4 3</td>
<td>4</td>
<td>18 8</td>
</tr>
<tr>
<td>6</td>
<td>4 3</td>
<td>5</td>
<td>23 4</td>
</tr>
<tr>
<td>2</td>
<td>4 3</td>
<td>6</td>
<td>28 0</td>
</tr>
<tr>
<td>1 (1)</td>
<td>4 3</td>
<td>7</td>
<td>32 0</td>
</tr>
<tr>
<td>B</td>
<td>4 3</td>
<td>8</td>
<td>37 3</td>
</tr>
<tr>
<td>E</td>
<td>4 3</td>
<td>9</td>
<td>42 0</td>
</tr>
<tr>
<td>K</td>
<td>4 3</td>
<td>10</td>
<td>47 4</td>
</tr>
<tr>
<td>Half of O</td>
<td>2 1</td>
<td>11</td>
<td>23 6</td>
</tr>
</tbody>
</table>

Sum - 501 3
Multiply by - 11 0
diff. between ordin. 11 0

Area - 5513 9

Divide by the sum of the ordinates 501 3 = 3063 3 7 2
Centre of gravity - 61 1 4
Distance of the ordinate 26 from the after-side of the rudder - 37 0
Centre of gravity from after-side of the rudder 98 1 4

To find the centre of gravity of the plane before O, from 0, its first ordinate.

<table>
<thead>
<tr>
<th>Whole of 0 ordinate</th>
<th>11 L.</th>
<th>Distance from 26</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>4 1</td>
<td>Mult. by 1</td>
<td>4 1</td>
</tr>
<tr>
<td>19</td>
<td>4 1</td>
<td>2</td>
<td>8 2</td>
</tr>
<tr>
<td>17</td>
<td>4 1</td>
<td>3</td>
<td>13 3</td>
</tr>
<tr>
<td>15</td>
<td>4 1</td>
<td>4</td>
<td>18 4</td>
</tr>
<tr>
<td>13</td>
<td>4 1</td>
<td>5</td>
<td>23 5</td>
</tr>
<tr>
<td>11</td>
<td>4 1</td>
<td>6</td>
<td>28 6</td>
</tr>
<tr>
<td>9</td>
<td>4 1</td>
<td>7</td>
<td>33 7</td>
</tr>
<tr>
<td>7</td>
<td>4 1</td>
<td>8</td>
<td>38 8</td>
</tr>
<tr>
<td>5</td>
<td>4 1</td>
<td>9</td>
<td>43 9</td>
</tr>
<tr>
<td>3</td>
<td>4 1</td>
<td>10</td>
<td>48 10</td>
</tr>
<tr>
<td>Half of 0 ordinate</td>
<td>2 1</td>
<td>11</td>
<td>23 6</td>
</tr>
</tbody>
</table>

Sum - 265 5
Multiply by - 2 9
diff. between ordin. 2 9

Area - 729 10 4

Divide by the sum of the ordinates - 265 5 = 2577 4 2
Centre of gravity - 9 8 4
Distance of the ordinate 0 from the after-side of the rudder - 15 8
Centre of gravity from after-side of the rudder 167 8 4
Distance of the centre of gravity of the section of the rudder and items of the after-side of the rudder is 1 4
Distance of the centre of gravity of the section of the knee, before the after-side of the rudder is 184 1

Areas of the several planes, and their moments.

<table>
<thead>
<tr>
<th>Area of the midship-plane 5513 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>5513 9 Mult. by 9 1/1, its moment = 5410 3 7</td>
</tr>
<tr>
<td>Area of the after-plane 794 6 4</td>
</tr>
<tr>
<td>794 6 4 Mult. by 25 9 1/1, its moment = 2047 5 5</td>
</tr>
<tr>
<td>Area of the fore-plane 729 10 4</td>
</tr>
<tr>
<td>729 10 4 Mult. by 167 8 1/1, its moment = 1224 0 10</td>
</tr>
<tr>
<td>Area of rudder and post 10 1/1</td>
</tr>
<tr>
<td>10 1/1 Mult. by 3 5, its moment = 34 7 4</td>
</tr>
<tr>
<td>Area of the item and knee 4 0</td>
</tr>
<tr>
<td>4 0 Mult. by 184 1, its moment = 736 4</td>
</tr>
</tbody>
</table>

7052 3 1/2 Whole areas. Sum of momenta 6846 9 93

Now 6846 9 93 in. divided by 7052 3 1/2 in. gives
57 1/4 in., the distance of the centre of gravity of the whole section of the fourth horizontal water-line from the after-side of the rudder.
SHIP-BUILDING.

Operation for the Plane of the Third Horizontal Water-Line.

To find the centre of gravity of the plane abat 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 37 ordinate is</th>
<th>Ft.</th>
<th>In.</th>
<th>Distants from 37,</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 36</td>
<td>3</td>
<td>6</td>
<td>1 = 3</td>
<td>6</td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>2</td>
<td>2 = 12</td>
<td>0</td>
</tr>
<tr>
<td>34</td>
<td>1</td>
<td>3</td>
<td>3 = 27</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>2</td>
<td>5</td>
<td>4 = 49</td>
<td>8</td>
</tr>
<tr>
<td>32</td>
<td>7</td>
<td>4</td>
<td>5 = 86</td>
<td>8</td>
</tr>
<tr>
<td>31</td>
<td>21</td>
<td>3</td>
<td>6 = 127</td>
<td>7</td>
</tr>
<tr>
<td>30</td>
<td>24</td>
<td>6</td>
<td>7 = 171</td>
<td>6</td>
</tr>
<tr>
<td>29</td>
<td>27</td>
<td>7</td>
<td>8 = 220</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>30</td>
<td>1</td>
<td>9 = 270</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>32</td>
<td>0</td>
<td>10 = 320</td>
<td>0</td>
</tr>
<tr>
<td>Half of 26</td>
<td>17</td>
<td>0</td>
<td>11 = 187</td>
<td>0</td>
</tr>
</tbody>
</table>

Sum - 201 6
Multiply by 2 9 diff. between ord. 2 9
Area - 554 1½

Divide by the sum of the ordinates - 201 6 ) 4060 4½
Centre of gravity - - - - - 20 1½
Distance of the ordinate 37 from the aft-side of the rudder - - - 6 9
Centre of gravity from aft-side of the rudder - 26 10½
Distance of the centre of gravity of the section of the rudder and stem-post from the aft-side of the rudder is - - - 3 5

To find the centre of gravity of the plane between 26 and O, from 26, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 26 ordinate is</th>
<th>Ft.</th>
<th>In.</th>
<th>Distants from 26,</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 22</td>
<td>39</td>
<td>1</td>
<td>Mult. by 1 = 39</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>41</td>
<td>0</td>
<td>2 = 82</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>42</td>
<td>5</td>
<td>3 = 127</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>43</td>
<td>2</td>
<td>4 = 172</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>43</td>
<td>8</td>
<td>5 = 218</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>8</td>
<td>6 = 262</td>
<td>0</td>
</tr>
<tr>
<td>(1)</td>
<td>43</td>
<td>8</td>
<td>7 = 305</td>
<td>9</td>
</tr>
<tr>
<td>B</td>
<td>43</td>
<td>8</td>
<td>8 = 349</td>
<td>4</td>
</tr>
<tr>
<td>K</td>
<td>41</td>
<td>8</td>
<td>9 = 391</td>
<td>6</td>
</tr>
<tr>
<td>F</td>
<td>43</td>
<td>6</td>
<td>10 = 416</td>
<td>8</td>
</tr>
<tr>
<td>Half of O</td>
<td>18</td>
<td>8</td>
<td>11 = 205</td>
<td>4</td>
</tr>
</tbody>
</table>

Sum - 461 2
Multiply by 11 0 diff. between ord. 11 0
Area - 5072 10

Divide by the sum of the ordinates - 461 2 ) 28268 2
Centre of gravity - - - - - 61 3½
Distance of the ordinate 26 from the aft-side of the rudder - - - - 37 0
Centre of gravity from aft-side of the rudder - 98 3½

To find the centre of gravity of the plane before O, from O, its first ordinate.

<table>
<thead>
<tr>
<th>Half of O ordinate is</th>
<th>Ft.</th>
<th>In.</th>
<th>Distants from O,</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of P ordinate is</td>
<td>35</td>
<td>2</td>
<td>Mult. by 1 = 35</td>
<td>2</td>
</tr>
<tr>
<td>Q</td>
<td>32</td>
<td>10</td>
<td>2 = 62</td>
<td>8</td>
</tr>
<tr>
<td>R</td>
<td>29</td>
<td>6</td>
<td>3 = 88</td>
<td>6</td>
</tr>
<tr>
<td>S</td>
<td>26</td>
<td>6</td>
<td>4 = 106</td>
<td>0</td>
</tr>
<tr>
<td>T</td>
<td>22</td>
<td>0</td>
<td>5 = 110</td>
<td>0</td>
</tr>
<tr>
<td>U</td>
<td>17</td>
<td>8</td>
<td>6 = 106</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>12</td>
<td>0</td>
<td>7 = 84</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>3</td>
<td>0</td>
<td>8 = 24</td>
<td>0</td>
</tr>
<tr>
<td>Half of Y</td>
<td>0</td>
<td>11</td>
<td>9 = 8</td>
<td>3</td>
</tr>
</tbody>
</table>

Sum - 198 3
Multiply by 2 9 diff. between ord. 2 9
Area - 545 2½

Divide by the sum of the ordinates - 198 3 ) 1725 10½
Centre of gravity - - - - - 8 8½
Distance of the ordinate O from the aft-side of the rudder - - - 158 0
Centre of gravity from aft-side of the rudder - 166 8½
Centre of gravity of item and knee before Y is - - - 0 6
Distance of the centre of gravity of the section of the rudder from the aft-side of the rudder is - - - 183 3

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
<th>Area of the after-plane 554 1½</th>
<th>Ft.</th>
<th>In.</th>
<th>Area of the after-plane 554 1½</th>
</tr>
</thead>
<tbody>
<tr>
<td>554</td>
<td>1½</td>
<td>Mult. by 26 10½ its momentum = 14992 7½</td>
<td>554</td>
<td>1½</td>
<td>Mult. by 26 10½ its momentum = 14992 7½</td>
</tr>
<tr>
<td>5072</td>
<td>10</td>
<td>Mult. by 98 3½ its momentum = 498616 10½</td>
<td>5072</td>
<td>10</td>
<td>Mult. by 98 3½ its momentum = 498616 10½</td>
</tr>
<tr>
<td>545</td>
<td>2½</td>
<td>Mult. by 166 8½ its momentum = 90881 7½</td>
<td>545</td>
<td>2½</td>
<td>Mult. by 166 8½ its momentum = 90881 7½</td>
</tr>
<tr>
<td>10</td>
<td>1½</td>
<td>Mult. by 3 5 its momentum = 34 7½</td>
<td>10</td>
<td>1½</td>
<td>Mult. by 3 5 its momentum = 34 7½</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Mult. by 183 its momentum = 213 9½</td>
<td>1</td>
<td>2</td>
<td>Mult. by 183 its momentum = 213 9½</td>
</tr>
</tbody>
</table>

6183 5½ Whole areas. Sum of momenta 604650 6½

Now 604650 ft. 6½ in. divided by 6183 ft. 5½ in. gives 97 ft. 9½ in., the distance of the centre of gravity of the whole section of the third horizontal water-line from the aft-side of the rudder.

Operation
To find the centre of gravity of the plane shaft 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 37 ordinate</th>
<th>Ft.</th>
<th>In.</th>
<th>Product</th>
<th>Total Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 46</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>4</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>13</td>
<td>4</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
<td>0</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>0</td>
<td>10</td>
<td>220</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>0</td>
<td>10</td>
<td>220</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>5</td>
<td>11</td>
<td>110</td>
</tr>
</tbody>
</table>

Sum Mult. by 2.9 diff. between ord. 9
Area 322 24

Divide by the sum of the ordinates 117 2, 2460 6
Centre of gravity 21 0
Distance of the ordinate 37 from the aft-side of the rudder 6 9
Centre of gravity from aft-side of the rudder 27 9
Distance of the centre of gravity of the section of the rudder and fore-plane from the aft-side of the rudder 3 5

To find the centre of gravity of the plane between 26 and O, from 26, its first ordinate.

<table>
<thead>
<tr>
<th>Half of 26 ordinate</th>
<th>Ft.</th>
<th>In.</th>
<th>Product, from 26</th>
<th>Total Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 22</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>(1)</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>K</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Half of O</td>
<td>14</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Sum 404 7, 2267 2
Multiply by 11 0 6 0, 11 0
Area 4450 5

Divide by the sum of the ordinates 424 7, 24238 10
Centre of gravity 61 7
Distance of the ordinate 26 from the aft-side of the rudder 37 0
Centre of gravity from aft-side of the rudder 98 7

Areas of the several planes, and their moments.

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of the after-plane 322 2½</td>
<td></td>
</tr>
<tr>
<td>Mult. by 27 9 its momentum 8941 3½</td>
<td></td>
</tr>
<tr>
<td>Area of the midship-plane 4450 5</td>
<td></td>
</tr>
<tr>
<td>Mult. by 98 7½ its momentum 43868 7½</td>
<td></td>
</tr>
<tr>
<td>Area of forecastle 331 10</td>
<td></td>
</tr>
<tr>
<td>Mult. by 165 3½ its momentum 54842 4½</td>
<td></td>
</tr>
<tr>
<td>Area of rudder and poll 9 6</td>
<td></td>
</tr>
<tr>
<td>Mult. by 3 5 its momentum 32 5½</td>
<td></td>
</tr>
<tr>
<td>Area of the item and knee 5 10</td>
<td></td>
</tr>
<tr>
<td>Mult. by 179 6 its momentum 1047 1</td>
<td></td>
</tr>
</tbody>
</table>

5119 9¼ Whole areas. Sum of moments 503381 9¼

Now 503381 ft. 9¼ in. divided by 5119 ft. 9½ in. gives 98 ft. 4¼ in., the distance of the centre of gravity of the whole section of the second horizontal water-line from the aft-side of the rudder.
SHIP-BUILDING.

Operation for the Plane of the First or Lower Horizontal Water-Line.

To find the centre of gravity of the plane abaft 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>0 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>1 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>2 25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>2 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>3 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>4 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>5 11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>7 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>8 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half of 26</td>
<td>5 0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sum = 47 4 1/2
Multiply by 2 9 difl. between ord. = 2 9
Area = 130 3 1/2
Divide by the sum of the ordinates = 47 4 1/2 948 7 1/2
Centre of gravity = 20 0 1/2
Distance of the ordinate 37 from the aft-side
of the rudder = 6 9
Centre of gravity from aft-side of the rudder = 26 9 1/2
Distance of the centre of gravity of the section of the rudder and stem-pot from
the aft-side of the rudder = 3 5

To find the centre of gravity of the plane between 26 and O, from 26, its first ordinate.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>5 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>2 20</td>
<td>Mult. by 1 = 20 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2 30</td>
<td>2 = 53 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3 20</td>
<td>3 = 91 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3 34</td>
<td>4 = 128 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3 9</td>
<td>5 = 166 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>3 32</td>
<td>6 = 202 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>3 12</td>
<td>7 = 235 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>3 20</td>
<td>8 = 262 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>2 6</td>
<td>9 = 288 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half of O</td>
<td>8 6</td>
<td>10 = 265 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sum = 34 8
Multiply by 11 0 difl. between ord. = 11 0
Area = 34 8 1/2
Divide by the sum of the ordinates = 31 4 1/2 19866 0
Centre of gravity = 63 1 1/2
Distance of the ordinate 26 from the aft-side
of the rudder = 37 0
Centre of gravity from aft-side of the rudder = 100 1 1/2

To find the centre of gravity of the plane before O, from O, its first ordinate.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>6 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole of P</td>
<td>1 14</td>
<td>Mult. by 1 = 14 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>1 12</td>
<td>2 = 24 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>9 8</td>
<td>3 = 29 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>7 0</td>
<td>4 = 28 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>4 4</td>
<td>5 = 21 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half of U</td>
<td>3 0 11</td>
<td>6 = 5 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sum = 57 4
Multiply by 2 9 difl. between ord. = 2 9
Area = 157 8
Divide by the sum of the ordinates = 57 4 1/2 339 2
Centre of gravity = 5 1 1/2
Distance of the ordinate O from the aft-side
of the rudder = 158 0
Centre of gravity from aft-side of the rudder = 163 11
Centre of gravity of the stem and knee before U = 2 7
Distance of the centre of gravity of the section of the stem and knee from the
aft-side of the rudder = 176 1

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Ft. In.</th>
<th>Area of the after-plane 130 3 1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 3 1/2</td>
<td>Mult. by 26 9 1/2 its momentum = 3487 8 1/2</td>
</tr>
<tr>
<td>34 8 1/2</td>
<td>Area of midship-plane 3461 4</td>
</tr>
<tr>
<td>157 8 1/2</td>
<td>Mult. by 100 1 1/2 its momentum = 3465 6 6</td>
</tr>
<tr>
<td>9 0 1/2</td>
<td>Area of the fore-plane 157 8</td>
</tr>
<tr>
<td>6 5 1/2</td>
<td>Mult. by 176 1 its momentum = 1137 2 1/2</td>
</tr>
<tr>
<td>3764 8 1/2</td>
<td>Whole areas. Sum of momenta 3770 65 10 1/2</td>
</tr>
</tbody>
</table>

Now 3770 65 ft. 10 1/2 in. divided by 3764 8 1/2 ft. of the in., the distance of the centre of gravity of the whole section of the first or lower horizontal water-line from the aft-side of the rudder.
SHIP-BUILDING.

Operation for the Plane of the Keel, &c.

To find the centre of gravity for the plane of the keel, &c.

The length on the upper side or plane of the keel, from the aft-side of the rudder, is 

\[ \text{177 ft.} \]

1 ft. 6 in.

Multiplied by its thickness

\[ \text{1 ft.} \]

8 in.

Area of the plane

\[ \text{265 ft.} \]

9 sq. ft.

Distance of its centre of gravity from the aft-side of the rudder, being equal to half its length

\[ \text{88 ft.} \]

7 in.

Now 265 feet 9 inches, multiplied by 88 feet 7 inches, is equal to the momentum 23,540 feet 1\frac{1}{2} inches.

The centres of gravity of the six planes having been found, the distance of the centre of gravity of the whole bottom of the ship, from the aft-side of the rudder, is obtained as follows:

From the principles already explained, the distance of the centre of gravity of the bottom, from the aft-side of the rudder, is equal to the sum of the moments of an infinite number of horizontal planes, divided by the sum of these planes; or, which is the same, by the solidity of the bottom. As, however, we have no more than six planes, we must conceive their moments as the ordinates of a curve, whose ordinates may be the same as that of the horizontal planes.

Now the sum of these ordinates, or planes, except the first and last, of which take but half, being multiplied by their distance, gives the surface of the curve; of which any ordinate whatever represents the momentum of the horizontal plane at the same height as these ordinates; and the whole surface will represent the sum of the moments of all the horizontal planes.

<table>
<thead>
<tr>
<th>Area of the Plane</th>
<th>Momentum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of the upper</td>
<td>3860</td>
</tr>
<tr>
<td>All the fourth</td>
<td>7052</td>
</tr>
<tr>
<td>third</td>
<td>6183</td>
</tr>
<tr>
<td>second</td>
<td>5119</td>
</tr>
<tr>
<td>first</td>
<td>3764</td>
</tr>
<tr>
<td>Half the keel</td>
<td>132</td>
</tr>
<tr>
<td>Sum</td>
<td>26114</td>
</tr>
</tbody>
</table>

Now 255337 feet 41 inches, divided by 26114 feet \( \frac{3}{4} \) of an inch, gives 97 feet 91 inches, the distance of the centre of gravity of the bottom of the ship from the aft-side of the rudder.

The height of the centre of gravity of the bottom may be thus found.

To half of the plane of the keel and half of the upper horizontal plane, add all the intermediate planes, and multiply them progressively as before, taking the upper side of the keel for the axis of the moments; then that sum being multiplied by the distance between the planes, and divided by the sum of the planes, taking half of the first and last, gives the height of the centre of gravity of the bottom above the keel.

<table>
<thead>
<tr>
<th>Area of the Plane</th>
<th>Distance from Keel</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of the keel</td>
<td>132</td>
<td>10</td>
</tr>
<tr>
<td>All the lower</td>
<td>3764</td>
<td>83</td>
</tr>
<tr>
<td>second</td>
<td>5119</td>
<td>97</td>
</tr>
<tr>
<td>third</td>
<td>6183</td>
<td>63</td>
</tr>
<tr>
<td>fourth</td>
<td>7052</td>
<td>36</td>
</tr>
<tr>
<td>Half the fifth</td>
<td>3860</td>
<td>11</td>
</tr>
</tbody>
</table>

Sum | 26114 | 0 | 80668 | 54 |

Now 80,668 feet 5\(\frac{1}{2}\) inches, divided by 26,114 feet \(\frac{3}{4}\) of an inch, gives 3 feet \(\frac{3}{4}\) of an inch; which, multiplied by 3.6 feet, the distance between the horizontal sections, gives 11 feet \(\frac{3}{4}\) of an inch, the height of the centre of gravity of the bottom of the ship above the under side of the keel.

The height of the centre of gravity of the bottom of the ship, and its distance from the aft-side of the rudder, being found, the ship being supposed in an upright position, the centre of gravity will necessarily be in the perpendicular longitudinal section, supposed to divide the ship in two equal and similar parts at 97 feet 91 inches, the distance of the centre of gravity of the bottom of the ship before the aft-side of the rudder, which comes between the frame 6 and 2 in the after-body. It may now be ascertained whether the ship will be in her natural position when floating at the upper horizontal line, or constructed to sail on an even keel. Thus, separate the displacement of that part of the bottom before the centre of gravity or support, and see how it agrees with that part of the bottom abait it, as we may then examine the difference, if any, as in the following examples.
### Ship-Building.

Find the Displacement or Solidity of the Bottom before the Centre of Gravity or Support, which is 5 ft. 3\(\frac{3}{4}\) in. abaft Frame 2.

<table>
<thead>
<tr>
<th>Water-lines.</th>
<th>Water-lines and Keel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper.</td>
<td>4th.</td>
</tr>
<tr>
<td>Half of 2 is</td>
<td>24</td>
</tr>
<tr>
<td>Whole of (1)</td>
<td>48</td>
</tr>
<tr>
<td>B</td>
<td>48</td>
</tr>
<tr>
<td>F</td>
<td>48</td>
</tr>
<tr>
<td>K</td>
<td>48</td>
</tr>
<tr>
<td>Half of O</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>241</td>
</tr>
<tr>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Areas before O</td>
<td>2655</td>
</tr>
<tr>
<td></td>
<td>870</td>
</tr>
<tr>
<td>Areas</td>
<td>3529</td>
</tr>
</tbody>
</table>

Upper water-line half the area 1764.7080
Fourth do. whole area 3271.2291
Third do. - 2888.4374
Second do. - 2402.9166
Lower do. - 1817.7916
Keel - half the area 56.

Area between 2 and the centre of gravity 999.474
Area between 6 and the centre of gravity 1320.5667
Area between 6 and the centre of gravity 1072.460

Solidity of keel before centre 238.5
Solid feet displaced before the centre of support 47760.5401
Solid feet displaced abaft the centre of support 46777.2177
The after part less than fore part 983.3224

Find also the Displacement or Solidity of the Bottom abaft the Centre of Gravity or Support, which is 5 ft. 8\(\frac{1}{2}\) in. abaft Frame 6.

<table>
<thead>
<tr>
<th>Water-lines.</th>
<th>Water-lines and Keel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper.</td>
<td>4th.</td>
</tr>
<tr>
<td>Half of 6 is</td>
<td>24</td>
</tr>
<tr>
<td>Whole of 10</td>
<td>48</td>
</tr>
<tr>
<td>14</td>
<td>48</td>
</tr>
<tr>
<td>18</td>
<td>47</td>
</tr>
<tr>
<td>22</td>
<td>45</td>
</tr>
<tr>
<td>Half of 26</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>236</td>
</tr>
<tr>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Areas abaft 26</td>
<td>2603</td>
</tr>
<tr>
<td></td>
<td>1043</td>
</tr>
<tr>
<td>Areas</td>
<td>3657</td>
</tr>
</tbody>
</table>

Upper water-line half the area 1828.5416
Fourth do. whole area 3267.7291
Third do. - 2811.75
Second do. - 2282.375
Lower do. - 1578.427
Keel - half the area 69.

Area between 6 and the centre of gravity 11839.8227
Area between 6 and the centre of gravity 1072.460

Solidity of keel abaft centre 393.
Solid feet displaced abaft the centre of support 46777.2177
Solid feet displaced before the centre of support 46777.2177
Solid feet displaced by the whole bottom 94537.7578
SHIP-BUILDING.

By the result of the above calculation it appears, that the after-part of the bottom has a minus of 0.931,524 feet, its greatest being 2.324,32 feet less than the fore-part; and was the ship to be constructed to fail on an even keel, it would be necessary to fill the after-part half the difference, or 491,666 feet, and reduce the fore-part until it had lost the same quantity; but to alter the after-part of the ship from its present construction, or to make it fuller, would retard her velocity, and prevent the water collapsing at the rudder; for the run of a ship should be neither too fine nor too full, but so constructed that the column of water should exactly meet upon the stern-post, then the rudder will have its full power. The quarter above the load-water-line should be very full, to support the ship when riging forward to a sea, and also to enable her to fecud.

In regard to the falling trim of a vessel, it is the decided opinion of most scientific men, that ships or vessels of the larger classes should always be so constructed as to fail on, or nearly on an even keel, that is, so that the ship, when trimmed for failing, should have her keel parallel to the surface of the water; therefore, by much more than the force of the wind, the full length of the ship through the water has a constant tendency to depress the bow, so much should the ship be trimmed by the stern, as that will be found most advantageous both to their failing and fucking.

Many think it inconvenient to construct a ship to fail on an even keel, and yet to place the midship-bend or greatest breadth very forward. A ship fo intended to fail, ought, as they conceive, when launched, to have an equal bearing fore and aft, in order that, before the ballast is flowed, the ship may be on an even keel; and they think that the ballast, if not placed equally fore and aft, must inevitably strain the feather of the ship. Nevertheless, experience convinces us it is not materially detrimental; for many ships, when launched, will swim four feet by the stern, more or less, and yet when trimmed for failing, they are found to go fuller on an even keel, and receive little or no damage if carefully flowed.

Some ships are too clean abaft, and require to fail by the stern; because they have no bearing for fifteen or twenty feet from aft, till the buttock is brought well into the water; and even then, for want of being fuller lower down, when the sea leaves the buttock, the over-hanging of the stern will strain the ship, and occasion her to tremble, till the next sea, with redoubled force, strikes the buttock as the stern is failing, and so shake the ship; in which case it will be well, if some part of the masts be not carried away by the shock; however, this kind of motion must retard the velocity. This accident, though rare, is dangerous, and should be prevented in the construction of the ship.

With respect to ships that ought to fail some feet by the stern, on account of their insufficiency abaft, it is the opinion of many, that if a line were drawn to be well with the lower side of the keel, in the middle of the ship's length, and half the difference set up at the after-part of the stern-post from the lower side of the keel, and that part of the keel and dead-wood were taken off, and placed under the fore-part of the keel, with the after-end that was before to be forward, so as to make the lower part of the keel straight, as before, the ship would then fail somewhat faster, and be the better; for when a ship is brought so much down by the stern, the keel, not being parallel to the surface of the water, (to which the ship generally fails parallel,) must occasion a preasure at the under side of the keel, equal to the weight of water displaced by the breadth of the keel, and to the angle which the keel makes with the surface of the water in its own length. This may shew why so many ships, differently constructed, are found to fail on an even keel, although many of them were designed by the constructor to fail by the stern. I find the result rather in favour of an even keel, the 74, Plate I., was so constructed, as most likely to fail every part.

By that means the water-lines were drawn parallel to the bow, and were thereby more useful as well as more properly placed to form the body, for when the square timbers, and the water-lines, being square to the timber, properly agree with each other, and are fair curves, the riband-lines, or any other section, will likewise be fair, or as fair as they should be, allowing the preference to the water-lines and square timbers.

When water-lines are not designed to be parallel to the keel, the draught is generally formed by riband-lines, because the water-lines differing in height at every timber, require the square timbers to be formed before their height can be set off; and when the water-lines are run, if not approved of, much of the work must be done over again, the water-lines being more regarded than the riband-lines; for many ships are constructed by riband-lines only, which form to produce fair curves, yet forward, and aft, especially, they make a very unfair body, which is detrimental to velocity. Some vessels, as cutters, &c. draw much more water aft than forward, and their bows are more full in proportion to the after-part, nor would it answer so well were their line of floatation nearly parallel with the keel, but spreading as it does aloft, especially towards their bows, the bow meets the fluid in a more floating direction, and experiences far less resistance; and the depression of the stern, with the impetus of the aftermost fails, causes a proper counter-balance, and propels the vessel through the water with greater velocity than if otherwise constructed; for the after-part of those vessels is generally very clean or tapering, which necessarily contributes to make the vessel weatherly, and causes it, under judicious management, to turn as it were on a pivot.

A ship may be built to a precise draught of water, by which the construction will be founded upon true principles; but when a ship is not built to one precise draught more than another, it will be a very difficult, and one of the most complex questions in ship-building to determine this point. It may be imagined that no more is necessary than to make the ship swim in the water, so as to be capable of carrying the greatest sail; but when a ship is very deep in the water, it will greatly increase the resistance, and consequently retard her failing; hence a long ship will draw less water than a short one, which is a good property, and the resistance at the stern being less, the ship will therefore fail faster. The resistance, however, must be carefully calculated, not absolutely, but relatively, and in proportion to the fall the ship.

In ships of war, the load-water-line must be governed by the height of the lower ports above the water in midships; and this we find in line-of-battle ships should invariably be from five to six feet, in frigates from fix to seven feet, and in sloops, cutters, &c. from four to five feet.

Ships for commerce are generally constructed to carry a certain cargo, and their principal dimensions are determined according to the trade for which they are particularly designed; therefore the line of floatation, or load-water-line, is not confined in them to exactly a certain height.

Ships of the line, from long practice, have been found to fail best when inclined one foot, or rather more, by the stern. Thus, the 74-gun ship in Plate I. load-water-line, when fitted for sea, was 20 feet forward and 21 feet abaft; therefore it only remains to be ascertained, whether the whole displacement of the bottom under the load-water-line, or the displacement of the weight of the ship, &c. when fit for sea, by multiplying the mean area of the load and upper horizontal water-lines by six inches, the mean depth, and adding it to the displacement already found, as in the following operation.
SHIP-BUILDING.

Area of the Load-Water-Line.

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half the item</td>
<td>is</td>
</tr>
<tr>
<td>Y</td>
<td>10</td>
</tr>
<tr>
<td>X</td>
<td>19</td>
</tr>
<tr>
<td>W</td>
<td>26</td>
</tr>
<tr>
<td>U</td>
<td>32</td>
</tr>
<tr>
<td>T</td>
<td>36</td>
</tr>
<tr>
<td>R</td>
<td>42</td>
</tr>
<tr>
<td>Q</td>
<td>43</td>
</tr>
<tr>
<td>P</td>
<td>45</td>
</tr>
<tr>
<td>O</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of ordinate</td>
<td>is</td>
</tr>
<tr>
<td>O</td>
<td>23</td>
</tr>
<tr>
<td>K</td>
<td>48</td>
</tr>
<tr>
<td>F</td>
<td>49</td>
</tr>
<tr>
<td>B</td>
<td>49</td>
</tr>
<tr>
<td>(1)</td>
<td>49</td>
</tr>
<tr>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>6</td>
<td>49</td>
</tr>
<tr>
<td>10</td>
<td>49</td>
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<tr>
<td>14</td>
<td>49</td>
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<tr>
<td>18</td>
<td>49</td>
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<tr>
<td>22</td>
<td>46</td>
</tr>
<tr>
<td>26</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of ordinate</td>
<td>is</td>
</tr>
<tr>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>27</td>
<td>43</td>
</tr>
<tr>
<td>28</td>
<td>42</td>
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<tr>
<td>29</td>
<td>41</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
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<tr>
<td>31</td>
<td>39</td>
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<tr>
<td>32</td>
<td>38</td>
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<td>33</td>
<td>36</td>
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<td>34</td>
<td>34</td>
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<tr>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>36</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of ordinate</td>
<td>is</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>38</td>
<td>3</td>
</tr>
<tr>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>41</td>
<td>1115</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean area</th>
<th>Multiplied by mean depth</th>
<th>Gives solid feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>7797</td>
<td>6½</td>
<td>380.776</td>
</tr>
<tr>
<td>7797</td>
<td>6½</td>
<td>64.375</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gives</th>
</tr>
</thead>
<tbody>
<tr>
<td>250983</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of pounds displaced below upper horizontal line</th>
<th>Divide by pounds in a ton</th>
<th>Total displacement of the ship under the load-water-line</th>
</tr>
</thead>
<tbody>
<tr>
<td>6286151.678</td>
<td>2240</td>
<td>2829 tons</td>
</tr>
</tbody>
</table>

We now find that the 74-gun ship, Plate I., load-water-line, is not only properly placed with regard to her belt failing trim, but the displacement also agrees with the estimated weight of the whole ship when fit for sea, which was 2810 tons 745 lbs., or exceeds it by 1 tons 430 lbs., which is better; as the bias should rather lead to increase than diminish in capacity, and favours any little inaccuracies in the measurements; though surely there is little room for error in either extreme, if proper attention be paid to the subject. In like manner may, therefore, the weight of any other ship be found; and, by reducing the displacement of the bottom into cubic feet, we may always ascertain if the load-water-line in the draught be properly placed.

Stability, or Stiffness.

The stability or stiffness of a ship comes next under consideration, being a quality no less essential to the safety of navigation than capacity; and without which a ship is totally disqualifed for the purposes of war, being unable to use her guns with effect, or carry a press of sail in case of emergency.

Before we proceed further, the following particulars, as they relate to vessels at rest, or in motion, should be defined.

The centre of gravity, or displacement, already mentioned, is the centre of gravity of the volume of water displaced by the immered part of the ship's bottom; and is also the centre of all the vertical force that the water exerts to support the vessel; for as heavy bodies by their gravity endeavor to approach the centre of the earth in a vertical line, passing through their centre of gravity, tending directly towards the centre of the earth; so the pressure of fluids endeavors to carry bodies in a vertical line tending from the centre of the earth towards their surface, and passing through the centre of gravity of the immered part, which forces them towards the surface; so also in any immered body at rest these two opposite forces coincide in the same vertical line, acting in a quite contrary direction to one another. Thus, every floating body is necessarily supported, or prefled upwards, by the fluid with a force equal to its weight, or pressure downwards, otherwise no body could remain at rest on a fluid, but would ascend or descend as the prevailing force determined; and the moments of all the forces with which a floating body presses on a fluid, and the moments of the forces of the fluid which supports the floating body, are equal and contrary, and are resolved into the same right line, perpendicular to the plane of the fluid. But as this centre depends upon the shape of the body immered, it of course varies with every inclination of a ship; and whilst the centre of cavity goes faster, and further over to the ship's side in her motions, so as to keep without the perpendicular of the centre of gravity, the ship will be supported; and the water will act upon the centre of cavity.
SHIP-BUILDING.

Gravity in the immersed body with more or less power, in proportion to its distance without the centre of gravity, to bring the ship upright, where the action force or power ceases which overbalanced the vessel to heel.

The line of support is the vertical or perpendicular line supposed to pass through the centre of gravity, and intersecting a line perpendicular to the keel of the vessel through the point, called the meta-centre. For if a floating body is inclined by any power which does not change the position of its centre of gravity, the line of support must necessarily pass between that power and the centre of gravity; and the force or moment of that power is equal to the weight of the floating body, multiplied into the distance of its centre of gravity from the line of support. As the line of support passes between the centre of gravity and the power applied to heel the vessel, the moment of that power, or its force, multiplied into its distance above the meta-centre, is equal to the moment of its gravity, or the weight of the floating body multiplied into the distance of the centre of gravity below the meta-centre.

Suppose the vessel inclined, or heeling by the power of the wind on the sails, if the line of support passes on the windward-side the vessel would upset, as the power and gravity are at the same side operating to incline it; but if it passes to the lee-side of that power, the vessel will be redressed, as the power and weight operate to that effect; and if the moment of the power and gravity be not equal, the body will not remain at rest, but will incline more or less, as the power or the weight prevail.

Hence it is plain, that the distance from the centre of gravity to the line of support, multiplied into the weight of the vessel, is the measure of the stability of the vessel, or its effort to redress itself when inclined, and that its stability is as that distance.

The meta-centre usually signifies a point to which, if the centre of gravity of a floating body be raised, the smallest lateral effort will make it incline. It is plain, that in an homogeneous cylinder, or sphere, the meta-centre, and centre of gravity, being always in the same point or centre of the sphere, however these bodies are inclined, have no stability. The centre of gravity must, by no means, be placed above the meta-centre, because if it were the vessel would overtop. This centre, which has likewise been called the floating centre, depends upon the situation of the centre of gravity, for it is that point where a vertical line drawn from the centre of gravity perpendicularly a line passing through the centre of gravity, and being perpendicular to the keel.

The centre of gravity of a ship, is that point by which it may be suspended, and the parts remain in perfect equilibrium. It is also the centre of all the forces, or moments, which pre- Lis vertically, or directly downwards towards the centre of the earth.

The lower the centre of gravity is placed, the farther is it from the line of support, and consequently the greater stability.

In ships of war, the centre of gravity can never be far removed from the load-water-line: for if the centre of gravity could be placed nearer the keel, it is not to be defined, as the farther it is removed from the load-water-line, the rolling of the ship becomes more uneasy.

The centre of motion is that point upon which a vessel oscillates or rolls when put in motion. This centre is always in a line with the water’s edge, when the centre of gravity is even with, or below the surface of the water; but whenever the centre of gravity is above the water’s surface, the centre of gravity is then the centre of motion.

The longitudinal axis of a ship is an imaginary line, which passes horizontally from head to stern through the centre of gravity.

The transverse axis is an imaginary horizontal line, parallel with the water’s surface; passing through the centre of gravity.

The vertical axis is an imaginary perpendicular line, drawn through the centre of gravity when the vessel is in equilibrium.

It is about these axes that every ship or vessel may be supposed to turn. In rolling, the ship may be supposed to oscillate on the horizontal axis; in pitching, on the transverse axis; and in working, &c., to turn on the vertical axis.

From constantly observing that the performance of ships at sea depends materially on their stability, both naval architects and navigators will, at all times, be desirous of discovering what particular circumstances of construction this property confers, and according to what laws the stability is affected by any varieties that may be given to the forms, dimensions, and disposition of parts; which are determined, partly according to the skill and judgment of the constructor, and partly, in large vessels, as we shall show, by adjustments after the vessel is built.

The form of the immersed body, and the weight of the ship, are the chief terms in the composition of stability, and they are only to be attained, in the requisite degree, by full dimensions near the load-water-line, with sufficient capacity.

At first sight, it is certain that all the weight above the load-water-line helps to make the ship crack, and, consequently, the lighter the upper works the lighter the ship.

Constructors may vary the form of a ship chiefly in three dimensions, that is, in the length, breadth, or depth: let us examine how far enriching or shallowing of ships, in any of these particulars, will contribute toward making them carry sail, or, in other words, gain stability; for although the wind may, in one sense, be said to constitute the power by which ships are moved forward in the sea, yet if it acts on a vessel deficient of stability, the effect will be to heel the ship rather than to propel it forward; stability, therefore, is, not less necessary, than the impulses of the wind are to the progressive motion of vessels.

If the length only, without altering the other dimensions, be enlarged, the centre of gravity and the meta-centre will continue the same height, and her liability in respect of inclination to one side will increase in proportion to the weight of the ship; and as the weight generally increases or diminishes in proportion to the length, we may say that in ships that differ only in length, their stability will be in proportion to their length.

Yet although an increase of length would enable a ship to carry the most sail, consequentely fail faster, it must not be extended to an extreme; because if so constructed, a ship would neither tack nor veer so quickly; neither would the hitt or rife in a sea like one shorter; she would strain more, and be very liable to have the sea break over her. The influence of the rudder may be weakened, and may even be totally lost. The greatest judgment is therefore required in proportioning the length, which may be proportionally greater in those ships that generally navigate in the smoother seas, or are not intended to be deeply laden.

By altering the breadth, the stability is materially affected; for by enlarging it we gain, and by diminishing the breadth we lose a great deal of the stability. M. Bouguer has proved, that the stability increases in proportion to the cubes of the breadths; for, supposing the bottom homogeneous, then, if the increase of weight, and of consequence stability, will be double the increase of the breadth; and zely, the additional weight will act with so much the greater force, as the length of the lever is increased, or as the meta-centre is raised, and the height of that point is augmented in proportion to the square of the breadth; hence the stability 

...
SHIP-BUILDING.

will be increased in proportion to the cube of the breadth; for example, without altering the other dimensions, let the breadth be doubled, we thereby double the weight, which, by acting upon the arm of a lever, double the length will be quadruple, to the ship will acquire eight times the stability.

Thus we see an increase of breadth will produce an increase of stability; for a ship that is broad and shallow has much more stability than one that is narrow and deep; but the sinking of the ship may be much retarded, as the certainly would be leewardly under little sail, which ought to be particularly guarded against, especially in constructing large ships of war. The expense in the building would also be materially increased, according to the usual mode of computing the tonnage, as may be readily seen in the next section.

If the depth only is increased, without enhancing either the length or breadth, all the stability that can be gained will be in the bowage. To increase the depth or draught of water would lower the centre of gravity, and increase the weight; this would operate against stability, because the rest is as the quantity of water to be removed; or nearly as the area of the thwartship section of the imersed part of the body at the midship-bend. It would act at the extremity of the immersed body of a figure less proper to separate the line of support from the centre of gravity, so that the effect on one side would be in some measure destroyed on the other; and, by lowering the centre of gravity too much, the ship would labour excessively, and endanger the masts, too large a draught of water being both dangerous and inexpedient.

Ships having a sufficient degree of stability arising from their construction, will certainly fail faster than others, which, in order to carry the same quantity of sail, require to be ballasted with a much greater weight; for the latter, if ballasted, will be much more liable to roll than the former.

The following circumstance will prove, that instability in the construction cannot be rectified to any considerable degree by the bowage, although, on the contrary, that the stability of many ships, however perfect in construction, may be materially injured by improper trim, or an injudicious mode of bowage.

And, first, as there is nothing of more importance to the well-being of a ship than its stability, it will not be improper to mention an opinion which prevails with seamen in general, that the stability depends chiefly on the bowage of the hold; and at the same time, in order to shew that a very great change in that respect will produce a very trifling difference in the instability, we shall quote a professional author of great merit, M. de Romme, in his book, L'Art de la Marine page 105.

"As to the position of the centre of gravity, no doubt it may vary, but the limits to which it is confined are very strict, especially in ships of war. An example in the Scipio, of 74 guns, armed for the first time in 1779, was hardly in the road before she was suspected of instability. It was important in time of war to clear up those doubts, and to make the necessary experiments to prove this dangerous defect, if it existed. First, the lower-deck guns were run out on one side, while hosed on the other, which heeled the ship thirteen inches; the ship's company were then ordered to their quarters at the side the guns were out, which increased the inclination to twenty-four inches. After these eays the fails were let, and in fine weather the ship was found to crank, as to render the use of the lower-deck guns difficult and dangerous: thus, her instability being proved, she was ordered to port to be remedied.

"Opinions were divided as to the cause of the defect; some imagining it to proceed from the form of the hull; others from the ill arrangement of the charge. The first engineer was ordered to attend at Rochfort, and direct the choice of measures to give the Scipio, as well as two other ships, the Pluto and Hercules, built from the same plan, the stability they wanted. He judged that new bowage would remedy the defect, and his opinion was adopted by the marine council. The Scipio was unloaded, and charged anew, under the direction of the chief engineer. In the first charge she had 84 tons of iron, and 100 tons of stone ballast, and was reloaded with 198 tons of iron, and 122 tons of stone ballast; and as her draught of water, or displacement, could not be altered, it was necessary to diminish 130 tons of water to preserve the same line of floatation; by this means 136 tons were placed, in the second loading, eight feet lower than in the first; yet when the ship was completed with the new distribution of her charge, she was found precisely as deficient as before, inclining twenty-four inches, with the men at quarters, and the guns out. She was afterwards doubled with light wood, a foot thick at the extreme breadth, and ten feet under water, decreasing to four inches length and depthways."
SHIP-BUILDING.

The above operation gives 14 feet 9½ inches, the height of the meta-centre above the centre of gravity of the immersed part of the bottom of the 74-gun ship, Plate 11.

Now let us see how the above calculations in determining the height of the meta-centre above the centre of gravity agrees with actual experiment; for theory (particularly in the constructing of ships) that agrees with experiment is only to be regarded. We are in this particular indebted to the late admiral Leveson Gower, who directed several experiments to be made to try the relative instability of the following ships of war, by heeling them with their lower-deck guns out on one side, and hove up on the other; and afterwards with their men at quarters, the guns remaining as above.

<table>
<thead>
<tr>
<th>Draught of afloat</th>
<th>3</th>
<th>3</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drift of 94 guns</td>
<td>220</td>
<td>220</td>
<td>220</td>
</tr>
<tr>
<td>Gun-deck port in midships above the water</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Heeled by the guns only</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Ditto by the men at quarters</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forndale</th>
<th>Barfleur</th>
<th>Broadfoot</th>
<th>Bethmond</th>
<th>Bombay</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft.</td>
<td>in.</td>
<td>ft.</td>
<td>in.</td>
<td>ft.</td>
<td>in.</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>20</td>
<td>7</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>21</td>
<td>11</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
</tbody>
</table>

The volume of the immersed part of the bottom remains also the same, the altitude of the meta-centre will remain the same, whatever may be the form of the bottom.

<table>
<thead>
<tr>
<th>Names and Lengths of the Ordinates at the Load-water Line, in Feet and Decimal Parts</th>
<th>Cubes of the Ordinates</th>
<th>Names and Lengths of the Ordinates at the Load-water Line, in Feet and Decimal Parts</th>
<th>Cubes of the Ordinates</th>
<th>Names and Lengths of the Ordinates at the Load-water Line, in Feet and Decimal Parts</th>
<th>Cubes of the Ordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>21.62</td>
<td>0</td>
<td>23.15</td>
<td>12568.02</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>21.75</td>
<td>K</td>
<td>24.12</td>
<td>14032.20</td>
<td></td>
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<tr>
<td>29</td>
<td>21.97</td>
<td>F</td>
<td>24.58</td>
<td>14850.66</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>20.33</td>
<td>B</td>
<td>24.66</td>
<td>14996.0</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>19.77</td>
<td>(1)</td>
<td>24.66</td>
<td>14996.0</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>19.09</td>
<td>2</td>
<td>24.66</td>
<td>14996.0</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>18.14</td>
<td>6</td>
<td>24.66</td>
<td>14996.0</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>17.47</td>
<td>10</td>
<td>24.66</td>
<td>14996.0</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>15.73</td>
<td>14</td>
<td>24.66</td>
<td>14706.12</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>14.08</td>
<td>18</td>
<td>24.66</td>
<td>14706.12</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>12.75</td>
<td>22</td>
<td>24.66</td>
<td>15268.02</td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>10.61</td>
<td>Stem</td>
<td>0.79</td>
<td>10764.44</td>
<td></td>
</tr>
<tr>
<td>Rudder</td>
<td>7.89</td>
<td>K</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\begin{array}{l}
\text{Sum} = 186195.35 \\
\text{Sum of the products} = 218926.94 \\
\text{Cubic feet of salt-water displaced by the bottom} = 98436.07 \\
\end{array}
\]

\[
\begin{array}{l}
\text{forndale} = 145931.29 \text{ft.} \times 9 \text{in.} \\
\text{Barfleur} = 145931.29 \text{ft.} \times 9 \text{in.} \\
\text{Broadfoot} = 145931.29 \text{ft.} \times 9 \text{in.} \\
\text{Bethmond} = 145931.29 \text{ft.} \times 9 \text{in.} \\
\text{Bombay} = 145931.29 \text{ft.} \times 9 \text{in.} \\
\end{array}
\]
As the inclinations of the Brunswick and Bedford are omitted in the first experiment, we shall only compare the relative stability of the other three ships, which are quite sufficient to explain everything necessary to be remarked on the subject. It is to be regretted that the first inclination of the Brunswick was omitted, as it comes the nearest to Plate I.

The estimated weight of the Formidable was 3150 Tons.

The centre of gravity of the immersed part of the bottom was above the under side of the keel.

The keel

- - - - - - -

11 4\|^\text{2}}

The meta-centre above the said centre of gravity

14 9\|^\text{2}}

And the centre of gravity is four inches above the load-water-line at the centre of gravity, which makes it

20 10\|^\text{2}}

Centre of gravity below the meta-centre

5 0

Which we find exceeds the Bombay Caffle’s; and the ports in Plate I. are five feet eight inches above the water.

By the above experiment we observe, that the guns being run out on one side and hove out on the other, inclined the ship to a certain point, and at the same time there was an exact equilibrium between the moment of the guns, and the whole weight of the ship on each side the line of support in the direction of the vertical effort of the water. The centre of gravity of the ship is in the same vertical line with the meta-centre when the ship is in an horizontal position; and the more the ship inclines, the more will the centre of gravity of the ship be removed from the vertical line of the meta-centre, or line of support. Hence it is plain, that the distance of the centre of gravity from the line of support is always in proportion to the line of the inclination; at least when the inclination is but small, as before observed. Now, if that distance, and also the whole weight of the ship, be known, we have also its momentum, or the relative force with which that weight acts in endeavouring to right the ship, and bring her again into an horizontal position, and which is the measure of her stability; but since both the situation, and likewise the weight that produces the inclination, are known, we may thence know if the momentum of one be equal to that of the other, and thereby easily discover if the centre of gravity is in that very point we propone.

The success of the above experiment (which might be rendered very useful if more frequently tried) depends on the nicety to be observed in taking the exact quantity of the angle of inclination; to attain this, a level line for the sensible horizon of the sea may be used, or, what is much better, a plum-line fastened to the head of the mast, taking its distance from the heel of the mast, both when the ship is up-right, and likewise when she is inclined. The plum-line seems to be the most convenient, because we have thereby immediately the proportion in which the centre of gravity recedes from the vertical line of the meta-centre, which will always be in proportion to the distance of the plum-line from the heel of the mast. During the whole time of the operation, it is necessary to be very careful to render all the circumstances absolutely the same, so as to be well assured the inclination is produced only by the momentum of the guns, &c.

We may in this manner prove the centre of gravity of the 74-gun ship, Plate I., knowing the height of the meta-centre, for, having the quantity of the weight producing the inclination, (which is the same as the above), and examining the distance of the centre of gravity from the line of support in which the effort of the water exerts itself, we have also its momentum, or its relative force, which is equal to the whole ship, since these two exactly balance one another; so that it is only dividing this momentum by the whole weight of the ship, and the quotient will give us the distance of the centre of gravity of the ship from the line of support, or vertical line of the meta-centre.

For the Bombay Caffle of 74 guns and 2700 tons in eliminating...
SHIP-BUILDING.

Estimating the weight or displacement, it was found, that 36
hundreds of an inch balanced 42 tons at three feet; and it
will be found by the following ratios, that 53,445
hundreds of an inch in Plate 1, will balance 42 tons at
three feet. Plate 1, displacement 28,401 tons 175lbs.
= 3859.75 x 53,445 = 151200.5 = 1200 = 126.

We now find that the distance of the centre of gravity is
removed from the line of support 3.445 hundreds of an
inch. After this, it will be easy to discover how far the
centre of gravity is below the meta-centre, since there will
be the same proportion between the distance of the plan-
cline from the heel of the mast, and the height of the mast,
that there is between the distance of the centre of gravity
from the line of support. Thus, the length of the mast is
112 feet, which multiplied by 3.445 = 5985.8 = 1200 =
4 ft. 11 in., the distance of the centre of gravity below the
meta-centre nearly agrees with the calculation above given.

Tonnage or Burthen.

By the tonnage of a ship, is meant to convey the idea of
the weight of the cargo she is intended to carry from her light
to her load water-line, or sea in the water, when bell
equipped for sea. It may also be called the ship's real bur-
then. Therefore, to ascertain the true burthen or tonnage
by calculation, is a question of equal importance and dif-
culty, as preceding displacement, &c.

It is of importance, because it is by this that the mer-
chant or freighiter judges of the fitness of the ship for his
purpose; and although customary rules are given for com-
puting the tonnages of ships, the bare inspection of them
will prove how futile they are. It would be very difficult
to fix upon any general rule which shall be very exact, be-
cause it depends not only on the cubical dimensions of the
ship's bottom, but also on the scantling of her whole frame;
and, in short, on the weight of every article to complete the
said ship ready to receive on board her cargo. The weight of
 timber is variable; the scantling of the frame being no less
so.

The following rules for computing the tonnage of a ship
are commonly adopted and made use of between the contrac-
tor and the builder, at a certain rate per ton for the building,
and will be found to be quite unconnected with the above
definition of a ship's tonnage; for as the depth is out of
the question, the contractor finds a saving in less breadth
and great depth, which make against stability, and conse-
quently injure the velocity; on the contrary, great breadth
and less depth will be found more advantageous to the
builder; thus are the interests of the two parties oppositely
concerned in the result, and both, when carried to the ex-
treme, are exceedingly injurious to the construction of ve-
nels.

The general Rules adopted for measuring the Tonnage of Ships
in the Royal Navy and the Merchants' Service.

Let fall a perpendicular from the fore-side of the item,
at the height of the upper deck, or middle deck, in three-
deck ships, and a shorter perpendicular from the aft-side of
the main-pot, at the height of the wing-transom. In mer-
chant-ships, the fore perpendicular is let fall from the
fore-side of the item, at the height of the wing-transom.
From the length between these perpendiculars, deduct three-
fifths of the extreme breadth, (that is the thickness of the
bottom-plank on each side added to the moulded-breadth),
and likewise as many 24 inches as the wing-transom is above
the upper edge of the keel, and the remainder is reckoned
the length of the keel for tonnage.

The breadth of the keel for tonnage is measured by the
extreme breadth, and that is taken half the extreme
breadth; the breadth by 3.445, with the breadth, is what
may be said, the true tonnage of the ship.

Calculation of the tonnage of the 74-gun ship:
Plate 1, according to the calculation above:

| Length from the fore-side of the ship, at the height of the upper, or 4 ft. 11 in., on the upper side of the wing-transom | 192 | 94 |
| The height of the wing-transom is 26 ft. 10 in., which produces for every 2½ inches | 5 | 61 |
| Three-fifths of the extreme breadth is | 72 | 71 |
| Height of the wing-transom | 137 | 138 |
| Burthen in tons, according to the common rule | 186414 |
| Estimation, showing the real burthen of the ship | 74-gun ship, Plate 1. |
| The weight of the ship at the launching | 1457 | 1198 |
| Draught of water | 1264 | 1040 |
| Weight of the furniture, including the教练 | - | - |
| Weight of the ship at her light water-mark | 1582 | 998 |
| Weight of the ship at the load water-mark | 2829 | 275 |
| From which deduct the weight at the light water-mark | 1582 | 998 |
| Real burthen | 1246 | 1417 |
| Burthen in tons, according to the common rule | 186414 |
| Difference | 617 | 1585 |

By the above it may be readily seen, that the 74
gun ship (Plate 1) will not carry the number of tons the
rated for, by 617 tons 1585 lbs., and hence the inpro-
priety of such a rule being made general, as it will always
be found greatly to increase the tonnage of sharp-built
vefls, while those that are full-built, as ships in the East
India Company's service, will carry a great deal more.
We shall, therefore, calculate the tonnage of the East India
ship (Plate XII) both ways as above, in order to prove
the great inaccuracy of the rules with respect to these ve-
fls, as well as to ships of war.

3 Y 2 Calculation
SHIP-BUILDING.

Calculation of the burthen in tons of the East India ship, (Plate XII.) according to the common rule.

Length from the fore-side of the stem, at the height of the upper side of the wing-transom, to the after-side of the main-poll, at the said height of wing-transom, is 

Feet. 159

Three-fifths of the extreme breadth is 22.6998

The height of the wing-transom is 24 feet, which produces for every $2\frac{1}{2}$ inches 5.

27.6998 27.6998

Length of the keel for tonnage 

Multiplied by the extreme breadth 131.3 37.3333

Multiplied by half the extreme breadth 4367.5122 15.9166

Divided by 94 93968.

Burthen in tons, according to the common rule 999\frac{3}{4}

Estimate, shewing the real burthen of the East India ship, Plate XII.

The weight of the ship at the launching? 

draught of water 748 1071

The weight of the furniture, including the sheathing 62 1782

The weight of the ship at her light water-mark 811 613

The weight of the ship at her load water-mark 2029 597

From which deduct her weight at the light water-mark 811 613

Real burthen 1217 2224

Burthen in tons, according to the common rule, as above 999 1477

Difference 218 747

We now find that the East India ship will carry 218 tons 747 lbs. more than she is rated for by the common rule; which, it plainly appears, is in confederation with the weight of her body being formed fo full; and the greater the contrast between full and sharp bodies, the greater will be the error in the tonnage cast by this rule; which shews the impriopriety of the erroneous method practised for casting a ship's tonnage.

Hence it is obvious, that no dependence can be placed on the common rules for ascertaining the true tonnage of vessels. Indeed we neither have, nor expect to have, any rule that shall be quite exact; because the tonnage depends not only upon the cubical dimensions of the ship's bottom, but also on the weight and scantling of her whole frame. For instance, a ship built at Archangel of fir, will carry considerably more than another of the same plan in every respect, built at the Havannah of live oak; nor is there a greater difference in some ships, when the weight of every thing which properly makes a part of the ship, as to the fastening, &c. &c. is considered. We must, therefore, be contented with a rule that approximates nearer to the truth; and such is the following, proposed by the late Mr. Parkyns, of Chatham-yard.

Rule 1. For sharp ships, particularly those of the royal navy.

1st. Take the length on the gun-deck, from the rabat of the stem to the rabat of the stern-poll, or between the perpendiculars. Then take $\frac{3}{4}$ths of this length, and call it the keel for tonnage.

2dly. To the extreme breadth add the length of the gun-deck, or length between the perpendiculars. Then take $\frac{3}{4}$d of this sum, and call it the depth for tonnage.

3dly. Set up this depth from the limber-frake; and, at that height, take a breadth also from out to out-side of the plank at dead-flat, and another breadth between that and the limber-frake: add together the extreme breadth and these two breadths. Take one-third of the sum, and call it the breadth for tonnage.

Lastly. Multiply the length for tonnage by the depth for tonnage, and the product by the breadth for tonnage, and divide by 49. The quotient will be the burthen in tons nearly.

The following trials have been made, to prove the accuracy of this rule.

<table>
<thead>
<tr>
<th>Ships' Names</th>
<th>Guns.</th>
<th>Tonnage by the King's or common Rule</th>
<th>Tonnage by Mr. Parkyns' Rule</th>
<th>Tonnage actually received on board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victory</td>
<td>100</td>
<td>2162</td>
<td>1839</td>
<td>1840</td>
</tr>
<tr>
<td>London</td>
<td>90</td>
<td>1845</td>
<td>1575</td>
<td>1677</td>
</tr>
<tr>
<td>Arrogant</td>
<td>74</td>
<td>1614</td>
<td>1308</td>
<td>1314</td>
</tr>
<tr>
<td>Diadem</td>
<td>64</td>
<td>1369</td>
<td>1141</td>
<td>965</td>
</tr>
<tr>
<td>Adamant</td>
<td>50</td>
<td>1044</td>
<td>870</td>
<td>886</td>
</tr>
<tr>
<td>Dolphin</td>
<td>44</td>
<td>879</td>
<td>737</td>
<td>758</td>
</tr>
<tr>
<td>Amphion</td>
<td>32</td>
<td>667</td>
<td>554</td>
<td>549</td>
</tr>
<tr>
<td>Daphne</td>
<td>20</td>
<td>429</td>
<td>329</td>
<td>374</td>
</tr>
</tbody>
</table>

Rule 2. For ships of burthen, or commercial ships in general.

1st. Take the length of the lower deck, from the rabat of the stem to the rabat of the stern-poll. Then take $\frac{3}{4}$ds of this length, and call it the keel for tonnage.

2dly. To the extreme breadth add the length of the lower deck. Then take $\frac{3}{4}$ths of the sum, and call it the depth for tonnage.

3dly. Set up this depth from the limber-frake; and, at that height, take a breadth also from out to out-side of the plank at dead-flat; take another at two-thirds of this height, and another at one-third of the height; add the extreme breadth and these three breadths together, and take one-fourth of the sum for the breadth for tonnage.

Lastly. Multiply the length for tonnage by the depth for tonnage, and the product by the breadth for tonnage, and divide by 36.6666 or 36; and the quotient will be the burthen in tons.

The following trials, among many others, shew that this rule does not deviate much from the truth.

Granby,
The general rule for calculating the heading of colliers is as follows:

From the length of the keel subtract 6 or 7 feet for the dead flowage fore and aft; multiply the remainder by the breadth at the midship-frame, and that product by the depth of water the ship draws when loaded; divide this by 96, and you will have the number of London chaldrons the ship will carry.

A method of constructing a scale of solidity, by which may be ascertained the quantity of water displaced at any given draught, and the weight required to bring the ship down to any draught of water proposed.

In order to construct the scale for any ship, it is requisite, in the first instance, to calculate the quantity of water displaced by the bottom, below each water-line, and by the keel, in the same manner that we have already done for the 74-gun fluyt (Plate I.); for which ship, as the areas of the several water-lines are already calculated, a scale of solidity may be readily constructed as follows:

Construct a scale of equal parts, to represent tons, as the scale is marked in Plate XIV.; and another to represent feet and inches, as that below it. The larger these scales, the more exact will be the performance.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Feet</td>
<td>Cubic Feet.</td>
</tr>
<tr>
<td>Keel and false keel</td>
<td>2 0 = C</td>
<td>531.5</td>
</tr>
<tr>
<td>Between the keel and first water-line</td>
<td>3 6 = D</td>
<td>7754.881</td>
</tr>
<tr>
<td>Between the first and second water-lines</td>
<td>5.6 = E</td>
<td>7786.381</td>
</tr>
<tr>
<td>Between the second and third water-lines</td>
<td>9.2 = F</td>
<td>15994.156</td>
</tr>
<tr>
<td>Between the third and fourth water-lines</td>
<td>12.8 = G</td>
<td>23778.537</td>
</tr>
<tr>
<td>Between the fourth and fifth water-lines</td>
<td>16.4 = H</td>
<td>20345.850</td>
</tr>
<tr>
<td></td>
<td>20.0 = H</td>
<td>44124.387</td>
</tr>
</tbody>
</table>

Now set off the tonnages from the above table upon the corresponding water-lines, &c. in Plate XIV., fig. 1, thus: upon C, representing the upper side of the keel, set off, from the perpendicular A H, 15 tons 615 lbs., taken from the scale of tons, equal to C. Upon the line D, or lower water-line, set off 233 tons, 1728 lbs. equal to D D. Upon the line E, or second water-line, set off 083 tons 823 lbs. equal to E E. In like manner, set off the other tonnages upon their corresponding water-lines; then through the points C, D, E, F, G, H, draw the curve A S, which will represent the solidity of displacement at any given height.

For example, the 74 (Plate I.) draught of water, when launched, was 13 feet forward and 17 feet abaft which gives 14 feet 3 inches at dead-flat, or midships, the ship's chief support in this light fluyt. Take, therefore, 14 feet 3 inches from the scale of feet, and set it up parallel from the line A B, or lower side of the keel, to intersect the curve of displacement, as at 1. Take the nearest distance from the intersection of the curve to the perpendicular A H, and apply it on the scale of tons, and it gives 1550 tons 1120 lbs. But by the estimate, the weight of the fluyt, at her launching draught of water, was 1577 tons 2908 lbs., which exceeds the above by 172 tons 1162 lbs.; but that may
may be easily accounted for, by the weight of anchors, cables, men, ballast, &c. as additional weight in the ship at that time. Take 1377 tons 2198 lbs., the weight of the hull exclusively, from the scale of tons, and set it off from the perpendicular line A H, along the line A B, or bafe; whence square up the perpendicular K k, to intersect the curve of displacement. That depth we find by the scale of feet to be 13 feet 4 inches, a difference of 11 inches, accounted for as above.

Now to prove the real burden of the ship by this scale of displacement, we have found, by the ultimate, that the ship, with her furniture, &c. displaces 1582 tons 998 lbs. at her light water-mark. Take 1582 tons 998 lbs. from the scale of tons, set it off as before, and raise the perpendicular L L to intersect the curve of displacement; and another perpendicular at 2829 tons 175 lbs., taken from the scale of tons, which is the weight of the ship at her load water-line, as L L. Then take the distance between the two perpendiculars last drawn, and apply it on the tonnage scale, and we have 1247 tons nearly, the real burden, as before shown by calculation.

Again, take the height where the perpendicular L L intersects the curve of displacement, and apply it on the scale of feet, and we have 20 feet 6 inches, the medium height of the load draught of water, which was 20 feet forward, and 21 feet aft.

Now the perpendicular L being the utmost limit of the quantity of water, expressed in tons, displaced by the bottom of the ship, when she is brought down to her load water-line, it is evident, from what has been already said, that if the number of cubic feet of water which the ship displaces, when light, or, which is the fame, the number of cubic feet below the light water-line, be subtracted from the number of cubic feet contained in the bottom, below the load water-line, the quotient will be the real burden or tonnage.

Any other case to which this scale may be applied is obvious, particularly to merchant-ships. Let it be required to find the number of cubic feet displaced, when the draught of water is 17 feet 7 inches, and the additional number of tons required to bring the ship down to her load water-line.

Take 17 feet 7 inches from the scale of feet, and set it up upon the perpendiculars A N and L L, above the base line A B, and draw an horizontal line through those spots, intersecting the curve of displacement at a; from thence drop the perpendicular O a. Take the distance o a in the horizontal line, to the perpendicular A N, and apply it on the tonnage scale, it will measure 2205 tons 1706 lbs., the displacement answerable to that draught of water; and the measurement from a, taken to the perpendicular L L, applied on the tonnage scale, will give 623 tons 708 lbs., the additional weight necessary to bring the ship down to the load water-line. Again, 623 tons 708 lbs. added to 1582 tons 998 lbs., give 2205 tons 1706 lbs., as above, and thus it is proved that the perpendicular O a is equally distant from the perpendiculars M m and L L.

The measurement of the tonnage might be facilitated, by drawing the tonnage scale revere on the base line A B, and at the load water-line, as in the plate.

Now if the draught of water be required, corresponding to any weight intended to be put on board, it may be readily known as follows.

Find the given number of tons, supposing 928, in the scale on the line m l, through which drop a perpendicular to intersect the curve of displacement, as at P P; and at P draw an horizontal line. Now the perpendicular distance between the base line A B, and intersection of P, being applied on the scale of feet, will give 19 feet, the draught of water required.

Many useful discoveries may be made by blocks or models of ships, and with as great certainty as by the nicest calculations; for it must be allowed, as before observed, that in calculating from a draught drawn from a quarter of an inch scale, it will be liable to some inaccuracies, which cannot be obviated in practice, by reason of various little alterations which may be made in laying off the ship in the mould-loft; consequently the draught and the ship will, in those points, disagree. And likewise, upon strict examination, we shall be enabled to find, that there are not many ships that have both their sides exactly equal in every respect.

Let the block, or model, be constructed to a scale of one-quarter of an inch to a foot of the corresponding parts on the ship; and care should be taken to provide the wood as light and dry as possible.

The model being accurately constructed, it may be also proved by suspending it by a line, fastened to a hook in any part of the straight line, drawn from the middle line of the stem to that of the flen-pot. This hook may be moved forward and aft to different places in the middle line, and a weight may be suspended from the upper part of the middle line, on the pole. If the two sides be exactly of equal dimensions, and homogeneous, they will then be of equal weight.

A plane passing through these three lines, whatever part of the middle line the hook is in, will likewise pass through the middle line of the keel, stem, and poft: therefore, if the model stands this proof, it will be as true to work from as the nicest calculations.

The model, having stood this test, may be suspended by the same line, or filk, in different positions, until it points out the centre of gravity, which will be found, when the block hangs in a state of equilibrium. This practice is, doubtless, very simple; but it will be found very convenient. Further, the model being suspended by the hook, the lines hanging at the stem and poft corresponding to their middle lines, and to that which suspends the block, we may hold a batten out of winding with the line that suspends it, and, with a pencil, draw a line upon it. A plane passing through this pencil line, at right angles to the keel, and passing likewise through the line that suspends the block, will likewise pass through the centre of gravity, which, therefore, must be somewhere in this plane. Again, move the hook to some other part of the middle line, and let the block be suspended from that point; draw also another pencil line, out of winding with this last line of suspension, and the intersection of the two lines will give the height of the centre of gravity above the keel, and likewise its distance from the poft and stem; and if the hook be moved to any other part of the middle line, and a pencil line be drawn as before, it will likewise intersect in the same point; or, let there be ever so many points assumed in the middle line, and the block suspended by each, and pencil lines drawn, they will all intersect in the same point; and as the centre of gravity will always be in that plane which passes through the middle line of the keel, stem, and poft, it may with certainty be marked on the draught.

This will certainly require the greatest nicety; but, if well executed, it will agree with that found by calculation, provided the dimensions be taken very exactly, and likewise from a true scale of equal parts.

By the same model may be found the true tonnage of a ship, thus: Let the light and load water-lines be marked on it; then put the model in water, and load it until the surface
The water is exactly at the light water-line; and let it be loaded until the water drains off, and then weighed. Now, if the weights of similar bodies are in a duplicate ratio, or as the cubes of their linear dimensions, the weight of the ship, when light, is, therefore, equal to the product of the cube of the number of times the ship exceeds its model by the weight of the model, which is to be reduced to tons. Hence, if the model is constructed to a quarter of an inch scale, multiply the weight of the model by the cube of 48, (one-fourth of an inch being equal to 8th of a foot,) or 110592, which will give the weight of the ship if the multiplier be 1, or, as pounds, if pounds, it will be pounds; and it is to be reduced to tons accordingly.

L. Suppose the weight of a model of the 74 (Plate 1.) to be 32 lbs. 13 drachms, when brought down to the light water-line.

The cube of 48 = 110592

Multiplied by = 32 lbs. 13 drachms

Produces = 3545960 lbs. = 1582 tons 816 lbs.

The weight of the ship at her light water-mark, within 118 lbs.

Again, let the model be loaded, until the surface of the water is exactly at the load water-line. Now the model being weighed, the weight of the ship is to be found by the preceding rule; then the difference between the weights of the ship, when light and loaded, is the tonnage required.

Upon the Forces of the Water to bend the Vessel.

Here we can do no better than quote Watton's translation of Euler upon the Theorem, &c. of Des Vaisseaux; to which book we refer our readers for a further illustration of the foregoing particulars, and to Atwood on the Stability of Vessels.

"When we say, that the pressure of the water upon the immersed part of a vessel counterbalances its weight; we suppose that the different parts of a vessel are so closely connected together, that the forces which act upon its surface are not capable of producing any change; for we easily conceive, if the connection of the parts was not sufficiently strong, the vessel would run the risk either of being broken in pieces, or of suffering some alteration in its figure.

"The vessel is in a situation similar to that of a rod A B (Plate XIV. fig. 2.), which, being acted upon by the forces A a, C c, D d, B b, may be maintained in equilibrium, provided it has a sufficient degree of stiffness; but as soon as it begins to give way, we see that it must bend in a convex manner, since its middle would obey the forces C c and D d, whilst its extremities would be actually drawn downwards by the forces A a and B b.

"The vessel is generally found in such a situation; and since similar effects continually act, whilst the vessel is immersed in the water, it happens but too often that the keel experiences the bad effect of a flaw. It is, therefore, very important to inquire into the true cause of the accident.

"For the purpose, let us conceive the vessel divided into parts, by a transverse section through the vertical axis of the vessel, in which both the centre of gravity, G, of the whole vessel, and that of the immersed part O, are situated; so that one of them will represent the head part, and the other that of the stern; each of which we shall consider separately. Let g be, therefore, the centre of gravity of the entire weight of the first, and o that of the immersed part corresponding. In the same manner, let y be the centre of gravity of the whole stern part, and so that of its upper portion.

"Now it is plain that the load will be found by the two forces g m and o n, of which the first will press at g, and the latter at n. In the same manner, the load will be pressed down by the force y u, and may be represented by the force e i; but these four forces will not in general be in equilibrium, as well as the tidal forces produced in the spaces G and O, which are equivalent to them; but whilst the forces before are those shaft fall in the latter together, the vessel will evidently feel effects tending to bend the keel upwards" (called flogging) "if the two points g and y, are nearer the middle than the two other forces g m and y u. A contrary effect would happen if the points were more distant from the middle than from the points g and y, called flogging.

"But the first of thefse two cases usually takes place in almost all vessels; since their hollow has a greater breadth towards the middle, and becomes more and more narrow towards the extremities; whilst the weight of the vessel is, in proportion, much more considerable towards the extremities than at the middle. From whence we see, that the greater this difference becomes, the more also will the vessel be subject to the forces which tend to bend its keel upwards; it is, therefore, from thence, that we must judge how much strength it is necessary to give to this part of the vessel, in order to avoid such a consequence.

"If other circumstances would permit, either to load the vessel more in the middle, or to give to the part in necessary a greater hollow towards the head and stern, such an effect would no longer be feared; but the limitation of most vessels is entirely opposite to such an arrangement; by which means we are obliged to strengthen the keel as much as may be necessary, in order to avoid such a disaster."

Having now investigated the centre of gravity of the displacement, meta-centre, and center of gravity of the whole ship, with other particulars, and laid down all that is requisite to be attended to, in that respect, for the construction of a ship's body under water, we shall, in the next section, proceed to complete the remainder of the sheer-draught.

To complete the Construction of the sheer-draught. Plate 1.

Having found that the displacement of the ship at the load-water line gives the ship sufficient stability to keep the lower ports 5 feet 10 inches above the water, we may proceed to draw all the decks in the sheer plan, beginning with the lower, or gun-deck. The height of the lower fills of the gun-deck ports should be 2 feet 4 inches above the gun-deck plank, which is four inches thick; consequently the upper side of the beam along the side must be 2 feet 8 inches below the fills; add six inches to that for the round-up of the beam; and the under side of the gun-deck at the middle line in midships will be 22 feet 2 inches above the upper edge of the keel; at the forecastle perpendicular let up 24 feet, and at the after-perpendicular 24 feet 8 inches; then a segment of a circle drawn through these three heights will represent the under side of the gun-deck at the middle line. These kinds of sweeps are drawn by thin veneers of pear tree wood, called shee-poulds, struck from a log radius purpose, or by a drawing-bow.) Now let up four inches, the thickness of the gun-deck plank, above the line last drawn, and let another line be drawn parallel thereto, and the gun-deck will be deter-mined at the middle line in the sheer-plan.

Next proceed to draw the upper deck; set up 7 feet 2 inches, being the height from the upper side of the gun-deck plank to the under side of the upper deck plank, along the
the middle line, through which heights draw a curve parallel to the gun-deck, and another curve three inches parallel above it, and the upper deck will be represented at the middle line of the sheer-plan.

The stern-timbers should be next drawn, to shew the boundaries of the sheer-plan above the wing-transom. Set up above an horizontal line drawn at the upper side of the wing-transom at the middle line four feet, upon a perpendicular 6 feet 10 inches abaft the aft-side of the wing-transom, which will be the height and knuckle of the lower counter at the middle line; from thence draw a curve, about six inches hollow, to the upper side of the wing-transom, where the fore part of the rabbet of the stern-post intersects it; and that curve will represent the lower counter at the middle line.

In the same manner, set up the height of the upper counter 7 feet 5 inches, upon a perpendicular nine feet abaft the aft-side of the wing-transom, which will be the height and knuckle of the upper counter at the middle line; then drawing a curve about one inch hollow from thence to the knuckle of the lower counter, the upper counter will likewise be described at the middle line.

Having the upper and lower counters drawn at the middle line, the upper part of the stern-timber is straight above the upper counter, and must be drawn as follows:

1. Set up 23 feet 8 inches, upon a perpendicular 14 feet abaft the aft-side of the wing-transom, as before, and then drawing a straight line from the knuckle of the upper counter, to pass through the said spot, the upper part of the stern-timber will be thrown at the middle line, by which the rake of the stern will be described.

As the stern rounds two ways, both up and ait, (or forward from the timber already drawn,) the stern-timber at the side must alter so much from that at the middle line, and therefore remains to be represented. Set down from the knuckle of the upper counter on its perpendicular 9 inches, and draw an horizontal line before it at that place, and set off thereon 15 inches from the said perpendicular, which will be the knuckle of the upper counter at the side the 9 inches is the round-up, and the 16 inches the round-aft at the upper counter. Then proceed in like manner for the lower counter, if setting down 9 inches, and forward 15 inches, and the knuckle for the lower counter at the side will be produced; then, by drawing a curve from the knuckles on the side (similar to the curve or hollow at the middle line), observing the lower counter at the side is drawn to intersect the touch of the wing-transom at the side, the side stern-timber only wants the upper part to complete it. But as the straight line, which remains to be drawn for the upper part of the side-timber, should not be parallel to that at the middle line, the following method will determine the exact rake thereof.

Draw a straight line at pleasure, as the ticked line under the body-plan, on which set off the breadth of the stern at, the upper counter, or 13 feet 4 inches, equally on each side of the middle line; and there square up a perpendicular on each side: set up from the straight line 16 inches, the round-aft of the upper counter on each perpendicular, and draw a segment of a circle that shall intersect those spots and the straight line at the middle, and the round-aft of the stern will be described at any part of the breadth above the upper counter: thus, take the breadth of the stern at the top timber-line, which is 24 feet 8 inches above the wing-transom, which is 24 feet, and set it off equally on each side the middle, where it shall intersect the round-aft under the body-plan; thence draw a line parallel to that first drawn, and the distance between the two lines, 13½ inches, is the distance that the side-timber will be from the middle timber; on an horizontal line, at the height of the top timber-line, draw a straight line through the last spot set off to intersect the knuckle of the upper counter at this side, and that will be the rake of this counter-timber, as shewn by the ticked lines in the sheer-plan, Plate I.

The rake of the stern-timbers being determined, proceed to finish the decks. Set up from the upper side of the upper deck 6 feet 10 inches at the middle stern-timber, and 6 feet 8 inches fore part at frame 8, and above that 3 inches, drawing curves as before, and the quarter-deck at the middle line will be reprented.

Proceed in the same manner with the round-house abaft. Set up from the upper side of the quarter-deck 6 feet 8 inches at the middle stern-timber, and 6 feet 6 inches at fore part or frame 24, and above that 2¼ inches. The forecastle forward is represented in the same way, by drawing curves, one parallel to the upper side of the upper deck 6 feet 7 inches above it, and another at 3 inches from the beak-head to frame D.

All the decks having been drawn, representing their heights at the middle line, their heights at the sides differ from the former, agreeable to the round of the beam in the breadth of the ship: to do which correctly, take the round-up of the beam of its respective deck, say the gun-deck, 6 inches, and set it up in the middle of any straight line, so that the half-breadth in midship at the height of the gun-deck may be set off on each side. Then raise the segment of a circle that shall intersect the round-up at the middle, with the spots at the breadth, and the round-up of the deck will be described at any part of its breadth. Thus, take the half-breadth at the height of the deck at any timber in the body-plan, and set it off equally from the middle of the round-up till it intersects the curve; whence draw a line parallel to that first drawn, and the distance between the fork line to the round-up in the middle is what the beam round at that place: thus may the round-up be taken at as many timbers as may be found necessary, and below the under side of the deck, at its respective timber in the sheer-plan; then a curved line passing through these spots, will represent the deck at the side; but observe, that the decks are to have a sufficient round abaft, to correspond with the round-up of the stern above the lights, and that the additional round wanted to be set down at the side line.

The sheer or top timber-line may be next drawn, by setting up its height in the sheer-plan aforesaid in midship, and abaft: thus, at timber X forwards, 37 feet 8 inches; at 9 in midships, 35 feet 4 inches; and at the side stern-timber abaft, 41 feet 6 inches: then, by drawing a curve through these spots, as in Plate I, the sheer of the ship, or top-timber line, will be represented.

The ports may now be drawn in the sheer-plan, thus: draw two curves in pencil parallel to the deck at the side, fore and aft, adding the thickest of the deck to that already drawn, as that represents the under side of the deck, or upper side of the beam. The gun-deck ports are to be 2 feet 4 inches from the upper side of the gun-deck planks to the upper side of the lower fills, 2 feet 8 inches deep, and 3 feet 5 inches fore and ait, or from the fore to the after sides, which may now be squared up between the lines last drawn; placing the fore-side of the foremost above 6 feet 5 inches abaft timber X, and 3 feet 1 inch only on athwartship line; the aft-side of the after-port to he 14 inches abaft timber 32, and the fore-side 3 feet 5 inches aforesaid, or in the clear; and the remaining 13 to be 7 feet 7 inches aforesaid. In the same manner draw in the upper deck ports, which
which are from the plank to the port-side 1 foot 11 inches, a
feet 8 inches deep, and fore and aft 3 feet, and are to be placed
equally between the gun-deck ports, as is shown in the plan,
Plate 1. The parts on the quarter-deck, round houses, and fore-
castles, must be placed hereafter where there is a space between the dead-
eyes to admit of them, always to place them as nearly as
possible at equal distances.

To know the heights, round-up, &c. &c. of the other
decks, take them with compasses, in like manner as the gun-
deck was set off from the given dimensions; and by applying
them to the scale of feet, much repetition will be avoided.

The round-house deck being drawn, draw all a parallel to the top
timber-line, and another line three inches above it, which is of the thickesses of the plank-floors, correspond-
ing with the fore part of the round-house, so as to make both
plank-floors and water-way; so will the extreme height of the
top-side be described above the plank-floors, which com-
pletes the height of the side to the fore part of the quarter-
deck, is four feet four inches to the under side above the
top timber-line, and parallel thereto. The fore part abreast
the main-mast hances down eleven inches for seven feet abaft
the gangway or fore part of the quarter-deck.

The drift-rail may now be drawn, the under side of which is
two feet ten inches above the top timber-line, and parallel
thereto from the hance of the plank-floors at the main-
 Pour the quarter-gallery. The drift-rail is four and a
half inches deep, and drawn parallel to the under side of it, drawn
hances as the plank-floors abreast the main-mast, and
flops with a scroll upon the shear-rail at the gangway. The
Shear-rail may next be drawn; it is six inches deep, and
parallel to the top timber-line from the cat-head to the
quarter-gallery. The plank-floors and shear-rail at the fore
part of the ship delineate the height of the top-side here:
the under side of the plank-floors is two feet nine inches
above the top timber-line, and the under side of the drift-
rail one foot eight inches, and turns off with scrolls at the
after part of the fo'c'sle, but in other respects the fame as tho
at the quarter-deck.

It is the practice in the navy of late years, to have square
drills instead of scrolls or hances of any kind.
The upper part of the ship being thus far complete, we have
at one view the utmost extent of the sheer, as seen on a
plane.

It now remains to be drawn in the finishing parts, as the
wales, flern, head, rails, &c.

Proceed to represent the main wales by setting up their
lower edge, at the rabbot of the item or fore part, above
the upper edge of the keel 22 feet 6 inches, in midship or dead-
flat 1 feet 8 inches, and at timber 34½ feet, 23 feet, and draw
the curve as in shear-plan, Plate 1. Above that, and parallel
thereto, draw another curve at 4 feet 4 inches, the breadth
of the main wales.

Next draw in the channel wales, set up as before, at the
rabbet of the item 30 feet 2 inches, in midships 27 feet
3 inches, and at timber 34½ feet 6 inches. Set up their breadth 3 feet, and draw curves as in shear-plan, Plate 1.

The waist-rail may be next drawn; its distance below the
top timber-line is one foot ten inches, the upper side and its
depth six inches, and it is drawn parallel to the top timber-
line all fore and aft.

Now, before the channels and dead-eyes can be drawn, the
centres and raking of the masts must be determined; their
centres on the gun-deck being fixed upon in proportion to the
length of the gun-deck, thus: the centre of the fore-
mast is 2½ feet 4 inches abaft the after-side of the item, or
half its diameter before the one-ninth of the length on the
gun-deck, the centre of the main-mast 10½ feet 4 inches
abaft the after-side of the item, or half its diameter be

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by the timber-heads there shewn, having also a timber-head between. But the practice now is to have a rail upon the heads of the timbers, and the sides birthed up on each side to the under side of the rail between the ports, and only three or four timber-heads run up, one in particular before the bill-board for the shank-painter. On the quarter-deck are seven ports of a side, and four on the round-houfe, placed as clear as possible of the shrouds, as shewn in the figure, Plate I.

The chett-tree for hauling home the main-tack must be placed near the after-end of the fore channel, or half the length of the main-yard before the centre of the main-mall, and drawn from the top of the side down to the upper edge of the channel-wale. The flaps on the side may next be drawn: they must be placed to the fore part of the main drift or gangway, about three feet in length, six inches thinner in the clear, and five inches deep: the upper flap to be eleven inches from the top of the side, continuing the others to the upper edge of the wale.

To complete the fore-plan, the head and item only remain to be drawn, which are as useful as ornamental. Therefore we will proceed with the head, thus: draw the head-foot or its boundary aft, by raising a perpendicular fix feet abaft the aft-side of the item, at one foot eleven inches above the deck at the side, or draw an horizontal line at the same height as the upper deck port-fills: the horizontal is the flat of the beam-head, and the perpendicular continued up to the rail above the forecastle, represents the fore part of the beam-head, and will likewise determine the foremost end of the forecastle. Since Plate I. has been engraved, the beam-head in the navy seems to be done away, and the bow continued to the top of the side, as in the East India ship, Plate XII. It may be stronger thus, but the beam-head was very useful. Let 15 feet 6 inches, the length of the head, be set off from the fore part of the item, and there draw a perpendicular which will determine the fore part of the block or figure; draw another perpendicular at 3 feet 10 inches abaft the former, which is the moulded breadth of the figure, and boundary of the hair-bracket at the upper part. Before the height of the figure can be ascertained, the bow-sprit must be drawn, thus; let up 4 feet 6 inches at the aft-side of the item, above the upper deck, for its middle line, and five or six feet that line 5 inches or 5½ inches above an horizontal in every foot forward; then set off 1 foot 5½ inches above and below this middle line, and draw lines parallel thereeto, and the bow-sprit will be represented in the figure-plan, Plate I. Now the upper part of the block for the figure can be determined, as that should be at least six inches clear of the under side of the bow-sprit, which should pass the under side of the foremost upper deck beam, and lie in the partners on the gun-deck a convenient height for the after part of the manger, as in the inboard works, Plate IV. of Ship-building.

The cheeks are next to be drawn: set up the height of the lower cheek at the item, which is 25 feet at its under side, above the rabbit of the keel, and draw the after-end to the sheer, and the fore part with a handfome flight, fo as to break in with the perpendicular at the fore part of the figure; then set up from the under side of the lower cheek, 3 feet 5 inches at the item for the under side of the upper cheek; draw the after-end rather more than the sheer, and the fore part with more flight than the lower cheek, fo as to make a handfome curve line with the fore part of the hair-bracket. From the under side of the lower cheek, set up at the fore part of the item 7 feet 11 inches, which is the under side of the upper rail, and draw the bag of it, or the part immediately before the item, nearly horizontal, or to the sheer of the flat of the beam-head, it agreeing to that height. The fore-end should curve upwards, fo as to appear parallel with the upper cheek, or nearly fo; and to form the after-end, draw a curve from the bag to break in fair with the beam-head line.

Now the moulding of the upper rail and siding of the cheeks may be drawn, and as they taper all their length regularly, let off 1 foot above the lower side at the after-end of the cheeks, which is 5 feet abaft the fore-side of the item on the sheer, and 7 inches at the fore-end, or about 8 feet 6 inches before the item. Then the moulding of the upper head-rail, which is 1 foot, must be set off abaft the beam-head line, or fore-side of the rail, and drawn parallel thereto from about 5 feet below its head, (which must range with the under side of the rail above the forecastle, or fix inches higher than the range of the other timber-heads,) and from thence to taper to fix inches at the fore-end, which comes to the hair-bracket, which is a continuation of the upper cheeks, and runs in a handfome ferpentine line up the back of the figure, as high as where the shoulder of the figure is supposed to come; at which place it terminates with a scroll. The upper part of the figure or block is formed, by continuing the line from the breast or fore part of the figure to the top of the hair-bracket, observing to keep the upper part fix inches clear of the under side of the bow-sprit, as before observed.

The head-timbers may now be drawn, placing the item-timber its thickefs, which is 7 inches, before the item, and to stand perpendicular from the upper side of the lower cheek to the under side of the upper rail. The foremost timber to be 8 feet before the item, and to stand parallel to the item-timber, or rake half its thickefs at least, which is 2½ inches, which will produce a lighter appearance in the head: the middle timber is placed equally between the two former, and is fix inches thick. Another timber is sometimes placed abaft the item-timber, at the same distance as the one before it, the heel of it stepping on the upper edge of the lower rail. The length of the block for the figure sometimes terminates by a perpendicular line at the heel of the foremost head-timber; the lower cheek ends thereon, or is continued higher up the figure, and finishes with a scroll. The hair-bracket also continues down to the heel of the figure.

The head-timbers being drawn, the middle and lower rails may be drawn by dividing the space between the upper side of the upper cheek and under side of the upper rail equally at every head-timber; then drawing curves to pass through the moulding depth of each rail, equally set off from the above spaces, which moulding depth is 6½ inches at the item, and 4½ inches at the hair-bracket. The after-end of the lower rail may terminate where it touches the side. Before the rail above it can be finished, the cat-head must be drawn, letting it project from the aft-side of the upper part of the main or upper rail to rake forward, fo as to stand square with the bow, or nearly so, and to rise upwards 5½ inches in every foot of its length, which is 8 feet 6 inches without the bow; observing that the under side is to lay on the plane of the forecastle at the side; the upper side may be drawn parallel to the under side at 1 foot 4½ inches, its depth: the knee or supporter under the cat-head forms a fair curve to the after-end of the upper middle rail, as in figure-draught, Plate I. The knee or supporter under the cat-head latterly hangs perpendicularly, or nearly fo, and the rail ends against the side.

The knee of the head may next be drawn; it is to project from the breast of the figure about four inches; thence draw
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draw the fore part of the line, with an agreeable figured line to its breadth from the item, which should not exceed two feet in a square at the load-water-line, then, by continuing the same line downwards, narrowing more and more till it approaches the grime, and drawing it more distant from the item, to about four feet in the breadth of place, the lower part break is fair with the side of the tail keel, where it terminates with the fore foot or fore part of the keel, which will be next described. The gams tho'holes come between the head-timbers, and the bob-ray-holes at the fore part of the keel, and the hawseholes between the checks are to be 2 feet 6 inches up from the deck, and 1 foot 3 inches in diameter, as shown in the plan, Plate 1. See Head-hole, hereafter described.

From the line representing the upper edge of the keel, let down 1 foot 6 inches, its depth, and draw a line parallel to its upper edge the whole length, which is 1 foot 2 feet before timber, to the inboard of the flnpl-potl, and the lower edge of the keel will be represented; but to complete the fore foot, which must be of a sufficient depth to receive the lower part of the item, called the boxing, square up the fore end of the keel from the under side to the fore-side of the item, and from thence square up the upper side of the item from its curve. The boxing, or lower part of the item, may now be drawn: set off from the line laid squared 6 feet 6 inches, and draw a perpendicular to half the depth of the keel, and from thence continue a line forward, parallel to the lower edge of the keel, one-third the length of the scarf, which will meet the fore-side of the item and complete it.

The tail keel, which is six inches deep, may be drawn by a line parallel to the under edge of the main-keel; the fore end of it may continue about three inches before the main-keel, or run through to the fore part of the grime.

The sheer-draught being thus far completed forward, the stern and quarters may be finisht, and first draw a line which shall represent the aft-side of the quarter-piece, agreeable to the round-forward of the stern, which is 1 foot before the side timber-timber, on a square, and nearly parallel thereto, continuing this line from the plank sheer to the lower gallery rim, the upper side of which is at, in the line laid down 6 feet 5 inches above an horizontal line, at the upper side of the wing-tranom at the middle. (Observe, all the heights of the stern will be set up above this line, for the manner of obtaining which, with every particular relative to the item, the reader is referred to the section Laying off the Stern, and Plate X.) At the height last set off, draw the upper side of the rim forward parallel to the sheer or top timber-line to 16 feet 6 inches, its length; then draw another line parallel under it at 10 feet 4 inches, its depth. The height of the upper side of the rail at the middle (foo] is 11 feet 9 inches at the quarter-piece, which must also be drawn forward parallel to the sheer to 16 feet 8 inches, its length; its depth, which is 94 inches, drawn in as the middle rim.

The height of the upper side of the rail at the middle (foo] is 11 feet 9 inches at the quarter-piece, which must also be drawn forward parallel to the sheer to 16 feet 8 inches, its length; its depth, which is 94 inches, drawn in as the middle rim. The core part of the quarter-piece may next be drawn, as the heel of it stops on the after end of the middle deck, by drawing a line parallel to the aft-side at 14 inches, its riding. Draw the middle rim-rail, as before directed, at 15 feet 3 inches, the height of the upper side at the fore-side of the quarter-piece, to 12 feet 2 inches, its length. In the same manner draw the upper floor-rail, its upper side being 11 feet 5 inches up at the quarter-piece, and its length forward 12 feet 8 inches. Above this rail is the upper finishing, the upper rail of which ranges with the height of the plank-shear, with another rail below it at 9 inches in the clear; the upper rail may be about 3/8 inches, and the other 4 inches. The upper rail of the finishing is 2 feet 8 inches thunt of the upper floor-rail, and finishes at the fore part, as in the sheer draught, Plate 1. The boundary, or fore part of the upper gallery, is 11 feet 7 inches on the run of the middle rim; from thence a line is drawn upwards, parallel to the quarter-piece. Between the middle floor-rail and the rail above it, the fore part is completed by a curve. The length of boundary of the lower gallery is 15 feet 6 inches on the lower rim; from thence a line is drawn upwards, parallel to the rake of the side timber-timber. Now the lights and quarter, which are three in each gallery, may be equally spaced; the lights in the lower gallery to be 2 feet 7 inches in the clear on a square, and the munitions about 11 inches each; the lights in the upper gallery 2 feet 4 inches in the clear on a square, and the munitions about 91 inches each; observing to keep their lower sides up from the rail, about 5 inches the lower ones and 4 inches the upper ones for the water-table, and their upper sides about 4 inches clear of the under sides of the floor-rails above. Draw the lower floor-rail along the quarter, which is a continuation of the lower counter-rail, as the middle rim is of the upper counter-rail, at the outside of the quarter-piece, from whence they are to be continued their length parallel to the floor, and that will be the height of these rails, as viewed on a level. The height of the lower counter-rail, at the side abait, is 5 feet 4 inches, and from thence continued parallel to the rim-rail above: to its length, which is 7 feet, set down 10 feet inches, its depth, and draw it parallel to the upper side.

The lower finisht is 2 feet 3 inches deep below the lower floor, and its boundary formed by curves, so as to have a light airy appearance, with a floor nearly in the middle of its depth.

The foot-space rail may be 95 inches deep, and rabbets on the ends of the flat of the quarter-deck. The breast-rail is 95 inches deep, and its upper side is 3 feet 2 inches above and parallel to the other, both projecting 2 feet 6 inches on a square to the aft-side at the middle line from the midhip timber-timber. But to complete the balcony, quarter-piece, and taffrail, as shown in the plan, the reader is again referred to laying-off the item, and Plate X.

The boarding of the lower counter may be represented by drawing a curve 4 inches parallel abait the aft-side of the counter-timbers, from the knuckle to the tuck-rail, which covers the margin on the wing-tranom, and projects its thickets 94 inches. Draw likewise the boarding of the upper counter, which is 4 inches thick, and parallel to the timber-timber. Above the upper counter-rail draw in the thickets of the middle run-rail, which is 3 inches, and parallel to the middle timber-timber, and continued upwards to the arch-board over the lights, which is about 48 inches deep.

The rudder may now be represented in the sheer-plan, observing that the head is continued above the upper deck, high enough to receive a tiller about four inches above the deck; then allow for two hoops above the hole, making the upper part of the head 2 feet 6 inches above the deck. Continue upwards the aft-side of the flnpl-potl, which represents the fore-side of the rudder, from whence its breadth or aft-side is set off; and as this should not be more nor less than sufficient to direct the course of the vessel, the common practice is to make the breadth at the heel, or lower end, one-eighth of the main breadth, which will be fix feet for ships having a clean run abait; but for merchant-ships, or those constructed chiefly for burthen, it may be one-fourth. The height of the lower hance may be fixed at the load-water-line, or about six inches above it, and its breadth there should be five-sevenths of the breadth at the heel,
Amongst the several angles that the rudder makes with the keel, there is always one position more favourable than any of the others, as it more readily produces the desired effect of turning the ship, in order to change her course.

If the angle of the rudder with the keel is greater than 45 degrees, the action of the water upon the rudder will increase, and at the same time oppose the course of the ship in a greater degree; because the angle of incidence will be more open, so as to prevent a greater surface to the shock of the water, by opposing its passage more perpendicularly.

If, on the contrary, the angle is lessened to 30 degrees, the rudder will receive the impression of the wave too obliquely, for the angle of incidence will be more acute, so that it will only prevent a small portion of its breadth to the shock of the water, and by consequence will only receive a feeble effort. Thus it appears, that between the effects which result from the water's absolute effort, there is one which always opposes the ship's course, and contributes less to her motion of turning, whilst the other produces only this movement of rotation, without operating to retard her velocity.

Hence we may conclude, that when the water either strikes the rudder too directly, or too obliquely, it loses a great deal of the effect it ought to produce. Between the two extremes there is, therefore, a mean position, which is the most favourable to its operation, viz. the angle 45°, or between that and 42 degrees. See Watson's Euler, p. 130. See also RUDDER.

It is evident, that the fore part of the rudder, as high up as the head of the poll, must be trimmed on each side, to the middle of its thickness, (which is the same thickness as on the gun-deck trim.) When the helm is hard over, the greatest angle the rudder is projected to make with the keel; however, the common method is to force off two-fifths the thickness of the rudder from the fore part on each side, and from thence trim it straight through to the middle of its thickness, or, what is better, to leave the middle to the convexity of the pintles, rather than a sharp edge. By this method the rudder may be put over to the angle of 50 degrees, which is more than is necessary, and it is very seldom that the tiller, owing to its length, can be put over so far to the side as to allow of the rudder making an angle of more than 45 degrees, which angle is quite sufficient.

When the above angle, or what is technically called the trim, is wholly taken from the fore part of the rudder, the main piece is very much wounded by letting on the upper pintle; but this of late years has been greatly remedied, by taking half the bearding from the aft-side of the stern-pole at the head, and from one to two inches on the heel; of course the rudder is bearded so much the less. This also, will greatly assist the conversion of the stern-pole.

The bearding on the rudder is represented by the shading on the fore part of the rudder, and the bearding on the poll by the ticked line in the above plan, Plate I.

The rudder, which is represented in the after-draft, Plate I., and is as at present used in the navy, having its axis of rotation in the centre of its pintles, which are parallel to the aft-side of the stern-pole, causes a space, considerably greater than that transverse section, to be cut in the counter for the rudder to revolve in, which would be impervious to the waves, were it not defended by a coating of tarred canvas, nailed in such a manner to the rudder and counter, as to cover the whole space required. But the ill effects of having so large a space fo ill guarded, have proved very dangerous.

It was to remedy this defect that round-headed rudders of late years have been adopted in many merchant-ships, particularly
particularly that in the service of the East India Company.

The round-headed rudder is represented in the sheer-plan of the East India ship, Plate XII., which consists in making the upper part of the rudder above, and some inches below the hole in the counter, cylindrical, and giving that part, at the same time, a call forward above the upper brace, so that the axis of rotation may be that means be the line passing, as usual, from the heel of the rudder to the upper brace, or that next below the counter, and from thence upwards through the axis of the cylindrical part, or head, in order that the transverse section at the counter may be a circle revolving upon its centre: in which case the space of half an inch is more than sufficient between the rudder and the counter, and consequently the necessity of a rudder-cost entirely done away. But as it was foreshadowed, that if the rudder was by any accident unlipped, this alteration might endanger the turning away of the counter, the hole is made from two to four inches larger all round, according to the size of the ship, than the transverse section of the cylindrical part of the rudder, but that space is easily covered over with a wooden rim, about two inches thick, and of sufficient breadth to nail to the counter clear of the hole: this rim is fitted nearly close to the rudder, and is capable of refixing the shock of the sea, but easily carried away with the rudder, leaving the counter, under such circumstances, in as safe a state as it would be, agreeable to the present form of making rudders in the navy.

It is easy to conceive that the braces cannot be carried up so high on the stern-poll with a round-headed rudder, as in Plate I. But then the head is better treaded, as it has a large bolt driven down through the centre, that traverses in a thick brass plate confined in a strong oaken frame, fixed over the head.

It may also be readily seen, that to bring the axis of rotation through the centre of the rudder-head, it must call so much forward, as was before observed, which requires a sudden lance between the upper brace and the counter; but to avoid this lance cutting away the main poll too much at the head, a false poll, sufficiently thick, is tacked or coaked to the aft-side of the main poll, as in Plate XII.

The body and half-breath plans may now be completed, as it remains to add the superparticular part, or top-side.

Transfer the heights of the top timber-line from the sheer-plan, Plate I., to the body-plan, and draw an horizontal line, at each height, across each respective body. Now the breadth of the ship at this height determines the tumbling-home of the top-side, which should not be too much, as formerly, as it creates an unecessary consumption of crooked or compass-timber, or an extravagant waste of large timber, which must be much weakened by being cut across the grain. Again, great advantages would be derived from having little or no tumbling-home to the sides, as it gives more room upon deck, a greater spread to the sprouds. Additional security to the masts, makes the ship flatter, a much better sea-boat, and in every respect safer, stronger, and better. On the contrary, it may be argued, that by the top-side tumbling-home, particularly in ships of war, all the weight of guns, &c. lying above the low-water-line, may thereby be brought nearer to the middle line, when of course the ship will be left trained by the working of her guns also; but others have endeavoured to prove, that by the weights being equal on both sides, they counterpoise each other, and do not throw the ship, whatever distance they may be removed from the middle line. Again, the top-side narrowing or tumbling-home, as it approaches the top of the side, particularly in ships having two or three guns deck, the forward of the bow guns in action lets away those on the slack above.

In Plate I., the top timber breadth in mih up is four feet below the main breadth, consequently the top timber home two feet each side, and may be brought to the half-breath plan parallel to the main breadth, in frame 22 shaft to 11 forward; then from the middle line at K it is 21 feet 11 inches, at M, 21 feet 8 inches; at O, 21 feet 6 inches; at Q, 21 feet 2 inches; at S, 2 feet 4 inches; at U, 19 feet; and at the break head, 17 feet; at V, 16 feet; at W, 20 feet; at X, 17 feet; at Y, 15 feet; at Z, 12 feet; at A, 10 feet 5 inches; at B, 8 feet; at C, 6 feet 6 inches; at D, 4 feet 6 inches; at E, 2 feet; then to end shaft, square down to the half-breath plan the intersection of the top timber at the side count to timber in the fluer-plan, and set up, as before, 12 feet. Then a fair curve drawn through these points represent the top-timber half-breath.

Transfer the top-timber half-breaths from the half-breath plan to their corresponding horizontal lines at the top timber-line from the middle line in the body-plan. Now the timbers may be laid in the breadth of the half-breath in the body-plan, thus: transfer the upper height of half-breath from the sheer-plan to the body-plan, drawing thereon horizontal lines; then square up the timber already drawn to intersect the upper height of breadth respectively; open the compacts to 11 feet, the length of the upper-breadth sweeps, and fix one foot on each line thus drawn; then from the lines, as squared up, describe an arc of a circle upwards at each timber; then draw at a curve to the hollow of the top-side, touching the back of the upper-breadth sweep, and the breadth at the top timber-line, thus: the timber at the top-side is formed in moldings, to which let a mould be made from the upper height of breadth upwards, continuing the same hollow of top-side lines; then above the top timber-line at 1 foot above the top timber-line at 1 foot, by which would all the timbers of the top-side, except two or three quite aft and forward, may be drawn, and both bodies completed to the top of the side, by moving the mould at each timber gradually upwards, so as to make a fair line with the upper breadth sweep, touching the breadth at the top timber-line.

The foremost frames, as X, U, and S, towards the top of the side, curve outwards, or the contrary way to those abait them; because the breadth at the top timber-line projects the main breadth below, by which the anchor is hove up clear of the bow. From their breadth at the top timber-line, square up a perpendicular line to the top of the side, which produces a sudden angle or knuckle at the top timber-line, from whence they are called knuck-l-timbers.

From the sheer-plan transfer the heights of the top-side to their respective timbers in the body-plan, and draw a curve line through those heights, and the top of the side will be represented in the body-plan. Then, to prove that the heads of the timbers makes a fair longitudinal curve, transfer their half-breathds at the height of the top-side in the body-plan to their respective timbers in the half-breath plan; that is, from frame D forward, and from 10 shaft; if they produce fair curves, the top of the side is correct.

Now the side stern-timber may be drawn in the body-plan, thus: transfer the height of the wing-tram, lower counter, upper counter-knuckles, top timber-line, and top-side, from the side stern-timber in the sheer-plan to the after body-plan, and draw an horizontal line at each height; draw likewise two horizontal lines, equally spaced, between the wing-tram and lower counter-knuckle, and one equally between the upper counter-knuckle and the top timber-line. Transfer the half-breathds of the fix stern-side, where they are intersected by the above horizontal lines, to their corre
corresponding timbers in the half-breath plan, and draw curves through the above half-breaths, some distance abaft the after-frame; then square down where the several heights intersect the side stiff-timber in the sheer-plant, to the half-breath plan on their corresponding lines, and from thence transfer the several half-breaths to their corresponding heights on the body-plan; then, by drawing curves through those half-breaths, the side stiff-timber will be represented.

The main half-breath and top-timber half-breath lines may now be ended abaft in the half-breath plan: thus, square down from the sheer-plan, where they intersect the side stiff-timber, to their corresponding lines in the half-breath plan; also, where they intersect the middle stiff-timber in the sheer-plan, square them down to the middle line in the half-breath plan; then, with a radius in the said middle line, sweep an arc of a circle to intersect the spots half squared down, which will represent the round-oft of the stern at the main half-breath and top-timber lines in that direction.

In a similar manner may be drawn the round-oft of the stern at the knuckles of the lower and upper counter in the body-plan, by transferring the heights of the lower and upper knuckles, at the middle stiff-timber in the sheer-plan, to the middle line in the body-plan; their height at the side being set up before; then, with a radius from the middle line in the body-plan, sweep a segment of a circle to pass through each height, and the round-oft of the stern, at each counter, will be represented as in the body-plan, Plate I.

**Apron, or Inner Stem, &c.**

The apron may now be drawn in the sheer-plan, by continuing a line parallel to the aft-side of the stern, at twelve inches, its moulding from the head of the stern, to about seven feet abaft the boxing, by which it will give thift to the scarts of the stern, as represented by the ticked line in the sheer-plan, Plate I.

The cutting-down, or height of the upper side of the floors in the middle fore and aft, is represented by the ticked line at the following heights: viz., at $\frac{1}{2}$, and from frame D to S, 1 foot 10$\frac{1}{2}$ inches; at F, 1 foot 10$\frac{1}{2}$ inches; at H, 2 feet $\frac{1}{2}$ an inch; at K, 2 feet 2 inches; at M, 2 feet 5$\frac{1}{2}$ inches; at O, 2 feet 11$\frac{1}{2}$ inches; at S, 4 feet 6 inches; at U, 6 feet 6 inches; at T, 1 foot 10$\frac{1}{2}$ inches; at 12, 1 foot 11 inches; at 14, 2 feet; at 16, 2 feet 1$\frac{1}{2}$ inches; at 18, 2 feet 2 inches; at 20, 2 feet 6 inches; at 22, 2 feet 10 inches; at 24, 3 feet 2 inches; at 26, 3 feet 10 inches; at 28, 4 feet 7$\frac{1}{2}$ inches; at 30, 4 feet 11 inches; at 32, 7 feet 7 inches; at 34, 10 feet 1$\frac{1}{2}$ inch, above the upper side of the keel; then a curve line drawn through those heights, will shew the cutting-down.

The depth of the keel-fon is also represented by a line eighteen inches above, and parallel to the cutting-down, into which forward is scared the keel-fon, which is continued upwards to the under side of the gun-deck hook, and nearly parallel to the apron, it being ten inches moulded at the head. The after-end of the keel-fon is completed by the sternon-knee, which forms into the keel-fon, and runs up the fore side of the transom to the under side of the carling under the gun-deck beams, as shown in the sheer-plan, Plate I.

Sometimes a knee is introduced in the dead-wood, as shewn in the sheer-plan, which is drawn against the inner part, which is fifteen inches moulded at the heel, and one foot at the head under the side of the gun-deck transom.

**Nature and Use of the Timbers, when canted.**

Hitherto we have considered the timbers as having their planes athwartships, or at right angles, square to the keel, and have consequently called them square timbers. But the cant-timbers have their planes inclined forward from the keel in the fore-body, and the contrary way, or aft, in the after-body, or canted, as shipwrights term it.

That the reader may clearly understand the nature of the cant-timbers, observe in the half-breath plan, Plate I., where the joint of cant-timber U intersects the middle line; at which place suppose it hung on a hinge, moving fore and aft; and also imagine the line drawn for the cant-timbers on the half-breath plan to represent the upper edge of a surface, of a sufficient breadth to form the shape of the said cant-timber from the middle line in the body-plan; supposing the horizontal view of that surface to be represented by that line. It immediately follows, that the surface must stand perpendicular to the upper edge of the keel, similar to a door swinging on its hinges; and, if we draw the moulding shape of the cant-timber, according to what is laid off in Plate VII. fig. 3., upon this surface, from the keel to the top of the side (not moving its position), and then cut it out, we shall have the true position of the cant-timber, as in its place on the ship, which will stand in a perpendicular direction; we may also, supposing it to be hung, swinging it or cant it either forward or aft, and it will still maintain its perpendicularity with respect to the keel.

The canting of the timbers is of great utility, as it affords the conversion of the timber, and likewise greatly contributes to the strength of the ship in the fore and after parts. For in the first place, were all the timbers of the bow and buttock to be continued square, as those of the square body, though the scantlings of the square timbers on a square should be equal to the scantlings of the timbers, if canted, yet the bevelling of the bow and buttock-timbers would be so great, that the consumption, in some places, in order to get the timbers clear of fap, would be greater by one half than that in the timbers when canted. And, secondly, by canting the timbers gradually from athwartship line, we thereby bring each timber nearer to a square with the planks of the bottom, which is not only the best position to receive the failenings of the planks, &c. But the timbers are also better able to bear those failenings.

We may now proceed to cant the timbers of the fore-body, so that they may stand as square to the curvature of the bow as possible, which will not only greatly lessen the bevelling, but will very much straighten the moulding shape of the timbers; by which means they will be much stronger, not so liable to be grain cut, and having less compass, the conversion will be greatly assisted.

Therefore determine on the cant of the forecrom timber, which is $y$, by setting forward two feet one inch on the run of the main half-breath line before the perpendicular of $X$, and its heel nine inches abaft the perpendicular of $U$, on the stepline, which is three inches nearer the middle line than the bearding, or half-thickens of the dead-wood, and draw the ticked line marked $xy$ in the half-breath plan, Plate I. The after-cant-timber of the fore-body may be before the foremoll square timber $O$ two feet nine inches on the main half-breath line, and the heel on the steplinge two feet five inches before $O$, on the ticked line marked $xy$, drawn as before; then may the intermediate cant-timbers $q$, $r$, $s$, $t$, $i$, $o$, $e$, $x$, $v$, $g$, be drawn, with their joints to intersect their respective perpendiculars as far as $U$, at the main-breath line; then $e$, $o$, and $x$ equally between $e$ and $x$; draw the ticked lines representing each cant-timber from thence to their heels, which are all equally spaced on the steplinge, between $e$ and $x$.

The Hereafter pieces can now be determined on and drawn in the
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The half-breath plan, the hole, which may stand parallel with the mould line, or casted square with the bow, which will hold the list and bead, and also their connection, as before observed, by the cast timbers; their number may be two, before the height-head, which comes next the item, unless the apron is wider than the item, which cannot be the case when the cabin is in the middle; as that has now become general, a filling about six inches fided, fayed next the item, which makes it unnecessary to call the height-head above the item to receive the bowprit. In the half-breath plan, Plate 1, the height-head is drawn next the item, then, set off from the item, ten foot four inches, its fiding at the topstring line or bide; before cast y. is inserted a short timber, which shorten the heel of the height-head and hawse-pieces, yet that the heels are expected to be gotten low down as to lay against it, for if the height-head runs down low enough to take a bolt through the gun-deck hook, it is reckoned sufficient; the remainder being made good with a check. From the item, at the timber or timbers before cast y., set up the fiding of the heel, which is thirteen inches. In the same manner set off the fiding of the hawse-pieces, four in number, from each other, as they laye-co together, in wake of the hawse-holes, that is, 18 inches at the head for the first hawse-piece, 17 inches for the head of the second and third, and 18 inches for the fourth; and the fiding at the heels to beal alike 13 inches, as in the half-breath plan, Plate 1.

The hawse-holes may now be drawn, which should be to flatsome as to wound the hawse-pieces as little as possible; they may therefore be placed, so that the middle or centre of the mitred-hole may come in the joint of the first and second hawse-pieces, and that of the outer hole in the joint of the third and fourth hawse-pieces. The holes to be in diameter, after the pipes are let out, 15 inches, and in distance from each other on a square 18 inches, to which lines may be drawn in the half-breath plan to extend from the thickest of the outside to the inside plank, and in a fore and aft direction, so as to cross the middle line of the gun-deck at the main-mast. Sometimes, to avoid wounding the hawse-pieces too much, middle pieces are introduced in wake of the holes fided, about six inches less than the diameter of the holes; then, by cutting three inches on the fides of the hawse-pieces between the holes, those hawse-pieces become consequently more fided, and are wound proportionally, but little.

The hawse-holes may now be repreented in the sheer-plan, thus; set up their height above the gun-deck, which is two feet eight inches, to their under fides, then their diameter above that, which will be clear of the clamps above; then, with a proper five outwards, we shall find them about six inches above the upper side of the lower cheek, which will leave a sufficient habitation of bolt under the hole for the wear of the cable. Square up, from the half-breath plan, where the holes intersect the inside and outside plank at the main half-breath line, that being very near their height, then by drawing lines to their five parallel to their depth, they will be represented as the dotted lines in the sheer-plan, Plate 1; but to continue them to the outside of the boltier, as the fladed holes in the sheer-plan are, square up from the half-breath plan, where they intersect the fore part of the cheek.

The cast-timbers in the after-body may now be drawn, and every part depending on them; in order to which we must here determine on the cant of the faision-piece; therefore, having the round-end of the wing-tranfom represented in the half-breath plan, and likewise an horizontal line at the height of the wing-tranfom, set off sixteen inches, its

bounded breadth, the line is to be continued, where it is the flattest of the after side of the faision-piece, to the termine of the case of the transom, for the purpose to cover the timbers, and square with the track of the back, in which case the pieces will be determined. Then, having the height-head between the after-end and the middle; at the after-end, let the height-head be raised or inclined to the extent of its breadth pieces, before perpendicular 34, and drawn a line from the feet, and therefore a perpendicular 44, which is the centre of the faision-piece, will be described, and be for the foot, in which they will be fixed situated in the half-breath plan, as to answer the former described parts.

The cant of the faision-piece is represented, the cant of the timbers being it is true, better determined, let as be the foremost cast-timber in the after-body, which, the main half-breath line, may be equally divided between the after square-timber 28, and the perpendicular 35, and its heel on the stepping-line be one foot one inches about 28, drawing a straight line, as before; the other cast-timbers between 29 and the faision-piece, which are 30, 31, 32, 33, 34, 35, and 36, may be equally spaced on the stepping-line at the heel, likewise the main half-breath line, drawing straight lines as before, which will interfet their perpendiculars as far as 34 on the main half-breath line; thus the cast-timbers in the after-body will be represented as in the half-breath plan, Plate 1.

The line drawn for the cant of the faision-plan represents the after-side of it, as before observed, which let us to the ends of the transom; but, in order to afflit the conversion with regard to the lower transom, there may be two more faision-pieces about the former; therefore the foremost faision-piece, or that which is already drawn in the half-breath plan, only takes the ends of the three upper transom, which are the wing, filling, and deck-transom; the middle faision-piece takes the three next, and the after faision-piece the three lower ones; therefore let off in the height the fiding of the middle and after faision-pieces, which is 12 inches each; then draw lines parallel to the foremost faision-piece at the fiding, and the middle and after faision-pieces will be represented in the half-breath plan.

The faision-pieces and transom may now be represented in the sheer-plan, as the thwarts-thickness appearance of the faision-pieces limits the length of the transom as they appear therein; square up from the half-breath plan, where the faision-pieces there interfet the stepping, the horizontal or water-lines to their respective water or horizontal lines, and stepping-line, in the sheer-plan; but as the foremost faision-piece runs up three or more feet, if to be gotten above the wing-transom, an horizontal line at the head, and three more between that and the load-water-line, should be drawn from the body to the half-breath plan, in pencil, as they may be rubbed out afterwards, and the interfetion of the faision-pieces squared as before; then curves drawn through the spots as squared will represent the thwarts-thickness appearance of the faision-pieces in the sheer-plan, as in Plate 1.

The height and fiding of all the transoms may now be drawn in the sheer-plan, thus; set down 13 inches below the horizontal line representing the upper side of the wing-transom already drawn, and draw a line parallel thereto, which will show the fiding or under side of the wing-transom as far forward as the faision-piece.

The filling-transom is the next, which nearly fills up the vacancy between the under side of the wing-transom and upper side of the gun-deck plank, and may be represented by drawing two parallel lines under the wing-transom to its height, which may be ten inches, if it will allow two inches between
between its upper side and the lower side of the wing-tranfom, and four inches from its lower side and the gun-deck plank. The deck-tranfom muft be governed by the gun-deck, letting the under side of the gun-deck plank reprefent the upper side of it; draw another line at fourteen inches, its fiding parallel to the upper side, which will complete the gun-deck tranfom. The tranfoms below the gun-deck, which are fix in number, are all eleven inches fixted, and are represented by drawing horizontal lines from the fore-side of the rabbit of the fern-plan; the three upper ones to the middle fashion-piece, and the lower three to the after fashion-piece, keeping each of them about three inches afunder for a free circulation of air. Every means should be taken to preferve them, as they are more difficult to shift than any timbers in the ship.

The fern-polt may now be completed, by drawing the fore-side thus: set forward upon the upper side of the keel three feet from the line, representing its aft-side, and likewise twenty inches at the head, which may be three feet above the wing-tranfom, which will admit of the tiller to be three inches clear of the helm-port tranfom, and two inches from the under side of the beams above; then a ftraight line drawn from the heel to the head in the dimensions fett off, will represent the fore-polt, obferving not to draw the fore-side of the polt through the tranfoms.

The inner pott may be drawn by fettting off before the main pott fifteen inches, its fize at the upper edge of the keel, and thirteen inches at the head, which comes no higher than the under side of the gun-deck tranfom; then, by drawing a line, as before, for the fore-side of the main pott, the inner pott will be reprefented as in the fern-plan, Plate I.

To Draw the Perpendicular View of the Stern.

In deigning the perpendicular view of the fern, there will be an opportunity of feeing whether the fafticles of the counfers are fo disposed, that the lower and fected counfers are in proportion to the reft of the fern: at the fame time, whether the heights of the decks, which, in the prefent draught, Plate I. are fpring aboft fufficiently to give depth to the lights, as well as for other conveniences to make a well-proportioned fern.

Draw an horizontal line at the upper side of the wing-tranfom at the middle line, in the fern-plan, body-plan, and likewise for the fern underneath the body-plan, as the basis of the fern, from which, all the heights will be fett up or transferred. Continue down thereon the middle line of the fern from the body-plan, and drop perpendiculars from the fafticles of the fide counfer-tranfom in the body-plan, to the bafe line in the plan of the fern, and then draw the fide counfer-tranfom on each fide the middle line, the fame as in the body-plan above, and the round-up of the upper and lower counter at the fafticles of each timber. Having the form of the fide counfer-tranfoms in the plan of the fern, fet within them the feafathing of the timber, and draw their fafticles.

The lower and upper counfer-trains being drawn in fern-plan, try if the under sides at the midhip-timber project enough to bury their refpective counfer-planks, thus; square aft a line from each counfer at the fafticle, and on thofe lines fet aft from the fafticle the thickenes of the counfer-plank, fay three inches at the lower counter, and one quarter more, that the moulding may not come to a sharp edge. The lower counfer-plank may be increafed to four inches, its general fize, the three upper ones the fame manner with the under counter, its birthing being two and half inches thick. This will fhow how much the light-part of the trains will be on a leval view below the fafticles of the timbers. Then transfer their height to the plan of the fern at the middle, and keep them parallel to the fafticles to the outide, fufficient for the projection of the quarter-galleries, as in plan of the fern, Plate I.

Take the height of the under side of the quarter-deck at the aft part of the middle fern-timber in the fern-plan, and fet it up in the plan of the fern at the middle line; then round the quarter-deck in the fern, agreeable to the upper counfer-train, in the following manner: take the height from the upper counfer-train, in the plan of the fern, to the quarter-deck at the middle line, and fet it off in the direHon of the fide timbers at the infide. This makes the quarter-deck round more than the upper counfer-train, and adds life to the fern; for the upper part of the lights in the fern should be parallel to the tranfom. As, if they were to round by the fame mould as the upper counfer-train, the bars in the fakes next the fide would be longer than thofe in the middle line, and would appear as if the top of the lights rounded less than the upper counfer-train. Draw in the upper part of the lights about an inch and half below the under side of the quarter-deck tranfom, and their lower part about fix inches above, and parallel to the upper counfer-train, which will allow fufficient depth for the water-table. Set off within the fide fern-timbers, in the plan of the fern, the thickenes of the clamps, and the projection of the cornice in the cabin, and let that be the fide of the lights.

Then determine on the breadth of the mummies, allowing fufficient for the weights and pulley-pieces, and divide the fakes, fix in number, equally.

Now, as well-proportioned lights are great ornaments in ferns, having the breadth of the lower part of the lights in the clear, let their depth be at leaft one-third more than the faid breadth; fet off upon the rake of the fern-timbers, in the fern-plan, and transfer that to the plan of the fern, which makes a good proportioned light. Set off likewise the mock-light in the aft part of the quarter-gallery the fame fize as the ref.

Then to rake the fakes regularly from the middle to the fides, continue upwards the middle line and the outside of the fide fern-timbers in the plan of the fern, till they interfet at the faid middle line; then from their fpaceings at the lower part, the fides of the lights may be drawn to their heads, or upper part, with a ftraight batten fixed at the interfetion of the middle line. In the fame manner may all the intermediate fern-timbers be drawn to their fiding in the middle of each munion from the wing-tranfom to the under side of the quarter-deck, likewise the fhorter ones that make the fide of the counfer-ports, and thofe under the middle of the lights to the upper counfer-train. At about half the breadth of the mummies from the mock-light, place the infide of the quarter-piece, then fet foff at the heel fixteen inches, its moulded breadth, and continue upwards the outside of the quarter-piece, as before, for the lights. In the middle of the quarter-piece, or nearly fo, place the outside of the gallery, which determines the projection of the gallery from the fide.

Draw in the plan of the fern the foot-space rail, its under fide to be about an inch and a half below the aft part of the quarter-deck, and parallel thereto to the outside of the quarter-piece; likewise draw the breach-rail, transferring its height from the fern-plan at the after-part, and fet it up at the middle line as in the plan of the fern, and rounding it, as defcribed for the quarter-deck, to the infide of the quarter-piece. Then let the round-houfe deck be drawn in the plan of the fern as directed for the quarter-deck, which will determine the lower part of the taftrail, as the necking-moulding should be kept an inch and a quarter below the round-houfe tranfom. Then may the boundary, or upper part of the taftrain and quarter-pieces, be finifhed as in the plan of the fern,
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In the starboard quarter-piece is designed the aft part of the gallery, which is at the middle of the quarter-piece in the flash-plan; therefore it will be proper to draw the form of the middle of the quarter-piece, and the foreside of the taffrail, upon the flash-plan. Thus, take the heights from the level line at the upper side of the wing-transom in the plan of the stern, to the lower part of the quarter-piece, or upper side of the upper counter-rail, and likewise in as many places as may be found necessary, to get the exact form, and let them up in the flash-plan, drawing level lines. Square up the spots on the quarter-piece and taffrail to the round-side of the stern on a level; then take what the round gives at each spot squared up, and set it off from the mudship flannel-timber on their corresponding level lines in the flash-plan. This produces the ticked line that was drawn in pencil in the flash-plan, shewing the middle of the quarter-piece and fore-side of the taffrail. Take the fiding of the taffrail, and draw the aft-side of the taffrail and quarter-piece parallel to the middle line of the quarter-piece, and fore-side of the taffrail, and draw likewise the fore-side of the quarter-piece parallel to the middle. By the same method, prove the thwartship view in the flash-plan of the lower side of the taffrail, and inside of the quarter-piece.

Take the height in the plan of the stern of the upper counter-rail at the outer part, and set it up in the flash-plan, drawing a level line. But to find how much the after-end of the rail will be before the knuckle of the upper counter at the side-timber, the round-side of the upper counter must be laid down on a level, as in the half-breath plan; transfer the outer end of the said rail square from the middle line in the plan of the stern, on to the round-side square from the middle line in the half-breath plan; then square it up to the flash-plan, on the level line laid down. Design the lower gallery rim, with the lights and munion, as in the half-breath plan, which is a continuation of the upper counter-rail, and this will determine the length of the gallery in the flash-plan. Take the height in the plan of the stern to the foot-space rail, at the outer side of the quarter-piece, and transfer it to the aft-side of the quarter-piece in the flash-plan. Take likewise the upper and lower part of the lights in the plan of the stern, at the birthing of the outside of the gallery, and set them up in the flash-plan, at the ticked line, for the middle of the quarter-piece. Design the lower finishing as in the plan of the stern, and transfer the height and round-forward of the lower counter-rail, as before described, at its outer end, and then add to the rails and lights as set up in the flash-plan, from thence forward, agreeable to the fiding of the ship, to their boundary, or fore part of the quarter-gallery.

Lastly, the upper finishing being designed in the flash-plan, transfer their heights, and complete the quarter-gallery, as drawn in the starboard quarter-piece in the plan of the stern, Plate I.: the aft-side of the rudder, counter-ports, and helm-port transom, may also be drawn.

To Design the Plan of the Head.

Continue forward the middle line of the half-breath plan. Upon it square down the fore-side and aft-side of the figure from the flash-plan, and upon those lines set off the half-fiding of the figure.

Then draw the main rail to its half-breath appearance, thus: set off the fiding of the after-end of the main rail from the outside of the plank at the top-timber half-breath, to the fore-side of the back-head in the half-breath plan; and the fiding of the front-end from the outside of the figure, the fore-end being square down from the fore-part of the hair-bracket in the flash-plan; otherwise, however, to add to the fiding the thickness of the long timber, by drawing straight lines to those spots, the half-breath plan of the main rail will be represented as in Plate I.

Square down from the flash-plan the head-timber, where they intersect the under side of the main rail, to the middle line of the half-breath plan: likewise square down the fore and after side of the knight-head, and draw the half-breath line at the upper side of the back-head flat, and the thickness of the outside plank.

Square up from the middle line in the half-breath plan the head beam, in a to let aft about two inches upon the fore, and square up likewise the cross-piece close to the aft-side of the foremost head-timber, to which and the head-beam the main rail is secured by knees on the aft-side.

Draw the moulding fize of the upper check as you see the ticked lines in the half-breath plan, then the half diameter of the bow-sprit parallel to the middle line; and also the fore and aft carling as much without the bow-sprit as the drawing may lead down clear of the bow-sprit, and outside of the upper cheek.

The feats of ease, no less than two double ones, should be placed the most conveniently, as shewn in the plan. The remaining space of the flat of the head may be composed of ledges; and, lastly, may be drawn the boomkins, which spread the fore-tack, thus: square down from the centre of the fore-mast from the flash-plan to the middle line of the half-breath plan, and from that intersection draw a line forward, to form an angle of thirty-six degrees with the said middle line; and upon it set off half the length of the fore-yard; then draw in the boomkin parallel to the line representing the fore-yard braced up sharp, and it will come nearly over the middle head-timber on the main rail, its heel resting against the knight-head; the length may be ascertained by a line drawn from the fore yard-arm at the outer end.

The round-houses, or feats of ease for the officers, are clearer shewn in the plans of the upper deck and forecastle; which plans and draught of the inboard works will be designed hereafter, the flash-draught plate being completed.

To Design the Disposition of the Frame. Plate II.

The utility of a plan of this description requires but little explanation; as it is evident, upon inspection, that it exhibits the disposition and shift of every timber, that consequently affords the means of disposing of every piece to the greatest advantage, both with respect to the strength of the ship, and to the conversion of the timber; and, moreover, of preparing every piece for its proper situation, before the ship comes on the stocks, with the greatest facility.

The frame-timbers are formed into bends, as before observed, by the union of first futtocks, second or middle futtocks, third and fourth futtocks, with top-timbers, which are severally scarfed together and bolted. Sometimes the frames are scarfed close together, or separated, for air; those that are separated have dry pieces of oak fayed between them in wake of the bolts; these should all be split out before the planking is brought on, that a free passage may be given for the circulation of air.

By the disposition of the frames in their several stations, they stand respectively one on each side of every gun-deck port, by which the sides of every middle and upper deck port are likewise provided for. Thus, one fourth futtock and one long top timber will form the side of every gun-deck port in two-decked ships, and the side of every upper deck port in three-decked ships. A long top-timber and a fourth

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fourth futtock will, in like manner, make the sides of the middle deck ports in three-decked ships, and the sides of upper deck ports in those of two decks.

With respect to the frame-timbers, it is, in the first instance, of the greatest consequence to the strength of a ship, that they should be cut as little as possible by the ports on each deck, bevels, scuppers, &c.; and, secondly, that all the timbers designed to make the sides of ports, are, or should be, continued, if possible, without scarring, up to the top of the side. Tho' timbers, however, in the sudden turn of the body, having so much compass in their lengths, and other which run up to receive the rough-tree rail having too great a length to be otherwise obtained, must be admitted to scarfs, as shown in the disposition, Plate II.

Tho' timbers that run up to make the sides of quarter-deck ports, forecastle ports, or to the rough-tree rail, should, if possible, be made of timbers standing up on the upper deck fills, over the upper deck ports. The side along the waist, between the ports, may be filled in with fir timber, laid fore and aft, and dove-tailed into the frames.

All timbers in the range of the fore and main channels should run up to the top of the side; and the filling-timbers between each frame are all to be equally spaced between the frames; and all the openings between the range of the chain and preventer-bolts are to be filled in solidly with dry oak fillings, as are also those over every gun-deck and middle deck port, that there may be solid boring in wake of the port-ropes-pipes, and muzzles-lashing eye-bolts; also behind iron knees and steams. But as fillings of this kind interrupt the free passage of the air, let a hole, one inch and upwards, be bored throughout their length. All fillings should be charred, or burnt.

All ships should be as light as possible in their upper works, consistently with the services for which they are intended; and, as the frame should not be incumbanted with more short timbers than are absolutely necessary, two timbers over each point are sufficient. The frame will be adequately full, and every purpose answered, when timbers are provided to form the gallery doors, and to fill in the quarters from the after-frame to the side of timbers; and forward, from the foremost frame to the hawse-pieces.

Having considered the several subjects above-mentioned, transfer from the sheer-draught, Plate I., the keel, likewise the stem and stern-post, with the transoms, and stepping-line for the heels of the cant-timbers, the under-side of the decks at the side, also the ports, the plank-keers, rough-tree rails, and beak-head; then the side of timber.

Square up from the half-breadth plan, Plate I., the joints and fillings of the cant-timbers, where they intersect the water-lines, main and top-breathths, and plank-keer, to their respective lines in the sheer-plan, as Plate I. at $c_1 u$, in the fore-body, and at $c_2 s$ in the after-body. Thus may their thwartship appearance be transferred to the disposition, Plate II. In the same manner may be squared up the thwartship appearance of the knight-head and hawse-pieces, which may likewise be transferred as the rest, and also the hawse-holes.

The height of the heads of all the timbers may now be taken above the base line in the body-plan, Plate I., and transferred to their respective timbers above the upper edge of the keel, in Plate II. Curves being drawn through those heights, will give the head of each timber on a perpendicular view in the disposition.

Now square up in the disposition the fillings of all the timbers between the cant-bodies; and as the upper deck ports are left fore and aft than those of the gun-deck, the upper part of the frame-timbers must be opened so much from the joint. The frame-timbers may now be marked with their respective names, likewise the finge timber dead-flat, where the body turns to shift the floors, as they are always under-bevelled.

The fore-fide, or moulding of the side fterntimbers, may be drawn, and the gallery doors from the sheer-plan, Plate I. Then the fills, and all the timbers necessary to frame the quarters abaft frame 36. The ports being drawn, their fills may all be represented; making the upper fills in wake of the chain-bolts much deeper. Then the blocks through the side should be drawn, that the long timbers may not be provided, and afterwards cut afunder by those blocks; namely, the main tack-block between D and B, the fore sheet-block between 4 and 6, and the main sheet-block between 24 and 26.

The fourth futtocks being the longest timbers in the ship, and, from their shape, very difficult to be gotten of the whole length, especially for ships which have much tumble-home, or even long enough to run up fo as to make the side of the upper deck ports, particularly forward and aft, the sides of such ports should have their fourth futtocks scarfed together with a hook and butt, as at fourth futtock 26 in the disposition, Plate II., giving shift to the port and each other: or, if preferred, the scarf sideways, as represented at fourth futtock O.

The third futtock that come under the gun-deck ports, are to be continued upwards to the under side of the fill, as at D. But when the third futtocks, owing to their great compass, cannot be gotten fo long, they may be scarfed, as at 4, obsevering always to get them longer than the regular shift.

The design of Plate II. is to have at one view every timber on one side the ship, that the utmost care may be taken to reduce every timber to the shortest length admissible; as, in a disposition of this kind there is every opportunity of so doing; and likewise of pointing out and converting to the best advantage the most scarce and valuable timber.

The design of expanding the bottom and top-side, Plate III. is to have the lengths and breadths of all the planks at one view, that the planking may be shifted agreeable to the lengths to be obtained, so as to run no hazard of beginning with a shift of planking that could not afterwards be continued. For the planking of a ship is a branch very material; that, unless it be judiciously performed, it will unavoidably be very injurious to, or subverive of, those good qualities that might be expected from the superior construction of the ship. The planking ought, therefore, to be particularly well performed: as, in the proper shifting, fastening, and caulking, the goodness of every part of the materials for that purpose should, consequently, be very carefully inspected.

The length of plank is a very great object to be considered; and, in the shifting, it is principally to be observed. For English plank it is allowed; and hath generally been found to answer, that if three whole planks be wrought between every two butts on the same timber, and all the butts to have a fix-feet shift, or be in distance from each other fix feet, the planks will only be twenty-four feet long; this shift is generally followed, excepting for the wales, &c. for ships of every clafs in the royal navy. But as English oak-plank, having sufficient breadth at the tops in that length, has become exceedingly scarce, merchant-ships have the planks...
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Planks divided of various lengths, according to the thickness, as two small and three large planks, in feet and half feet, and two planks between, and four plank ed upwards, to have five feet, and three planks between every two butts in the half. In general, however, to have every butts in the half, and three planks between every two butts in the last. For this purpose, the butts may be divided in a regular manner, for there is no regularity in the work, but the workmen must be instructed, and the planks be twenty-four feet long.

The planks must be wrought of such length, and the butts fluted, in order to give the planked off to the ports and each other. To do this, the planks in midship should have a three-part butts; that is, should allow three butts to each port; being careful, in large ships, to make one butt answer for the pump-half and fore. To affix the conversion, the planks may be wrought top and butt. When the edges of four planks, they have a fair beam in the middle; but if wrought in three planks, let the two lower planks be wrought top and butt, and the upper flake of a parallel breadth.

The thick-stripe, or demulcifying planks, from the lower edge of the water to the thickest part of the bottom plank, being of English oak, is wrought top and butt, and should be fluted from the butts of the water to the regular lengths of the bottom plank as soon as possible.

The plank of the bottom is English oak-plank, as low as the light water-mark, and below that, may be East Country plank of the best quality. The English plank is wrought top and butt, to twenty-four feet lengths at least. Now to break the butts, so as to work East Country plank to advantage, requires care; for, as just observed, the general length of English plank is twenty-four feet, whereas East country plank is from thirty to fifty feet; consecutively, the best way to work a double butts at birth, or one of forty-eight feet in length. It rarely happens that the birth is broken from English plank to East country plank, without introducing two planks between two butts on the same timber in some places; and, it may be admitted, owing to the superior length. Be careful, in fluting the East country plank, to keep the birth as nearly equal as possible, not being confined to butt on one timber, but to make an advantage of drawing the butts having no less than a six-feet flake.

East country plank is wrought of a parallel breadth from ten to eleven inches, excepting forward and aft; for the fore and after-half, that come into the racket should be English oak-plank. Four or six flake near the keel may be in the timbers, adding to the flake clear of the lower part of the keel; and, likewise, that no butt is placed under the pumps, and work them very broad at the poll. The edge of the flake of the fix or eight flake next the keel in East country plank, are rabbetted close: and the flange, dept in tar, is laid between the planks and timbers.

In flaking the fore part of the butts, the breadth of the flake should be doubled, and also the flange of the bow, that every flake of plank may be wrought into the racket; and every flake should be kept from flaying as much as possible. But, in full-bowed ships, it would be impossible to bring every flake to the item without too much waste. It is, therefore, a general custom to have a flake of planks, and two flake ed in the middle, and three flake ed at the fore of the ship, and four flake ed in the middle, and two flake ed at the stern.

The feet of the flake, thickest at the butts, thinnest at the middle, and thinnest at the ends, to afford the water to the ports; and there are two flake ed in the half, with two flake ed in the lower, and two flake ed in the fore. As it is four feet between the ports, it may be allowed sufficient to have a flake of three flake ed, where a plank comes between; or five feet, where two cents between. But that this will not be less than to flake butts, where no plank comes between. The channel and the areas, in large ships, should work down to the flaps at the ports of midships; and, where the flaps work, and are, should work down to as many ports as may have flaps cut, and afford wood to receive the port-hooks, by which the wood to work down be continued in inches each way by it, and the flaps of the ports; hence to have one foot to the regular breadth; but, by all means, let planks run through, if they hold but five inches after the flaps are cut, so that the port-hooks will clear the beam; for planks, however broad, working down to the ports, make that part no stronger than any other.

Forward in wake of the hawse-holes, the planks should be wrought as to have the beam to cut the planks as little as possible by the holes; and care must be taken that no beams come behind the cheeks.

The sheer-plies, as they are the greatest strengtheners of the upper part of the top-side, should have their butts divided with the utmost care, in order to produce the greatest strength between the drifts, and give the flanged flake to each other. They are wrought of parallel breadths, with hook and butts cleared about four feet long between the drifts. The butts afore and abaft may be square, especially behind the channels, which should be of English oak. The others, owing to their great length, must be of East country plank.

Observe, if the channel or sheer-wales are in three flake ed, two of them may be wrought top and butt, to affix the conversion.

In flanking the infinite, attention must be paid that the butts of the planks, sprikitings, and striggings in the wind, should give flake to the butts outside.

Clamps, when wrought of a single flake, should have hook and butt flaked about four feet long.

Gun-deck clamp and sprikitting should have a three-part flake in midships, as should likewise those of the middle and upper deck. Clamps and sprikitings, when wrought in two flake ed, may work top and butt, and on the latter is to come in wake of the pump-half runner.

The clamps of the lower deck can be wrought towards the after part of the ship, free from the beam off the deck, as to clear of the after-half, come to the timber, as it was wrought in the middle, to produce a great flake; but these clamps are lit to produce an easy entry, and some of the after-beams, or course, must face on the clamps.

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However desirable a three-port shift may be with regard to strength, planks of that length are hard to be gotten; therefore, to add security to a two-port shift, let the plank below or above the butt be dovetailed into each timber next the butt, and likewise edgeways, keeping the douls clear of each other.

To design on a plan the body of the ship, shewing the lengths and breadths of all the planks as near as is required for practice, will be found by experience to be necessary; for when the ship is planking, without a plan of this fort to affist, it is requisite to girt the body in several places, to know the number of strakes the bottom will require, in order to work the planks of each quality of an equal breadth, and likewise to know the diminishing of the breadth of the planks forward and aft. To do this satisfactorily, without a plan, is attended with much inconvenience and trouble. It also affords an opportunity of not only shifting the work before it be immediately wanted; but by having the whole height of the bottom and top-side before you at one view, you have a better opportunity of seeing whether the planks are sufficiently clear of each other, which is better than seeing them on the ship's side. And when the ship is planking, if there should be any lengths which may prove difficult, you may, by referring to the plan, see if the butt can conveniently be altered, without prejudicing the shift that is not wrought; some part of which it is likely may be altered to conform thereto.

The bottom may be expanded by the horizontal or water-lines, also by the ribband-lines; therefore, from the sheer-plan, Plate I., may be taken the section of all the timbers, and the lower edge of the rabat of the keel, from the after-fid of the Iftern-port, to as far forward as the rabat of the keel continues straight, that is to timber M; likewise the fear of the keel; all of which are to be let off on the plan of expansion, as in Plate III. Then to expand the square body, transfer the heights of the upper and lower edge of the main-wale, channel-wale, sheer-strake, upper and lower fides of all the ports, the height of the decks at the side, and under side of the plank-strake, from the sheer-plan, Plate I., to the body-plan. Transfer from the body-plan the half-breadth of the timbers at the upper and lower edge of the main-wale, channel-wale, sheer-strake, and under side of plank-strake, to the half-breadth plan, and draw in the lines to their half breadth; which being done, apply to those lines, and also to the horizontal or water-lines, narrow slips of paper, confining them thereto by needles or small pins, from dead-flat forward to square timber O, and from thence abaft to 28; marking upon each slip of paper the elevation of every timber, and its respective water-line, &c. as girted.

In the same manner, girt the timber dead-flat in the body-plan, Plate I., from the inside of the rabat of the keel to the under side of the plan-strake or gun-wale; then mark upon it the heads of the timbers, water-lines, upper and lower edges of the wales, and ports; likewise the decks at the side and under side of the plank-strake. Then square up the elevation of dead-flat, as shown on Plate III.; and upon that line let up the middle of the rabat, to which spot fix, with a needle, the spot corresponding thereto on the slip of paper that girted dead-flat; then upon the line mark off from the said slip the water-lines, heads of the timbers, upper and lower edges of the wales, ports, &c. In the same manner proceed to girt every square timber in the body-plan, Plate I., marking thereon the name of its respective timber. Then fix the spot marked for the middle of the rabat of each girt, to the middle of the rabat of its respective timber in Plate III.
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which will represent the moulding edges of the cant-timbers, the water-lines, wales, &c. Likewise mark the heads of the timbers, as taken from the body-plan, as the slips now lie, which heads may be drawn when the slips of paper are taken up.

The mouldings of all the timbers may then be drawn from their moulding edges, and the openings therein where required for air, or to make the slips of ports, observing to taper the heads of the cant-timbers on the flying-line.

The operation of expanding the after cant-body is so similar to the above as not to need repetition; therefore, supposing the after cant-body to be expanded as far aft as the fashion-pieces and stern-timber, there only remains to be explained the expanding of the transoms.

The buttck-lines being drawn in the further plans of Plate 1., proceed to draw in pencil the moulding edges of the transoms in the half-breadth plan, thus: lay a slip of paper in the direction of the upper edge of each transom in the sheer-plan, and mark thereon where they cut each buttck-line fore-side of the rabbet of the stern-post, and the after perpendicular.

Square down the after perpendicular to the half-breadth plan, and therefrom set off each transom on its corresponding buttck-line, and the rabbet on the half thickness of the post. Then draw curves through those spots, till they intersect the aft-side of the fashion-pieces, and the moulding edges of the transoms will be represented in the half-breadth plan.

Now draw in pencil the transoms and buttck-lines, where they cross the aft-sides of the fashion-pieces in the body-plan, by transferring their heights from the sheer-plan, where they intersect the thwartship view of the fashion-pieces on the aft-side.

Provide narrow slips of paper, as before, and extend one round the aft-side of each fashion-piece in the body-plan, Plate 1.; and mark thereon where the upper sides of the transoms and buttck-lines cross them. Then place other slips round the moulding edges of the transoms, below the wing-transom in the half-breadth plan, marking the aft-sides of the fashion-pieces against which the transoms cut off, and the several buttck-lines, as also the side of the stern-post, or inside of the rabbet, which is the extreme length of the planks when worked. Then extend other slips of paper round the several buttck-lines in the sheer-plan, Plate 1. and mark on them the aft-sides of the fashion-pieces, and the moulding or upper edges of all the transoms below the wing, and likewise the margin-line of the wing-transom, which is the end of the buttck-lines and planks also.

Then place the slips of paper as on Plate 11., tho' for the heights of the transom and buttock-lines to the aft-sides of the fashion-pieces respectively marking their heights, to which fix tho' for the buttck-lines and moulding edges of the transoms to correspond; then move both the latter, till their corresponding spots agree together, and so confine them with pins; then mark the proper edges of the slips of paper, which will give the expanded form of the moulding edges of the transoms, and likewise the buttck-lines as they properly interrelate the transoms. The farthest spots on the papers of the transoms give the boundary of the stern-frame at the inside of the rabbet, and the farthest spots on the papers of the buttck-lines and the margin, of the wing-transom.

In the same manner may be taken off the lower edges of all the transoms, and draw the upper part of the wing-transom, which makes the stern-frame complete.

Take a slip of paper, and place it up the rabbet of the stern-post, in the sheer-plan, Plate 1., and mark on the paper the lower edge of the rabbet of the keel, the three lower water-lines, and the lower edge of the lower transom; then place the slips of paper as in Plate 11., keeping the spot for the lower edge of the rabbet well and the corresponding spots on the keel; and above the slips of paper, till the marks for the water-lines on the lower edge of the transom agree with the spots stated; then, by marking the edge of the plot, the whole will be described, and the boundary of the planks below the transom.

The operation may be performed by the rigid rules, as well as by the way above, as before observed; but in the latter, the cant-timbers, as it has been drawn in the body-plan, Plate 1., in the figure as well as in the text, to level through their proper lengths, which was omitted, to prevent confusion. All the lower planks are represented in Plate 11.

The whole side being now expanded, the planks of the bottom and wales may all be represented, agreeable to the foregoing directions. Likewise, on the top-side we have an opportunity of knowing the distance of every beam from the port-holes, whereby you may judge whether it is better to cut down upon the strakes for the ports, or to work the strakes somewhat broader, to correspond with the slips of the ports. This should be carefully considered, otherwise you will be under the necessity of making a bad shift in the top-side; or be forced to cut down upon the lower strake, that the bolts, which are driven through the lower fills, will be of little use; and also to cut up too much for the upper part of the ports, that there will not be left sufficient wood for the port-holes to bear the weight of the ports; inconveniences which ought to be well considered, before it is too late to alter them.

The strength of the ship, with respect to keeping her from breaking her sheer, chiefly depends on the shift of the planks from the water to the gun-wale, of which the greatest care should be taken to make the best possible, agreeable to the usual lengths of the planks; and likewise that the inboard planks, especially the strake above and below the ports, should be shifted as clear as possible of the outside strakes.

The longer the planks in the top-side are wrought, the stronger must the work be; but then it would be imprudent to work longer than the usual length of the planks, because when the ship wanted repair, you would be forced to cut plank on purpose, and thereby work green plank instead of seasoned. The breadth of the planks should be consulted, before you determine on the number of strakes in the top-side, as before observed; for if the planks are rather narrow, the top-side will look the nearer, and be equally as strong, if not bored too much.

To explain the Profiles, or inboard Works of the 74-Gun Ship, with Observations on the inboard Works of Ships in general, Plate IV.

Sometimes the inboard works are drawn in the sheer-plan of Plate 1.; but when so drawn, they appear so confused, that the best and readiest method is to appropriate a draught for that purpose, as Plate IV., in which every particular will be more clear and conspicuous.

To construct this draught, it will be necessary to take from the sheer-plan of Plate 1. the keel, keel and fairs, stern, stern-post, rudder, counter-timbers, fashion-pieces, transoms, cutting-down line, keel-flom, stern-post, all the decks, and centres of the masts; also the drifft, plank-sheer all fore and aft, the joints of the frame-timbers, and the ports.

The flations of the beams are next to be considered, and should be so disposed as to come one under, and one between, each port, or as nearly so as possible, to answer the other
other works of the ship, as the hatchways, ladder-ways, mail-rooms, &c.; but where a beam cannot possibly be placed under a port, or too wide apart, then a beam-arm, or half-beam, should be introduced to make good the deficiency.

To dispose of the beams, as in the profile, Plate IV., draw a fine pencil line under the deck-line at the side, and parallel thereto, to the mounding of the beams, which is for the gun-deck, 16 inches; upper-deck, 12 inches; quarter-deck and forecastle, 8½ inches; and round-houle, 6 inches. Then place the first beam of the gun-deck under the middle of the first port, or nearly so; the second between that and the third, which takes the heels of the bowspirit-rip; the aft-side of the latter to be 3 feet 10 inches before the centre of the fore-mast; the fore-side of the ninth to be 2 feet 6 inches abaft it; the aft-side of the fifth to be 10 feet 9 inches abaft the centre of the fore-mast, against which are the fore riding-bitts; the aft-side of the seventeenth to be 21 feet 10 inches abaft the said centre, which takes the after riding-bitts; the sixthth comes equally between; the aft-side of the tenth beam plumbs the after-part of the forecastle, or nearly so, and makes the fore-side of the fore-hatchway, which is 4 feet 10 inches fore and aft, and is made by the eleventh beam; the ladder-way between the ninth and tenth beam is 3 feet 2 inches in the clear; the aft-side of the twelfth beam is 5 feet 8 inches abaft the fore-hatchway; and the fore-side of the thirteenth 11 feet; between these two beams are let down the fore-jer capitan-rip. The fore-side of the seventeenth beam is 5 feet 8 inches before the centre of the main-mast, and makes the aft-side of the main-hatchway, which is 8 feet fore and aft, and is made by the sixteenth beam; the eighteenth beam is 9 feet 9 inches in the clear abaft the seventeenth; and the nineteenth 4 feet 10 inches in the clear, which makes the after-hatch; the aft-side of the twenty-first beam is 12 feet abaft the after-hatch; and the twenty-second 5 feet 6 inches in the clear abaft it, which takes the rip of the main-jeer-capitan; from the twenty-third to the thirtieth are about 4 feet in the clear alder. Between the twenty-third and twenty-fifth is the ladder-way to the cock-pit, and hatch to spirit-room; and the twenty-sixth beam should be placed exactly under the centre of the mizen-mast, all the beams having any thing attached to them being particularized. The intermediate ones may be equally spaced between them; and their fiding, which are 16 inches, may now be set off, and each beam be drawn. But as beams are seldom made of less than two pieces, the limber, which are four inches, had better be added to the fiding.

On the upper deck the first beam is placed under the beak-head, to receive the tenons of the beak-head fittations; the second beam must be so fixed, as not to be too much wounded by the bowspirit; the third and fourth about 2 feet 6 inches in the clear on each side the centre of the fore-mast; the others, particularly those that have pillars under them, should be fitioned on to the gun-deck; from the fifth beam to the tenth is let up in the middle 2 inches of the fore-hearth carling, which is 12 inches square; between the tenth and the eleventh beam is the fore-hatch over the gun-deck, abaft which is a ladder-way, and next abaft it the capitan; the seventeenth beam takes the topfiall-fleet-bitts on the afd-side; and the next beam before makes the fore-side of the main-hole, before which is a ladder-way about 4 feet 6 inches in the clear. The eighteenth beam on the fore-side takes the main-jeer-bitts, and the next abaft makes the after-hatchway; between the twenty-fifth and twenty-second is the capitan-room, which should be at least 5 feet 8 inches in the clear, to admit the capitan. From the twenty-second to the twenty-fifth are gratings, and a ladder-way to the gun-room, &c. The transom abaft scores in to the flem-timbers.

The quarter-deck beams having no framing of carlings and ledges as the others below, require nearly twice the number in the same length, and a greater round-up, otherwise they would be apt to bend with their own weight.

The length of the quarter-deck is determined by having the aft-side of the foremost beam about four feet before the centre of the main-mast, and in general receives the tenon at the head of the main-topfiall-fleet-bitts; the second beam is about 4 feet 6 inches abaft the centre of the main-mast, and receives the tenon at the heads of the main-jeer-bitts; of late these bits are clear of the beams above the riding bitts; the other beams, in general as far aft as the mizen-mast, are kept about 2 feet 8 inches in the clear alder. Between the third and fourth beams is a ficit on each side for the top-tackle; from the seventeenth to the twelfth are gratings; and between the eleventh and twelfth a ladder-way for the officers. Fourteen and fifteen are placed about 1 foot 10 inches on each side the centre of the mizen-mast; and the thirteenth 3 feet 6 inches before fourteen, so as to receive the tenons of the fleering-wheel fittations in the middle; the twenty-fourth beam is placed as to receive the tenons of the munion of the screen-bulk-head, and sometimes rounds aft for the bulk-head to follow the round-aft of the stern, or nearly so. Again it the fore-side of the flem-timbers, and scored aft into them, is a tranfome like the deck below, but having a balcony; the deals run aft to form the fame.

The forecastle beams should be four more in number than there are in the upper deck, in the length of the forecastle; and where a wide opening occurs, such as the mail-room, a half-beam should be introduced, to make good the deficiency. The cat-beam is so placed that the fittations of the beakhead-bulk-head may face on the fore-side 1½ inch; and when the cat's-tail comes in upon the forecastle, and is secured thereon, it must be three-feet fided, as it requires a rabat of five inches on the afd-side to receive the ends of the deals; but of late years the cat's-tail now is under the beams, which greatly assists the conversion of the cat-heads, and makes more room on the forecastle, and consequently the beam need be no larger than the others, whereby a great weight is taken off this part of the ship. Between the first and second beam is a ladder-way about three feet in the clear. The third beam is two feet before the centre of the fore-mast; the main-topfiall-fleet-bitts come on the fore-side, and the heels upon the upper deck. The fore-side of the fourth beam is three feet abaft the centre of the fore-mast, which allows for the fore-jer bitts to come on the fore-side of the beam; and their heels should cut outwards sufficient to lead the fore-tack ast clear of the galley. From the sixth to the eighth beams are the gratings over the galley; on the fore-side of the ninth beam is the ficit for the fire-hearth funnel; between that and the tenth, the fream-grating over the boiler; and on the after-beams was a cupola, or belfry for the bell, but that of late has been removed to the fore-part of the quarter-deck, between the main-topfiall-fleet-bitts, in the royal navy.

The round-houle beams are smaller than those of the quarter-deck; therefore, let the number of beams on the round- houle be two, or more, in number than in the same length of the quarter-deck. The round-houle should always have a great round-up, both for strength and convenience.

With regard to placing the round-houle beams, we have only to attend to the foremost fitation of the fleering-wheel, so as to receive the tenon at the head: the mizen-mast must also have a beam about 20 inches on each side the centre.
centre. Before the mast is a small pair of huts for the marine-capitalists; and over the ridge of the captain’s lobby is a companion with glass-stairs; but lately all-natives of glass are let into the deck, which are found more convenient. The intermediate huts may be placed on either deck under, letting the beams over the deck, bulk-heads have a proper round-arch, agreeably to the quarter-deck beam underneath.

The beams of the several decks, as taken from the floor-plan, Plate I., being determined, those of the ship only remain to be fixed, that is, from the upper side of the gun-deck beams 7 feet 1 inch, for the lower side of the arch, but at the plate-room forward and abaft are laid with three-inch deal or planks. They may be kept as much below the range of the other beams, that is, from forward to member number six, and in the twelfth to the after-beam, which is immediately under the twenty-seventh beam of the gun-deck.

The beams of the orlop-round-up 24 or 2 inches thick, and should be placed directly under the middle of the gun-deck, except the second beam from forward, which may be equally spaced between the first and third. Between the tenth and the eleventh beams is shown the capstan-flop, &c., for lowering the fore-carpet down on the orlop occasionally; but this has been left in the new yard. The fifteenth and sixteenth beams take the well-bulk-heads, and till of late years was enclosed by a lower-board bulk-head from the orlop to the gun-deck, but is now only laid over with gratings. Between the twelfth and twenty-first is a hatch to the spirit-room, and between the twenty-second and twenty-third, a hatch to the coal-hole.

Below the orlop are the works in the hold: such are the breast-hooks from number one to six, the floor of the orlop being made by the fifth and sixth hooks, and framed by carlings. These looks stand square with the body, but the looks under the gun-deck and upper deck lay with the floor of the deck; there is likewise a look under the after-beam. The magazine and large room extend from the after-side of the first beam of the orlop to the after-side of the sixth, which takes the head of the after-rigger-bins. Next abaft the magazine, the bulk-head are fire-rooms to the fifth-side of the eighth beam, and under those a blow-locker. Close abaft the main-hatchway is the pump-well, included with a bulk-head of three-inch plank, about five feet fore and aft, and eight feet athwartships in the clear. No well in the ship, the best for the mast-male, and the pumps on each side; and adjoining the well, on the fore and after-riders, are blow-lockers about two feet in the clear. On the fore-side of the twenty beam is the bulk-head of the spirit-room, which extends to the after-side of the twenty-second beam, and on the fore-side of the twenty-third beam is the bulk-head of the coal-hole, and part of the powder-room, which extends to the after-side of the twenty-fourth or after-well, from the orlop cannot extend further aft, but sufficient space would not be left for the bread-room. On the fore-side of the after-beam of the gun-deck is a bulk-head, which terminates the breadroom, and all space abaft its the true called lady’s-hole. Close before the powder-room, bulk-heads are a crutch; and two more crutches are spaced abaft the powder-room.

In the profile, Plate IV., is represented the method of connecting the sides and beams together by knees and adzes, as used when that plate was engraved; but owing to the great rarity of knee-timber face, that time, other methods of connecting the sides and beams together have been adopted, which will be more noticed hereafter, under the head of arrangements and profiting in the building of ships.

In the hold it is customary to place the orlop under the beam at the deck of the orlop, and the after-beam under the beam. In the middle, the beam under the beam before the main-male, and the main-hatchway between the lower and the lower-deck-hatchway. The beams extend about twelve feet on each side beyond the hold, and about one foot four inches square.

First orlop-riders are from six to eight feet, on the side of each floor-deck, and are in the form of the lower orlop-riders. Observe, in shifting the riders, that they come clear of the pump, and of each other, otherwise they will cast shoreways, as at the nineteenth beam of the orlop.

A long carling 14 inches deep and 12 inches broad, is nailed up two inches on the outer side of the first floor-deck beam, or to the beam before the main-timber, and connected to the hawse-see by an iron plate on each side of the after-end, the bolts being driven through, and clinched on each plate alternately.

The inboard wall being described in profile on the several decks, it is necessary also to represent them on each plan of deck.

Instruments for describing the Plans of the Decks. Plates V. and VI.

Transfer from the floor-plan, Plate I., the heights of each deck at the side, at every timber, to its corresponding timber in the body-plan; then upon each plan draw the deck line, and therefore square up the heights of all the timbers, as taken from the floor-plan. Next transfer from the body-plan the breadth of each timber, and the height of the deck is to be drawn, and let them on each side the middle line, at its corresponding timber and plate; but in Plates VI. and VII., half the deck only is represented; then transfer from the floor-plan, where the deck intersects the side of the stem and fore-foot at the rudder, in Plate VI., and the last line set of half the extra of the 44th beam line off. A curve drawn through the breadth, as set off, ending in the rudder face and abaft, will represent the side of the timbers; the breadth, in the fore-foot of the 44th beam, and drawing another curve thereon, gives the boundary of the deck at the side, and determines the length of the beam.
Upon each plan square down the sides of the ports and beams, and centres of the masts and capstans, from the profile, Plate IV.

Thus far the plans of the decks are general; but as each deck is very differently fitted, it is necessary to have a half-plan of all at least, and what little difference there may be on the opposite side, let the explanation suffice.

In the plan of gun-deck, Plate V., is shown not only the upper sides of all the beams, and the method of tabling them together in two or more pieces, as then customary, but now douelled instead of tabled; those in middhips, being the longest, are made of three pieces; and those where they are shorter, as at the twenty-sixth beam, are in two pieces; those in three pieces have the middle piece feared to each arm. The method of connecting the fides with hanging and lodging-knees is likewise shown in this plan, with the iron lodging-knee behind the rider, (engraved hanging by mistake,) as at the fifteenth and sixteenth beams. The beam-arms at the main-hatchway and mail-rooms are represented as tabled into their adjoining beams, the seventeenth and eighteenth. The framing of the deck to receive the flat having three tier of carlings, nearly all fore and aft, with a sufficient number of ledges let into them parallel with the sides of the beams, is also represented here. The framings in the middle are the main-partners; those for the fore-masts to be formed by the standard against the fore-side of the fore-riding-bitts, the inside of which must be kept half the diameter of the mast, and five inches more for the wedging, and to extend from the bitts to the top of the bow-sprit; the cross-chocks, which frame the mast-hole athwartships, are to be eight inches thick, and kept at the main distance on each side the centre of the mast, and rabbet into the partners: the main-hole is made eight square, but now circular, by corner-pieces rabbed to half their thickness into the partners and cross-chocks: on the fore-side of the fifth beam is a cap-scuttle about two feet square, and another abaft the sixth beam for handing up cartridges, &c. from the magazine. The fore-riding-bitts are 1 foot 8 inches square, and placed four feet afunder, or two feet each side the middle line: the after-riding-bitts are of the same size, and placed 4 feet 6 inches afunder, and the standard against their fore-sides extends to the fore-riding-bitts: the cross-pieces abaft the riding-bitts are 1 foot 6 inches fore and aft, and two inches less deep, and the face-pieces on their aft-sides are of six inches thick. The framing on the main-hatchway and ladder-way consists of coamings 1 foot 6 inches above the beam, that is, the lower piece to be 9 inches deep and 10 inches thick, and the upper piece 9 inches deep and 7 inches thick, douelled together, and spread in the clear 4 feet 8 inches; and the head-ledges to be 7 inches thick, scored and tailed into the coamings, and to round-up above the latter, after the rate of 2½ inches in six feet of length. The capstan-partners are here framed as on the upper deck; but as this method of lowering the fore-jer capstan is discontinued, let it be framed as the main-jer capstan. The main-mast partners are framed similar to the fore partners, the carling being 1 foot 5 inches broad, and 1 foot 6 inches deep. The chain-pumps are represented on the plan as fitting the pump-cafes through the main-partners, and the back-cafes without; the fprocket-wheel and spindle-work in boss rhodins or gudgeons, let into the top-fall-feet and jeer-bitts, and the winches also in the pump-pillars. The main-hatchway is 6 feet 4 inches athwartships, and fitted with coamings and head-ledge as the fore-hatchway. The after-hatchway is the same as the fore-hatchway. The flap for the main-jeer capstan is 1 foot 10 inches broad, and 1 foot 5 inches deep, to be scored down between beams 21 and 22, and lap thereon 8 inches above the beam, with broad carlings on each side to receive the bolts of the pall-rim: in the middle of the step is an iron cap to receive the spindle. The hatch to the Spirit-room, and ladder-way to the cock-pit, are framed as the fore-hatchway. The mizen step to be 1 foot 8 inches broad, and 1 foot 4 inches deep, and beared down between beams 25, 26, and 27, two inches. The bread-room scuttle, which is 2 feet 4 inches square, is on the larboard-side, and is framed with coamings and head-ledge, with a cap or top as high above the deck as at the hatchways: on the starboard-side abaft is a scuttle about two feet square over lady's-hole, and another 1 foot 8 inches square over the scuttle to the magazine. On the gun-deck, in the middle of the three or four after-beams, is a standard, fitted 12 inches, the upper end to say against the transoms, as high as the helm-port transom.

A 'skate without the coamings at the main-hatch is represented, the binding-'skates all fore and aft, which are to strengthen the deck, as they are weakened by the hatchways, therefore the butts should be shifted clear of them: in the inner 'skate are driven the flopper-bolts. Forward is shown the moulded fize of the deck-hook and raking, also the plan of the half-way-plates and manger, with the flanions.

On the same plate is drawn the plan of the orlop, with its several conveniences. On the fore-platform, which extends from the fore-peak to the fore-hatchway, is the boatswain's cabin on the larboard-side, with such another for the carpenter directly opposite; and before each is a flour-room, to hold their respective flores; before the boatswain's flour-room is a flour-room: between the fore-riding-bitts are two doors, one leading to the light-room passage on the larboard-side, and that on the starboard-side to the magazine and gunner's flour-room. Cloae before the heel of the larboard foremost riding-bitts is a cap-scuttle, inclosed, to hand up filled cartridges; and on the opposite side a flat scuttle to the magazine, likewise inclosed; at the end of the light-room passage is a scuttle to the light-room: abaft the riding-bitts are scuttles to the boatswain's, gunner's, and carpenter's flour-rooms under the orlop. The fore-hatchway is of the same size, and immediately under that on the gun-deck, but has only a flat framing round it, to take the hatches that cover it. The beams of the orlop are rabbed on eacg edge to receive the flat, which is only oak boards ½ inch thick as far as the after-platform. The midship flour-room now extends from the main-hatchway to the fore-hatchway, and is framed round with pillars upon a carling ten inches deep; and as the capstan-room is not used, the gunner's cabin is made at the fore-part. The main-hatchway is of the same size as that over it, and is framed round as the fore-hatchway. The well is not inclosed, as shown on the plan, but at present is laid over with gratings. The after-hatchway is of the same size as the hatch over it, and framed like the others. Between the beams 21 and 22 is a double hatch to the Spirit-room, and one next abaft it to the coal-hole. On the fore-side of beam 23 is the bulk-head of the cock-pit, and abaft it inclosed are two fultons, one to the powder-room the other to the light-room.

On the larboard-side abaft is the steward's room, abaft which is the bread-room; and the interval between the steward's room and light-room bulk-head is the steward's bed-place and racks for flowing cheese: next before the steward's room is the purfer's cabin, before that the flop-room, and next to that a compartment for the marines' clothing. From the steward's room, to nearly forward on each side, are the wings, or an open space about 4 feet 6 inches from the side, sufficient to swing a mall, if necessary, to plug up shot-holes in the time of action. From the steward's room to the marines' clothing
is built up with a bulk head of 14-inch deal, and the top of the forecastle's cabin forward, and between these, with its rooms and whole deck battens or lattice work. On the forward side, opposite the forecastle's cabin, and first lieutenant's room, and between the captain's cabin, is the fore- and main-mat, and it is fitted up for the doctor's and forecastle's cabin. On this plan it is customary with a different colour to mark the places of the work in the hold; and to distinguish them on the plate, they are represented by fine-tinted lines.

Under beam 1 is a bulk head for the boundary of the light-room, together with its plan, and also the magazine lights, jambers, and planks, (to show the layers of light more into the magazine). The magazine is surrounded by a strong bulk head of three-inch planks, the edges rabbeted together, the inside of which is doubled with flat deal, so as to cover each joint, and on the outside with flat deal, and a thick coat of mortar under it. The flat of the magazine is first laid with three-inch planks, caulked on beams underneath, upon which are fastened, with copper planks, the pallating beams, framed together at right angles, about three feet distant: the upper edges are rabbed to receive the flat, which is 14-inch deal, lined on the under side. The bulk head at the side, which forms the webbing, is contrived with panels, and rabbed flanneaux to receive the panels: in the fore part of the magazine are midship the filling-room, which is lower than the surface of the flat about twelve inches: this is lined with head, as it is the place where the carriages are fitted, (hence its name,) for greater security: as it is close abaft the lights, glass fashes extend across, guarded with a copper wire-net work; in the sides of the filling-room are racks for filled carriages, and a compartment behind them for flaves of empty barrels. The powder barrels are flowed upon durance battens, over the pallating flat, which is parted off from the filling by an open bulk head of flanneaux and battens. Magazines are now only fitted up to receive barrels with carriages already filled.

Abaft the magazine are a store room for the boat, on the forecastle side, in midship, a store room for the gunner, and under that a shot locker; and on the forward side a store room for the carpenter.

Next abaft the main hatchway is the plan of the well, and shot locker abreast and abaft it. Under the fore side of the beam is the bulk head of the magazine, and under the aft side of the beam is the bulk head of the coal hole: its after bulk head is under the fore side of the beam, which also makes the fore bulk head of the powder room, which is lined both round with a bulk head similar to that at the magazine forward; likewise the light room, and pallage to the powder room, which is fitted up with racks for flowing filled carriages, as represented in the plan: abaft the powder room bulk head is occupied for the bread room, to the bulk head for lady's scullery.

On Plate VI. is represented the half plan of the quarter deck, well, and forecastle, likewise the half plan of the upper deck. On the plan of the upper deck is shewn the beak head flanneaux, whose sides are rabbed to receive the bulk head: the midship flanneaux to be about 2 feet 6 inches each side, and 12 inches square as high as the flat of the beak head: they tenon at the heel into the foremost beam of the upper deck, and receive into their outsides the tenon of the collar carling, which is of the same size as the flanneaux, having its upper side well with the flat of the beak head, which is of the same height as the lower fills of the ports. The midship flanneaux to be 68 inches square above the
cells, and the other flanneaux, which are about a foot on each side, are all 66 inches square, and all fitted into the cast beam. The two side flanneaux are placed either to the spread of the main- and fore-mast, as far as may be kept far enough out that the fore head can readily be abaft to make the head of the port: the next flanneaux makes the head down: on the midship side of the beak head is a skate, with a flap below it to lead in the fore deck. The heels of all these flanneaux to enter into the collar carling with a double step.

The framing of the fore- and main partners are shown, as directed, for the main partners on the gun-deck, on the outside of which are the heels of the fore sheet and jib-battens; the heel of the former to spread sufficiently from the middle line to lead the fore deck clear of the gally, having a flare fitting into the frame for that purpose. Abaft the fore main partners are the cants for the gally, which is included abaft by two doors.

The fore hatch and ladder way to be framed, as directed, for the main partners on the gun-deck, on the outside of which are the heels of the fow deck, and main-battens: the heel of the former to spread sufficiently from the middle line to lead the fore deck clear of the gally, having a flare fitting into the frame for that purpose. The heels of all these flanneaux to enter into the collar carling with a double step.

The framing of the fore- and main partners are shown, as directed, for the main partners on the gun-deck, on the outside of which are the heels of the fore sheet and jib-battens; the heel of the former to spread sufficiently from the middle line to lead the fore deck clear of the gally, having a flare fitting into the frame for that purpose. The heels of all these flanneaux to enter into the collar carling with a double step.

The framing of the fore- and main partners are shown, as directed, for the main partners on the gun-deck, on the outside of which are the heels of the fore sheet and jib-battens; the heel of the former to spread sufficiently from the middle line to lead the fore deck clear of the gally, having a flare fitting into the frame for that purpose. The heels of all these flanneaux to enter into the collar carling with a double step.

On this plan the flat of the deck is represented, and the several butts shifted: close to the side are the water ways, five inches thick, and the first stroke of oak, which is cut off between the riders: the next 4 strokes are also English oak in the water of the guns, shifted in short lengths, and anchor locks, or top and butt, to affix the conversion. The rest of the deck is three-inch Prussia deal, except the binding

flanneaux, which are the second and third, without the main hatch-coamings, and under the forecastle: the decks must be so shifted as to work their whole length, or great waste will occur, that is, 30, 36, and 40 feet lengths. The mizen partners are framed with a carling on each side, and corner pieces as high as the beams, and the flat round them 8 oak, five inches thick.

Close up under the beams is represented the tiller, as fitted with the horn loop over the end, for keeping up the tiller rope in the sweep, and a loop abaft it, with eyes in it, through which the rope is recoiled, to be set up by tackle or to the eye bolts: further aft, at the end, are iron rods, which are bored through the beam, to keep the tiller afloat. At the fore end, on the upper side, is an iron gooseneck, which traverses the sweep, and keeps up the fore end; the rope traverses the sweep in a groove, and is led up to the wheel on the deck above by flannels fitting at the end of the sweep, and the blocks after the mast represented by the ticked line.

Sometimes abaft, where the side is to round to have riders, iron standards are fitted, as on beams 26 and 27.

On the beam, before the mizen-mast, is the bulk head of the ward-room fitted with double doors on each side.

The knee of the mizen mast prevents the hanging of a door at the side of the round houses forward; they are therefore included with a bulk head, and a door on the aft side.

On the plan of the forecastle is shewn (as was the practice when the plate was engraved), the construction of the life rail, as let over the heads of the beak head flanneaux,
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with the chafe-port and upper part of the round-houses; also the plan of the cat-head, cat’s-tail, and the knee abaft the cat-head. Between the cat’s-tail and the fore-mast is framed in midhips a ladder-way, and round the fore-mast are the fore-top-fail-fleet and jear-bitts, with their cross-pieces; on the sides of the masts the check-blocks, or they must be provided very large, to receive all the staves necessary for sheets, braces, &c. Abaft the fore-mast, on each side, is a scuttle for the top-tackles to lead through to hook on an eye-bolt on the upper deck. Over the galley, in midhips, are framed the steeam-gratings; and between them coamings for the chimney-funnel. At the aft-part of the forecastle are represented the belfry-bitts, with the knees to support them; and over the breast-beam are shown the foot-rail and flanions, as then used, but now discontinued.

Along the waist into the side, instead of gang-boards, as formerly, the deck is continued from forward to about seven feet three inches from the side; likewise the flat is continued along the midhips, five feet three inches on each side the middle line, except an opening over the main-hatchway.

Upon the plan of the quarter-deck is shown the plan of the breast and foot-rail over the breast-beam, with their flanions, now rendered unnecessary by continuing so much of the deck along. On each side of the main-mast is a flat scuttle for the pumps to be passed through; and on the after-side of the beam abaft the mast are the brace-bitts. Abaft the brace-bitts, on each side, is a flat scuttle, for leading through the main top-tackles to an eye-bolt driven in the upper deck. From the seventh beam to the twelfth the space is framed for gratings, and a ladder-way, as before directed, five feet four inches in the clear. Between the fourteenth and fifteenth beams are fixed the steering-wheel and its flanions; in the next opening is the mizen-mast: the partners are formed with thick-stuff, as at the upper deck. On the beam abaft the mast is the bulk-head of the lobby and bed-place; and on the twenty-first beam the bulk-head of the captain’s cabin: between these bulk-heads are a fore and aft bulk-head that part the lobby and bed-place; and on the twenty-fourth beam is the screen-bulk-head. The latter is unnecessary when there is no walk or balcony abaft.

A plan of the round-house is not wanted, as, besides its beams and ports, there are only the mizen-top-fail-fleet-bitts on the fore-side of the beam before the mast, and taffrail-knees abaft: when an open stern, illuminators instead of a companion are let into the deck.

Explanation of the Methods of Laying-off all the Parts of a Ship on the Mould-loft Floor, preparatory to the actual Building of the Ship.

The sheer-draught, Plate I., being completely drawn upon paper, mostly to a scale of a quarter of an inch to a foot, as before observed, or forty-eight times less than the real size of the ship, it remains to expand it to that size on the mould-loft-floor; but the latter is seldom long enough to admit the laying-off of any large vessel in one length; in small mould-lofts they must of course lay-off in three or four lengths. Indeed, to lay-off in one length would cause unnecessary waste of time; for many of the joints of the timbers, or perpendiculars of the fore-body, answer alike for the after-body.

Laying-off. Plate VII.

Plate A may be said to represent the mould-loft-floor in miniature, by the same scale as Plate I.; but here, to prevent confusion, the different plans are shown separate, but on the floor in the groups: the several plans are laid off one over the other, which, to the practitioner, is perfectly clear.

The mould-loft-floor being cleared, begin by striking a straight line from one end to the other, as A A in the above plate, in distance from the side of the loft as much as the keel is deep. This line will represent the upper edge of the rabbet of the keel in the sheer-plan, fig. 1, above which all the heights are to be set up, and it will represent also the middle line of the half-breadth plan, fig. 2.

Proceed now to lay-off the fore-body, by transferring from the sheer-plan, Plate I., and erecting from the line A A, to the right-hand, the several perpendiculars or joints of the frames (Q, B, D, F, H, K, M, O, Q, S, U, X; and the fore-mast-perpendicular, and likewise frames 2 and 4 abaft Q). This must be accurately done, so as not to exceed the room and space.

Now describe the stem, as in Plate VII., fig. 1, supposing it of the full size, by setting up from the line A A the height of the centres from Plate I., and the nearest distance thereon from the adjoining perpendicular, as at Q, Q; by which radius the fore and after sides are swept, likewise the rabbet in the middle, from the keel upwards to S. Then set up the height of the head, or upper part, and its distance forward from the nearest perpendicular; then, by pinning a batten to the flots laid off, and to the curves already swept, the item will be formed likewise.

Transfer from the sheer-plan, Plate I., the heights of the lower and upper height of breadth-lines from the line A A, as in Plate VII., from the perpendicular 4 to the item; then, by pinning a batten to those heights, produce the fair curves E and F.

Let the outlines of the fore-body-plan, Plate VII., fig. 3, be represented, that is to say, the middle line by the line A A; the base line, or upper edge of the keel, by one of the perpendiculars; then will the outside line, R, be parallel to the line A A: at the moulded breadth at dead-flat (as few mould-lofts are broad enough to admit the height of the timbers as in the plate,) strike in the half-fiding of the item S from the middle line.

The main half-breadth line may now be laid off, by transferring it from the half-breadth plan, Plate I., to its corresponding timbers on the floor, from the line A A; and to end this line at the item, take the height in the sheer-plan, fig. 1, where the lower height of breadth-line intersects the aft-side of the rabbet of the item, and transfer it to the middle line of the body-plan, fig. 3; and from thence take the half-thickness of the item, and set it up from the middle line of the half-breadth plan upon a line squared down from the aft-side of the rabbet of the item, at the lower height of breadth in the sheer-plan. Then, by pinning a batten to the several half-breadths set off, and to its ending at the item, we form the fair curve D, as in Plate VII., fig. 2, or main half-breadth line.

Observe, when the batten is pinned, to look along it strictly, and see that its edge produces a fair line: this must be always understood, and therefore need not be repeated.

Transfer from the sheer-plan, Plate I., the heights of the centres for the radius of the floor-sweeps of the fore-body to the floor, and by pinning a batten thereto, produce the line B in fig. 1.

Transfer from the half-breadth plan, Plate I., the rising half-breadth, or narrowing of the floor-sweeps of the fore-body, and by pinning a batten thereto, produce the line B, in fig. 2.

Transfer from the sheer-plan, Plate I., the heights of the top-timber-line to the floor; and should the floor not be broad enough to admit the whole heights, set them up their
their respective timbers from time straight line, A A A.

Then, having marked the several lines laid off with their respective names, proceed to lay off the fore-body, fixing on some convenient part of the floor, marks the line A A A.

Plate VII. fig. 1, serves for the middle line M, Plate VII. fig. 3, and one of the projected lines for the bale line, or upper part of the keel, as before observed. The diagonal lines in the body-plan are not used in laying off the body on the floor, and taking the bevellings of the several timbers, but are of very principal use in the actual building; for at their flatters the ribs and harpins, which keep the whole frame of the ship together until the planking is brought on, their situation with regard to the heads of the timbers must be determined; it consequently follows, that a particular explanation of them is necessary.

The floor-head diagonal marked C in Plate VII. figs. 3 and 5, terminates the length of the floors, hence its name. The placing of this diagonal is of the utmost consequence to the strength of the ship, it being near the bridge, or that part which takes the ground, that it consequently is always liable to the greatest strain. It should, therefore, be placed as much above the bearing of the body in midships as can be conveniently allowed by conversion of the timber; but, afore and abaft, it is not of so much consequence. Bevellings are taken at this diagonal as far forward and aft as the floor extends.

The diagonal marked B in Plate VII. figs. 3 and 5, is placed in midships eighteen inches to two feet, according to the size of the ship, below the head C; it is the situation where the floor-ribband is placed in midships, and likewise the floor-harpin forward. Bevellings are also taken at this diagonal, all fore and aft, from which it is termed the floor-ribband.

The lower diagonal, marked A in Plate VII. figs. 3 and 5, is situated generally in the middle between the keel and floor-ribband; at which place the lowest bevellings of the timbers are taken.

The diagonal marked D in Plate VII. figs. 3 and 5, is situated in the middle, between the floor-ribband and first footlock-head, at which place a ribband and harpin are necessary for the security of the first or lower footlocks, and hence called the first footlock-ribband.

There are also bevellings taken at this diagonal, all fore and aft; which, being the part of the body where the timbers most vary, occasion them to be the greatest bevellings in the whole body.

The diagonal marked E in Plate VII. figs. 3 and 5, terminates the heads of the first footlocks, and is therefore called the first footlock-head; it should be spaced about seven feet above the floor-head, in order to give sufficient scarf or shift to the lower part of the second footlocks. Bevellings are likewise taken at this diagonal, all fore and aft.

The diagonal marked F in Plate VII. figs. 3 and 5, is situated in the middle, between the first footlock-head and the second footlock-head, at which place a ribband and harpin are necessary for the security of the second footlocks, and hence called the second footlock-ribband. Bevellings are also taken at this diagonal, all fore and aft.

The diagonal marked G in Plate VII. figs. 3 and 5, terminates the heads of the second footlocks, also the heads of the third footlocks.

The diagonal marked H in Plate VII. figs. 3 and 5, is situated in midships in the middle, I mean the tack-head and the third footlock head, at which place the ribbands and harpins are necessary for the security of the third footlock, and hence called the third footlock-ribband.

Observe, when the harpin is placed low enough at the keel, that the wales may be worked before it is taken down, or it may fly up like the other, and not come home to the timbers. Bevellings are also taken at this diagonal, all fore and aft.

The diagonal marked I in Plate VII. figs. 3 and 5, terms the heads of the third footlocks, and is therefore called the third footlock-head, and should be spaced about seven feet above the second footlock-head, to allow giving the same shift to the fourth footlocks as the other footlocks have. Observe, such third footlocks are sometimes taken under the gun-deck ports, must be continued upwards to the upper part of the ports, if possible to be gotten. Bevellings are also taken at this diagonal, fore and aft.

It must be observed, that the diagonals for the ribbands, as above described, must all be drawn in pencil on the body-plan, Plate I.

A ribband and harpin are also placed all fore and aft below the gun-deck and upper deck ports, and one likewise at the top timber-line, as at M, N, and O, Plate VII. figs. 3 and 5, which, with the ribbands and harpins before mentioned, keep the whole framing of the ship together to its true model.

Having described the diagonals, and struck them across the fore-body on the floor, as in Plate VII. fig. 3, the several timbers may be completed, by first transferring the lower height of breadth-line E from the sheer-plan, Plate VII. fig. 1, from G to X, to the fore body-plan, fig. 3, and striking horizontal lines at each of those heights across the body-plan, as at K; then transfer the main breadth of each timber from the half-breadth plan, fig. 2, upon their corresponding heights from the middle line of the body-plan, fig. 3. Then by taking the radius or length of the lower height of breadth-line E from the fore body-plan, Plate I., of timber dead-diet, set it off upon its lower height of breadth-line, and it will sweep downwards nearly as low as the lecued footlock-head; in the same manner, proceed with all the timbers to Y.

Take off the half-breadths of each timber in the fore body-plan, Plate I., from the middle line on the diagonal floor-ribband, as far forward as X, and set them up from the middle line of the half-breadth plan, fig. 2, upon their respective timbers; then, to end it at the stem, transfer the height where it intercepts the half-thickness of the stem in the body-plan, fig. 3, to the fore part of the rabbet of the stem in the sheer-plan, fig. I.; from thence square it down to the middle line of the half-breadth plan, fig. 2. Take the half-thickness of the stem in the body-plan, fig. 3, on the diagonal, and set it up from the middle line of the half-breadth plan, fig. 2, upon the line last squared down; and from thence sweep an arc the thicknesses of the bottom plank taken on the diagonal, the after part of which arc is the ending of the fore part of the floor-ribs. Then, by pinning a batten to the several half-breadths, and to the back of the arc or ending, the floor-ribband will be laid off.

In the same manner proceed with the ribs or diagonals.
D, E, and H, fig. 3, as you find ticked from @ to the item in the half-breadth plan, fig. 2, to their respective diagonals in the body-plan, fig. 3.

Set up 11 feet from the base line in the body-plan, fig. 3 and 4, and strike a line parallel thereto, which is the height of the centre of the floor-sweep at dead-flat. Then take the heights in the sheer-plan, fig. 1, for the centre of the floor-sweeps B, from B to K, and let them up in the body-plan, fig. 3, above the centre at dead-flat, and at each height strike level lines. Then take the half-breathths in the half-breadth plan, fig. 2, of the centres of the floor-sweeps B, and let them off on their corresponding heights from the middle line in the fore body-plan, fig. 3. Then, with a radius at the centre in the body-plan, to its corresponding half-breadth on the diagonal floor-ribband, sweep the curves of the several timbers at the floor-head, from @ to K.

Having swept in the various curves below the lower height of breadth, and at the floor-heads, pin a batten to the half-breathths, as set off on the diagonals for dead-flat, and the back of the above sweeps; continue it with a small curve or hollow from the sweep at the floor-head to the rabbet of the keel, which completes that timber from the lower height of breadth to the keel. The fame proceed will complete all the timbers. With regard to the heeling of the timbers exactly, set off the half-thicknes of the keel from the middle line in the body-plan, fig. 3, on the base line, and parallel thereto to its depth; then with compasses, opened to the thicknes of the bottom planks, sweep two arcs, so as to form the triangle at the outside on the upper edge, and it will be readily seen that the timbers along the midships will end at the outside of the rabbet; but as they approach forward, they will end on the inside of the rabbet; and as the keel tapers at the fore-end, they must be heeled sufficiently within the keel to admit the thicknes of the plank; then to heel the timbers that rise on the item, transfer their heights where they cut the outside of the rabbet of the item in the sheer-plan, fig. 1, to the half-thicknes of the item in the body-plan, fig. 3; from thence, with compasses opened to the thicknes of the bottom plank, sweep an arc inwards, the back of which is the ending of the timber, and a line squared from the timber to the height set off on the outside of the item represents the rabbet in that direction.

The fore-body being completed below the lower height of breadth, the upper part, or top-side, may be laid off by transferring the upper height of breadth line F from the sheer-plan, fig. 1, at each timber from dead-flat to X, to the body-plan, fig. 3, and striking level lines across at each height. Continue upwards each timber parallel to the middle line, from the lower to the upper height of breadth. Then, with the radius of the upper-breadth sweep taken from the body-plan, Plate I., sweep upwards every timber from its respective upper-breadth line, from dead-flat to O.

Transfer the height of the top timber-line I, from the sheer-plan, fig. 1, at every timber, to the fore body-plan, fig. 3, and strike in level lines at every height; then take the top-timber half-breadth from the half-breadth plan, fig. 2, at every timber, from dead-flat to X, and set them off from the middle line of the body-plan, fig. 3, upon their respective heights. Then, by a mould made to the hollow or tumbling-home of the top-side, and upper-breadth sweep at dead-flat, and a few feet above the top-timber-line, every timber from dead-flat to O may be formed on the floor by lowering or raising the mould as to agree with the upper-breadth sweep, and the half-breadth, as set off on the top timber-line. But the timbers before O must gradually par-

take of the hollow of top-timber X, which falls outwards considerably from a perpendicular at its main-breadth, though parallel to the middle line above the height of the top timber-line to the top of the side, which must be transferred from the sheer-plan, fig. 1, to each timber respectively in the body-plan, Plate VII. fig. 3. Pin a batten to those several heights, which will form the curves O and P, as in fig. 3. Take square from the middle line in the body-plan, fig. 3, the half-breathths of all the timbers at the top of the side, and set them up on their corresponding timbers from the middle line in the half-breadth plan, fig. 2; seeing that it makes a fair curve. The fore-body may now be laid off above the main-breadth, which completes the whole of the square fore-body, fig. 3.

The correct height of the knuckles of the timbers at the beak-head requires some attention; for if they were carried too high, the sheer of the ship must be lifted; or, if kept too low for the sheer, the timbers must be reduced to raise the knuckles; therefore determine what part of the sheer-trakes shall come well with the knuckles; for if the knuckle was to come in the middle of either sheer-trake, the foreship of it must then be wrought, taking a large piece of timber and much labour. In Plate VII. the upper edge of the sheer-trake is well with the knuckle. Another consideration to be taken into this account is the lifting the sheer forward, that it may have the same appearance on the ship as is designed on the draught; for if not lifted gradually some inches higher towards the stem, the curvature of the bow will make it appear to drop below a fair curve.

To know how much the sheer of the ship requires to be lifted forward has sometimes been resolved in this manner. Prolong the sheer of the wale before the stem in the sheer-plan, fig. 1, at pleasure; then pin a batten to the round of the bow at the main half-breadth, in the half-breadth-plan, fig. 2, and mark on the batten the flat planes of the sheer timbers and the side of the item; then pin the batten to the sheer of the wale in fig. 1, keeping the flat planes of the timbers, as marked on the batten, well with those near dead-flat, where they will not alter; then mark the other timbers, and the item on the sheer of the wale line prolonged, and level them as, to intersect their corresponding timbers and the item; then a batten pinned to those intersections will give the curve for lifting the sheer of the ships round the bow. Thus as the forepart of the bows of ships are so very different, it cannot be recommended as an undeviating rule, and therefore must be referred to practice; however, it is requisite to make an allowance for it in the laying-off of all ships, as the decks, sheer-trakes, and consequently the knuckles of the timbers, all partake of the necessary additional height.

The sheer body afore dead-flat being now laid-off, proceed to lay-off the after-body abaft dead-flat; but it is only necessary to point out such differences as occur at the extremes of the ship, the midship part being similar in both bodies.

On the mould-loft-floor it is customary to fet off as many of the perpendiculars abaft the fore-body already laid off, as to have sufficient room for the stern-poel, using as many of those in the fore-body as will answer to the regular room and space of the timbers, which will be as far as B, which will extend in the after-body as far as C, conseqently from 14.3. F. 24. strike up from the line A, A all the remaining perpendiculars to 96.

Strike in the aft-side of the stern-poel on the floor from the sheer-plan, Plate I., and the aft-side of the rabbet; and strike a line parallel thereto, on the fore-side, to the thicknes of the bottom plank.

Transfer
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Transfer from the sheer-plan, Plate 1, the heights of the centres of the floor-tweeps, lower and upper breadth of breadth, top-timber-line, and top of the sheer, are all here.

Transfer from the half-breadth plan, Plate 2, the half-breadths of the floor-tweeps, made half breadth, and top-timber half breadth, but to the end the main-deck, and likewise the top-timber half breadth in the half-breadth plan, fig. 2, the side-counter-timbers will be laid off as the sheer-plan and body-plan, and where this intersect the side-counter-timber in the sheer-plan, shall be squared down to the half-breadth plan.

In the plan of the after-body on the mould-board, its middle line is marked by the sides of the laterals, consequently the bodies at the lower part can each other. This would have appeared very evident in the plate, but it is always a maxim to lay off on the floor to true as few lines as possible.

The lower height of breadth and tweeps, and the centres of the floor-tweeps in the after-body, fig. 5, may all be obtained in the same manner as directed for the forebody. The diagonals struck in, and the several half-breadths of the timbers let off thereon, form the after-body-plan, Plate 1. These timbers which come near the after-end of the heel, must be ended by cutting off the half-thickens of the keel, as far as it tapers from the stern-post in the half-breadth plan, fig. 2; and within the half-thickens of the keel, let off the thickens of the bottom plank. Then take off the half breadth of each timber to the inside of the rabbit, and let it off on the base line from the middle line of the body-plan, fig. 5, which is the true ending of every timber at the upper edge of the keel.

The top-side of the after-body, fig. 6, is laid off in the same manner as directed for the fore-body at dead-flat, even to the after-timber.

When the bodies are thus far laid off on the floor, it is usual to make the moulds, and then to work and的情形 all the timbers in the square body; that is, from O forward to 28 abaft.

Moulds for the Timbers in the Square Body.

The moulds for the midship floors are generally made first in the following manner: take fir-board, about three-quarters of an inch thick, and lay the outer edge to the floor-timber dead-flat, in the body-plan, fig. 3, from the keel to the floor-head, and make it of a parallel width, about four inches. Provide another board, and lay it to the foremost square floor O, from the head to the sides of the keel, and make it of the same width. Then tack them both down in their places, and nail a piece of board made parallel to the half-breadth of the keel, its middle edge well with the middle line, and lower edge cut square, and be well with the base line, or upper edge of the keel: the upper end is to extend a few inches above the cutting-down of O. Now nail a straight batten, about four inches wide, at the floor-head, from dead-flat to O; the upper edge well with the direction of the floor-head C. Let batten of the same width be nailed across, with their upper edges kept well with the floor-rabbet B, and one at the lower diagonal A, and as many between as may be thought necessary. Let these battens be one inch narrower than the others, which will distinguish them, as the former show the proper flations of the diagonals, and likewise the direction of the floor-heads. Then, upon the crofs battens must be marked the intermediate floors from dead-flat to O. There must be outside pieces and battens put together, exactly in the same manner, for the other side; and the lines for the moulding edges of the floors correctly transferred to the other side.

These two moulds may then be laid together at the middle line by lengths, for the rest of the frames, and

The cutting-down line being to be first transferred to the sheer-plan, fig. 1, to the floor, as at M, Plate II, take its half to the upper edge of the keel at every fourth foot above the quarter, and draw the proper length of the mould in one line, as before. Here, each body-plan, by laying off the two transverse lines, or transverse moulds, from the upright board, is brought to the former of floor, to brace, to prove the moulds running. The moulds will then be adding the form of the forebody thus.

Now lay the blank side of the mould upward in the after-body, fig. 5, and mark from thereon, as before, the moulding edges of any of the floors from dead-flat at the mould will continue, and the heights of their cutting-down, which will be needed to 27 to 21.

Then to the floor from 22 to the after-square floor 28, another similar mould may be made.

The lower futtock-moulds are laid made off the framed board of the above thick, the edge of the fore-laid to the frame-futtock, and the inside edge to the edge of the rib, from a few inches within the side of the keel to the first futtock-head. Thus when the mould is in its place, mark thereon the whole of the side of the keel, lower diagonal A, floor-rabbet B, first futtock-rabbet D, and first futtock-head E; or a shorter way, the diagonals numerically, as 1st diag. 2nd diag.

But if saving of stuff and time be considered as an object, make the edges of the mould lay to the two adjoining frames, and set down flats to the corresponding lines at every diagonal, and all at the head and heel.

The second futtock-moulds may be next made similar to the above, from the floor-head to the second futtock-head, marking thereon the heel C, first futtock-rabbet D, first futtock-head E, second futtock-rabbet F, and second futtock-head G.

The third futtock-moulds may be next made in the same manner from the first futtock-head to the second futtock-head, marking thereon the heel E, second futtock-rabbet F, second futtock-head G, third futtock-rabbet H, and third futtock-head I.

The fourth futtock-moulds differing in their shape, and being much longer than the others, the bent and readied method is to lay this mould to dead-flat, from the second futtock-head to the top of the side, and two or three feet longer, as the heads run higher above and abaft dead-flat. The inside of the mould towards the upper part may be made to the canting line, but at the heel, and a few feet above it, should be made as broad as possible; so that the mould may be moulded nearly all the fourth futtock in the forebody. Lay the mould in its place at dead-flat, and mark thereon the heel G, third futtock-rabbet H, third futtock-head I, lower and upper heights of breadth K and L, gun-deck port-fillet M, upper deck port-fillet N, top timbers O, and top-side P.

Next place the upper part of this mould to the former fourth futtock, O, of the square body, and it will be found to lay to the main-breadth upwards (as it will likewise lay to all the timbers between O and dead-flat, on consequence of the radius of the upper-breadth swept being all of one length); then, when the mould is in this position, it is found that part of the timber from the main-breadth downwards to the fourth futtock-head, the fourth futtock of this timber may be moulded by this mould, as it may then be conveniently marked on it; but if not, then the mould

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Must be moved to the next timbers aft, placing it after the same manner, until the mould is found to which it will mould, as described above; while the mould lies well to the timber above the bevel, take its corresponding fifth buttock-mould, keeping the heel of the fifth buttock-mould well with the heel of its timber, then rake or mark its moulding edge on the fourth buttock-mould. In the same manner place it to the other timbers, marking thereon its corresponding third buttock, at the same time marking all the respective heights of the ribbands, &c. as at dead-flat. Observe, should the mould not lay towards the head of some of the foremost timbers, (as the tumble-home is less forward abaft than in midships,) measure the distance from the mould to the line of the timber on a square, and mark it on the mould; this being done to all the intermediate timbers, they may be laid to be complete on that side; and when so done, it will be necessary to have a small hole bored through the mould at every firmark, or height, upon every timber, by which means the true shape of the timbers, and places of the firmarks, may be transferred to the other side of the mould, and likewise upon the timbers when moulding.

In the same manner must be formed another mould to dead-flat for the timbers in the after-body, marking thereon all the timbers it will take. Those timbers of the square body afore or abaft the timbers already marked on the mould made to dead-flat, on account of there being more compas at the heel, may be marked upon one mould to each body, proceeding as before, only making the lower end of the mould sufficiently broad to take the most compas timbers thereon. But should the heelers do so much as to cause the lower end of the mould to be cumberfome; in that case, make moulds to each timber, as described above.

The top-timber moulds may be made in the same manner as those for the fourth buttocks, from the top of the side to the heel I, or third buttock-head.

*Method of taking the Bevellings of the Timbers in the Square Body.*

The moulds for the timbers of the square body being made, it is necessary to show in what manner their bevellings may be taken; for, until then, the timbers which have bevellings cannot be cut out.

Provide a bevel-boarding for the floors, in breadth as much as the floors are fided; and, in length, sufficient to take all the floor-bevellings thereon, as Plate VII. fig. 8. The fifth bevelling to be taken is from the cutting-down line for trimming the throat of the floors; but from dead-flat to floor E, they will be found to be fquare, or as far forward and aft as the cutting-down is parallel with the keel. They will be all represented by a square line on the board. Then, for the throating of floor F, apply the flock of the bevel to the perpendicular, or joint below the cutting-down line, and the tongue well with the cutting-down line M, as at N, Plate VII. fig. 1, and that will give the beveling for the throat of floor F. Proceed in the same manner with every floor, till all those bevellings be taken and marked on the board, as a, fig. 8, distinguishing them by writing their respective names, as ϕ to E, F, G, H, &c. to O. These will be all standing bevellings, both in the fore and after-bodies. In the next place, the bevellings for the outsides of the floors must be taken, which are always under-bevellings in both bodies, in consequence of the floors being always placed on that side of the joint from which the body declines; these bevellings are taken at the lower diagonal b, fig. 8, the second diagonal, or floor-ribband, c, fig. 8, and floor-head d, fig. 8. To take these bevellings, let off the fiding of each floor from its joint, or perpendicular, on each diagonal in the half-breadth plan, Plate VII. fig. 2, (offering, as before, that the floors in the fore-body are before the joint, and those in the after-body abaft it,) the diagonal formed by the heads of the timbers being laid off in the half-breadth plan, as far as the square bodies, for that purpose, as at M, fig. 2; then take the distance of each diagonal on the fiding line square from the middle line of the half-breadth plan, and let them down on their corresponding diagonals from the middle line in the body-plan, making spots in *Plate VII.* fig. 3. Then fix one leg of a pair of compasses on tho: spots of the lower diagonal, beginning with the first floor before dead-flat that has any bevelling, which is A, and, with the other leg, sweep the nearrest distance to the line of its corresponding timber. That will determine when it is within a square in the breadth of the bevelling-board; and so proceed with every floor alternately to O, as at b, fig. 8; thus the bevellings may be taken for every floor at each diagonal, and be thence marked on the board, as *Plate VII.* fig. 8.

In the next place provide bevelling-boards, one for each buttock, and one for the top-timbers, offering that the breadth of each board corresponds with the fiding of its respective fputtock bevel and top-timber; then, to take the bevelling, each, as before explained for the floors; only observing which futtocks are standing bevellings, and which are under: for fputtocks that have standing bevellings, the fiding of the timber must be cut off upon each diagonal, abaft the joint of its respective timber in the fore-body half-breadth plan, and before the joint in the after-body, and so contrarywise for those which are under-bevellings.

Therefore observe, that floors have under-bevellings, lower or frit buttocks standing bevellings, second fputtocks under, third fputtocks standing, fourth fputtocks under, and top-timbers standing bevellings. The bevellings of each may now be taken at every diagonal for every timber, and marked on their respective boards, the fore-body on one side, and the after-body on the other.

The bevellings to be taken for each buttock and top-timber are as follows: for the lower or first buttocks, lower diagonal a, second diagonal or floor-ribband b, third diagonal or first buttock-ribband c, and first buttock-head d, *Plate VII.* fig. 7. For second fputtocks, floor-head, which is second fputtock-head, third diagonal or first fputtock-ribband, first fputtock-head, fourth diagonal or second fputtock-ribband, and second fputtock-head. For the third fputtocks, first fputtock-head, which is the third fputtock-head, fourth diagonal or second fputtock-ribband, second fputtock-head, fifth diagonal or third fputtock-ribband, and third fputtock-head. For the fourth fputtocks, second fputtock-head, which is fourth fputtock-head, fifth diagonal or third fputtock-ribband, third fputtock-head, main-breadth, port-fill-line, top-timber-line, and top-side. For the top-timbers, third fputtock-head, which is the top-timber-head, main-breadth, port-fill-line, top-timber-line, and top-side. The bevelling for the main-breadth, and all above, may be taken from the half-breadth plan, by fixing the flock of the bevel to the joint of the timber, and moving the tongue to the respective half-breadth lines.

It is necessary, in the practical application of the moulds, to have the size of the timbers the moulding-way; this must be either set off on the bevelling-boards, or on the moulds. As the latter may be reckoned the belt way, first set off the fenting of the timbers the moulding-way at every head, &c. at dead-flat; thus, at the top of the sides, 6 inches, *Plate VII.* fig. 3; at the upper deck ports, N., 10½ inches; at the gun-deck ports, M., 11½ inches; at the third fputtock-heads, I., 11½; at the second fputtock-heads, G., 12½ inches; at the
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When making a batten to all these parts, make it square to the cutting-down of the dead-flats at the middle line, will give the footstock-riband, or outer edge of the timber dead-flat, then, take the face or moulding at the head or heel of every timber, and let off on their respective moulds.

Then to mould the inner, the mould is laid on the timber, and the mould edge of the intended floor is brought to the cutting-down of the piece; then, if there is cutting-down in the piece sufficient for bevelling, and sufficient below it for seating, which should be no less than six inches, increasing forward and aft, as the strength may require. Where that is more, if there remains sufficient wood to mould the floor agreeably to its line on the mould, which is readily seen by marking spots on the piece corresponding with the line of the battens, and the observer deciding whether there was wood sufficient to mould the line agreeably to the scantlings marked on the mould. The above mentioned spots may be made conspicuous on the piece, and the cutting-down also marked from the mould; then, its corresponding full footstock-mould will finish its cutting edge, or a phable batten may be joined to the spots, and the moulding edge formed as low as the piece will admit (to that it is not within the given subsidence below the cutting-down), the batten being fair raked by its edge; then rule up the marks for the diagonals to apply the bevellings. Set off on a square from the outside the given scantlings, and pin the batten thereto, as also to the cutting down, and rake by the edge; the inside of the floor then will be completed, and the deficiency, if any, below the seating is made good by chocks.

To mould all the footstocks except the fourth, the mould need only be laid off to the outer edge of the piece; and if the piece comes near enough to the mould to allow for the scantlings and bevellings outside and inside, rake by the edge of the mould likewise the firmarks, head, and heel; then from the moulding edge set off the scantlings square from their respective places, and try if the edge of the mould will not form the line by moving up or down; if not, it must be finished by a phable batten, as before directed. Observe, should any of the timbers-be a few inches short in the length, let them be made good by the next timber upon it, as through chocks are not to be admitted.

The fourth footstock-moulds are laid upon the piece, and should be in an horizontal position (as indeed all moulds should to try the bevelings); then see that the piece forms agreeably to the line on the mould of the timber intended to be moulded, by making a hole with a gimlet through the holes at the various firmarks belonging to the main-breadth; observing, at the same time, that the piece is strictly conformable to the head of the mould above. When both are found to agree, and is wood in the piece sufficient for the bevelings, rake by the side of the mould in like manner and cut as low as the main-breadth; below that it may be completed by the upper part of the corresponding third footstock-mould, keeping it well to the holes made by the gimlet at the heel and third footstock-ribbon, which firmarks must also be raked up on the piece, likewise the heights of breadth, port-fall lines, top-timber line, and top-side. The inside towards the head is finished by the scantlings given, and a batten as before described. But when fourth footstock-moulds have firings at their heads, owing to the difference in the tumbling-home of the side, then, as the mould lies upon the piece, and the heel is found to answer, it must be seen that the upper part of the piece answers to the firing marked upon the mould; then, towards the heel may be finished as before, but the upper part above the upper part of the deep mould be completed by a mould to the other head. The fourth bevel edge marked there, and placed at two by the footstock mould, and at two by the upper part of the deep mould, its edge may be considered, and the footstock mould formed up to the line of the beading line, then let off the piece at the line making the upper, and at the line that points to the lower edge of the footstock, and I will the other be completed.

Upper moulds are moulded in much like the fourth footstocks, to render a further account unnecessary.

The mould for the shelf is badly being formed, proceed to make mould for the stem, stern-post, &c. The mould for the shelf is made to the lines representing the fore and after-floor, or moulded breadth, from the head to the heel; last in piece, according to the number the stem is to be completed of. The rabbit is detached on the mould, or represented by the battons that forms the aft-side being made parallel to the thickness of the bottom planks; but if the rabbit comes in the mould, a batten of the depth must be raked on the mould, agreeably to the rabbit. Plate VII. Upon this mould must be marked the lengths of all the decks, likewise of the harpins and chocks, by a horizontal line at each height across the mould. Some mark every two feet above the upper edge of the rabbit of the heel upon the mould. There should be a perpendicular line, &c. in other words, a square line to set the item by, which may be the perpendicular of the gun-deck.

The stern-post mould is made to the lines representing the fore and after sides of the stern-post, from the head to the heel, and a batten to the rabbit; then, across its mould may be marked the height of the upper side of the wing, filling, and deck-transtoms at the middle line, into the heights of the harpins. Another mould is also made for the beading-line on the poit, the side of which must be fayed to the beading-line from the upper side of the wing-transtom down to where the beading-line intersects the fore-side of the inner poit, and the fore-side of the mould to the fore-side of the inner poit; then upon the mould must be marked the flations of the upper sides of all the transtoms, marking their respective names thereon. By many, the line of this mould is superceded by marking the whole of the heights, &c. upon the stern-post mould.

Another mould may be made to the thwartship bearding of the stern-post, thus: square down the intersection of each water-line, with the fore-side of the inner poit in the sheer-plan, to its corresponding water-line in the half-breadth plan; then take the several half-breathths from the middle line in the half-breadth plan, and let them off from a straight line at their corresponding heights in the sheer-plan; and a curve made to pass through these spots will be the thwartsship bearding of the poit, at the fore-side of the inner poit, from the middle line, to which the mould is to be made; the same may be done, and a mould made to the fore-side of the stern-post.

A mould should be made to the dead-caud abait, which is limited on the upper part by the cutting-down line, on the lower part by the upper edge of the heel, the after-end by the fore-side of the inner poit, and the fore-end by the aft-side of the after-floor. The mould for the dead-caud line is represented on it; and to likewise are the several pieces that compose the whole, as they can be gotten to as to give flux to each other. Upon this mould are the shed batten with one edge straight to the middle line; they correspond with the flations of the square timbers; and the other edge
is hollowed to the moulding of the timbers, which gives the half-thickneys of the dead-wood below the flapping or bearding-line, as marked on the mould, as all above that line the dead-wood is trimmed perpendicular to the fiding of the keel. To make this mould more conveniently, it may be made in two parts, separating lengthways at about half its depth.

To Lay-off the Cant-timbers, Plate VII. Laying-off, Plate A.

The necessity and utility of canting the timbers forward and aft, have been already explained in constructing the sheer-draught, Plate I. But that the reader may have as clear an idea as possible of the design of the cant-timbers, and their disposition when canted, observe then in the half-breath plan, Plate VII. fig. 4, where the lines representing the joints of the cant-timbers, as transferred from the sheer-draught, Plate I, interfeét the middle line, there may be suppolèd the hinge of a door; and the lines for the cant-timbers may be suppolèd to present the door, which may be fwinged forward at pleafure; fo that if the ship was on an even keel, the fides of the cant-timbers (though trimmed to their proper form) would become perpendicular, fince the hinge of the door; or suppolèd the form of the cant-timber was drawn on the door and fawed out, it would be perpendicular as before. The diagonal ribbands are similar to the cant-timbers in this refpect: and as the cant-timbers at the middle line become perpendicular, making one ftraight fection in the direction of the cant-timbers; fo the cant-ribbands at their interfeétion of the middle line in the body-plan, fig. 3, become horizontal, that is, parallel to the keel at the middle line all fore and aft, provided that the ribbands for the fore and after bodies meet at the middle line, as the floor-ribbands do in fig 3. Or otherwise, as the cant-timbers are reprefented by a door that is hung perpendicular, fo may the cant-ribbands be reprefented by any plain surface, like the flap of a table, that may be hung horizontal to the fide of a room; then will the fide of the room become the middle line of the ship, equal to the middle line in the half-breath plan, fig. 2, and the flap of the table may be canted down to the direction of the diagonal lines in the body-plan, fig. 3. To understand it clearly, suppolè the edge of the flap of the table to be cut in the form of one of the diagonal ribbands laid off in the half-breath plan, fig. 2; let it be the floor-ribband; then within the floor-cant-ribband in the half-breath plan, fig. 4, is the square or horizontal ribband B, which is the form or diftance from the middle line which the flap of the table makes when canted down, as in fig 3. The cant-ribband in the half-breath plan, fig. 4, is the fame as the flap of the table, if lifted up till its level, fhewing the extreme half-breath of the ship, were it cut in the direction of the cant-line in the body-plan, fig. 3. The cant-ribband in the half-breath plan, fig. 4, is the proper line to make the mould to for the harpin. But the interfeétion of the cant-timbers in fig. 4, with the cant-ribband, is not the proper flation of the timbers; because the cant-ribband is now raised from its proper place, and the timbers remain as before. Therefore, when the cant-timbers crofs the square ribbands, square them up to their corresponding cant-ribbands, as may be readily seen in fig. 4, which are the proper ftations of the cant-timbers on the harpin-moulds. For if the flap of the table, which is the cant-ribband-line, and hinged at the middle line, was to fall down in its proper place, it would then be exaftly underneath the long tacked line B, which is the square ribband. The ftations of the square timbers on the harpin-mould will make no alteration, because the mould falls in the direction of the square timbers. Strike a ftraight line from the interfeétion of the cant-timber with the middle line, to their correspondong ftations on the harpin-mould; as at cant-timber S, fig. 4. This will give the direction as the cant-timbers fland on the harpin-mould.

Before we proceed any further in laying-off the cant-timbers, the fore cant-body, that is figs. 3 and 4, should be proved by the square timbers and water-lines, as far aft as timber M at leaft; fo it is poiffible that the ribband-lines may have a fair appearance on the floor, and yet not produce a fair body in the ship; but if the water-lines and ribband-lines agree, there need be no fear of producing a fair bow, as the lines cannot be altered after the cant-timbers are laid off.

Therefore, transfer the water-lines from the body-plan, Plate I., to the body-plan on the floor, and then they may be all run from timber M, and ended forward, as directed in the constructing the sheer-draught, Plate I. These lines laying with a more acute angle with the timbers, any unfairness in the body is more readily seen; but when the ribband-lines and water-lines produce fair curves in fig. 4, and likewife fair timbers in fig. 3, we may proceed to lay-off the square ribband-lines, which may be done in the following manner: mark on the edge of a batten the di{tances taken square from the middle line of the fore body-plan, fig. 3, to where the floor-ribband interfeets each of the square timbers O, Q, S, U, X and Y. Then fet them off from the middle line on their corresponding timbers in the half-breath plan, fig. 4. The ending of it may be performed as the ending of its corresponding diagonal or cant-line, with only this difference, that, instead of taking the half-breath of the item in the direction of the diagonal line, it must be taken square from the middle line in the body-plan, fig. 3, to where the floor-ribband interfeets the half-breath of the item. Then, by pinning a batten to the spots on the timbers and to the ending, is produced the curve B, or square ribband No. 2, marked on the floor S 2, and its corresponding ribband C 2, meaning square 2 and cant 2, which give a multiplicity of words; and it may be understood more clearly as we proceed, than by expressing the ribbands by their proper names, as floor-ribband, &c. Then, by proceeding in the fame way with the refi of the diagonal or cant and square ribband-lines, they may be all defcribed on the floor, as at A 1, B 2, C 3, D 4, and E 5; Plate VII., fig. 4.

Now proceed to the operation, where the cant-timbers in fig. 4, interfeét the square ribbands A, B, C, D, and E, or ends 2, 3, 4, and 5. Take the nearest distance or square from the middle line, and fet them off square from the middle line to interfeét their corresponding ribbands in the body-plan, fig. 3, and from thence level out lines at pleafure, as may be seen in fig. 3. Then take the distance from the middle line in fig. 4, in the direction of the cant-timbers, to the interfeétions of the square ribband with the cant-timbers, and carry them to their corresponding timbers in the body-plan, fig. 3, setting them off square from the middle line on the lines before levelled out. This will give the spots for the timbers, and likewife the proper ftations of the harpins to be crofied on the timbers.

Square up from the half-breath plan, fig. 4, where the cant-timbers crofs the half-thickneys of the dead-wood H, to the bearding-line R in the sheer-plan. Likewife from fig. 4, where the cant-timbers crofs the main half-breath line, port-fill line, top-timber half-breath, and half-breath at top-fide, let them be squared to their corresponding lines in the sheer-plan.

Take the heights in the sheer-plan, where the cant-timbers crofs the bearding-line, likewife the lower and upper main-breaths.
breadths, the port-side line, the top timber-line, and top of
the fide, and let them in up the body-plan, fig. 3. Striking
lines thereto parallel to the base line; then take the distance
from the middle line in the half-breadth plan, fig. 4, in the
direction of the cant-timbers, to the line for the half-breadth
of the dead-wood at each timber, and let them off from the
middle line in the body plan, fig. 3, on the heights set up for
the bearding. This will give the ending of the cant-timbers
on the bearding-line.
Take the distance from the middle line in the half-breadth
plan, fig. 4, in the direction of the cant-timbers, to the main
half-breadth, port-side half-breadth, top-breadth, and to
finite, and let them off in the body-plan, fig. 3, square from
the middle line, on their corresponding heights. This will
give the spots through which the curves of the timbers are
to pass by pinning a batten, and likewise the proper heights
of the havrins on the timbers.
To Lay off the Bevellings of the Cant-Timbers.
Let the bevelling of cant-timber $w$ be required, and this
will suffice for all, as the processes are alike. Strike a line
afore and likewise abaft the joint of cant $w$, in the half-
breadth plan, fig. 4, to the scantling of the timber, which
should be the breadth of the bevelling-board. Square a line
from the intersection of the joint with the middle line,
to the edges or fiding of the timber $w$ in the half-
breadth plan, as at L, fig. 4; then take the nearest distance
or square to the middle line, from where the ticked line
afore crosses the square ribbands $A$, $B$, $C$, &c. and set it
down from the middle line in the body-plan, fig. 3, on
each corresponding ribband, in the same manner as was done
for the joint of the timber, and level them out on each side
of the diagonal ribbands, because the distance taken off in
the direction of the bevelling edge in fig. 4, will sometimes
be without and sometimes within the diagonal. Then take
the distance from the square line, which crosses the middle
line at the joint in fig. 4, to the square ribbands $A$, $B$, $C$, &c.
in the direction of the ticked line, before the joint or fore
edge of $w$, and set them off square from the middle line
in the body-plan, fig. 3, on their corresponding spots before
levelled out. Where the same ticked line, in fig. 4, inter-
sects the half-breadth of the dead-wood, square it up to the
bearding-line in the sheer-plan, and transfer that height to
the body-plan, fig. 3. Then take the distance in fig. 4,
from the squared line, as before, to the line for the half-
breadth of the dead-wood, in the direction of the ticked
line; and set it off square from the middle line in the body-
plan, fig. 3, on the height of the bearding-line, which gives
a spot to finish the lower end. Where the same ticked line,
in fig. 4, intersects the main half-breadth-line, square it up
to the lower height of breadth in the sheer-plan, and transfer
that height to the body-plan, fig. 3. Then take the distance
in fig. 4, from the square line, as before, to the main
half-breadth, in the direction of the ticked line, and set it
off square from the middle line in the body-plan, fig. 3,
on the height last set up. Then, by pinning a batten through
those spots, the fore edge is produced in the body-
plan from the heel to the lower height of breadth.
Proceed exactly the same with the edge abaft the joint of
$w$, and the two edges will be run in the body-plan, fig. 3,
as the ticked lines there represent, the nearest distance of
which, taken with compasses, to the joint at every ribband,
shows how much bevelling the timber requires at each place
in the breadth of the bevelling-board; that is, if the ticked
line, which is the bevelling edge of the timber, come within
the joint of the timber (or nearer the middle line), then the
bevelling of the timber would be so much within (or under
from) a square, consequently the ticked line without the
joint will be so much without (or bevelling from) a square.
Figs. 5 and 6, exhibit the form of the halves pieces and
cant-timbers of the after-body, which being laid off and
bevelled in the same manner as cant-timber $u$ in the fore-
body, it is useless to explain them; nevertheless, cant-tim-
ber $w$, is completely laid off, that it may be referred to at
leisure. It may be necessary to add, that the greatest pains
are required to prove the correctness of the after-body, not
only by the water-lines, but by the vertical sections or but-
tock-lines, and by introducing one or more square timbers
abat 56, to prove the buttock quite ast, and lower-called
proof-timbers. When these are all found to agree, it will
not only produce a fair cant-ribband, but likewise a fit head-
frame. See Plate IX. Laying off C.
Observe, the diagonal $H$, fig. 5, or third futtock-
ribband, ends upon the aft side of the wing-tranom, which
requires the following method to end it. Transfer the
height from the line $AA$, or upper edge of the keel,
where the diagonal $H$ intersects the margin-line of the
transom in the body-plan, fig. 5, to cross the margin-line in
the sheer-plan; and where it crosses, square it down to the
margin-line in the half-breadth-plan, fig. 6; then take the
distance from the middle line in the body-plan, fig. 5, in the
direction of the diagonal $H$, to where it intersects the
margin-line of the wing-tranom, and set it off from the
middle line in the half-breadth-plan, fig. 6, on the line
squared down from the margin-line, which ends the diagonal
$H$, or third futtock-ribband. To end it as a square rib-
band, take the nearest distance, or square, from the middle
line in the body-plan, fig. 5, to where the diagonal $H$ inter-
sects the margin-line, and let it off square from the middle
line, fig. 6, to intersect the margin-line there; and if truly
squared down for ending the cant-ribband, the ending of the
square ribband will also intersect the margin-line at the
same place in fig. 6.
Moulds are generally made to each timber, or futtock, in
the cant-boadies; and in croffing or marking them, it must
be observed, that the flations of the beams and ribbands are
where the lines levelled out intersect the lines of the cant-
timbers. On the heels of the double futtock and half-
timber moulds, nail on a batten to the fleping and side of
the dead-wood, by which the heel is to be cut off. To
perform this, set off on the half-breadth plan, fig. 6, the
thickness of the fleping, or dead-wood, above the fleping-
line, which may be the half-thickness of the keelson, from
and parallel to the middle line, as there ticked; then from
the middle line in the half-breadth plan, fig. 6, take the
distance in the direction of the cant-line to the ticked line,
and let it off in the middle line in the body-plan upon the
line levelled out for the heel of the same cant-timber; and
from that spot square up a line to the upper side of the
cutting-down, which will give the height of the inside of
the timber, and will represent the side of the dead-wood
to which the batten is to be nailed. A firmark, croffed on this
batten at any certain height above the keel, and carefully
croffed on the side of the timber, when trimmed to corre-
pond to a line gotten upon the dead-wood at that same
height above the keel, will be the surest and best method
of keeping the cant-timbers to their exact height on the
ship.

Bewellings.—To take the bevellings, provide a board as
broad as the scantling of the timber, and long enough to
take all the bevellings of the fore-side of the joint, and like-
wise abaft it, as Plate VIII. fig. 9. Begin with the fore-
side of cant-timber $w$, fig. 4: the heel-bevelling is the first
to be taken, which gives the direction to trim the heel of
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the futtock the fore and aft-way, or faying to the dead-wood; therefore, the outside of the dead-wood being parallel to the middle line, apply the flock of a bevel in the direc-
tion of the joint of cant-timber $u$ in the half-breadth plan, and place the tongue well with the middle line, or at the half-thickness of the dead-wood, as at $E$, fig. 4, letting the tongue teach forward, which will be an under-
bevelling, and may be thence marked on the board. The 
bevelling of the heel, to trim it to the beveling or boarding-
line, is next taken. Thus, where the joint of cant-timber $u$
intersects the half-thickness of the dead-wood, in fig. 4, 
figure it up to cross the bearding-line in the sheer-plan; 
and, at that place, let the tongue of the bevel be placed to
the bearding-line, teaching forward, and move the flock
till it is perpendicular, as at $O$ in the sheer-plan, which
will give the above bevelling, which may be the next marked
on the board.

The outside bevelling of the heel is best obtained by
trimming the heel parallel to the inside, where it fays to the
side of the dead-wood, to the thickness of the beveling.
Then, to take the bevelling at the lower diagonal, fix one
leg of a pair of compasses in the line of the cant-timber $u$
in the body-plan, fig. 3, where the level line interfefts, and
extend the other leg to the ticked line, representing the fore
dge of the timber $u$. Sweeping it till you get the nearest
distance, and that will shew how much the bevelling is
within or without a square in the breadth of the bevelling-
board; if the former, the ticked line must be towards the
middle line of the joint, and of course the latter without it;
then do the same with the diagonal lines, and the bevellings
of each, so taken, may be marked on the board.

To take the bevellings at the main and top-breadths, and
at the port-fill line between them, apply the flock of the
bevel to the joint of the cant-timber $u$, in the half-breadth
plan, fig. 4, as at $G$, and place the tongue in the direction of
the respective half-breadth lines, as at top-breadth, ob-
ferving to let the tongue teach forward; these bevellings
are fet off on the board, as taken, and the whole kept at
a regular distance of about three-quarters of an inch on the
left-hand side of the board; and, to complete them, mark
their respective names and fore-side of cant $u$, as $a$, fig. 9.

The bevellings may now be taken for the aft-side of
cant $u$; but the operation is performed like the former, only
oberving that the square line at the heel comes within side
of the middle line of the half-breadth plan, and likewise
when the bevel is applied to take the bevellings at main-
breadth and above, the tongue of it must teach aft; these bevellings may then be marked on the fame side of the
board below the others, and the board for cant-timber $u$
will be complete, as $b$, Plate VII. fig. 9.

In like manner the bevellings may be taken for cant-
timber 35 at the aft-side, and marked on another board, as $a$, fig. 10; likewise for the fore-side, as $b$, fig. 10; and
so on for all the other cant-timbers, both on the fore and
after cant-bodies, and also for the fashion-pieces, and marked
on their respective boards.

Making the Moulds, and taking the Bevellings of the Harpins,
Plate VII. Laying-off, Plate A.

The ribbands to which the harpins are connected reach
along the ship fore and aft; but in the wake of the cant-
bodies, or at the fore and aft parts of the ship, they are
termed harpins, and are trimmed to the shape of the ship's
body by moulds and bevellings from the mould- loft. The
reader, in the foregoing fection, being made acquainted
with the nature of canting the ribbands, it may only be
necessary to obferve, that the ribbands at the port-fill line
would be placed better about eight inches below the upper
side of the lower fill, fo that they may be let out above the
ribband; and likewise the ribband at the top timber-line
should be fo placed, that one of the sheer-frakes should be
wrought before it is diifurbed. This is commonly a larger
ribband, like that at the floor-head, to keep the top-side
fair.

The harpin-moulds are made of fir-board, to the dia-
gonal or cant-ribband lines in the cant-bodies, figs. 4 and 6;
from the item or flemn-poll, to the adjoining square timber,
as at $O$, fig. 28, to be about seven inches broad; and as they
lie in their places on the floor, mark the flations of the
cant-timbers upon them thus. Where the cant-timbers
interfect the square ribbands, square them up to their cor-
responding cant-ribbands; then striking a ftraight line from
the interference of each cant-timber, at the middle line of
the half-breadth plan, to the corresponding flations left
squared up, will give the direction of the cant-timbers as
they fland with the harpin-mould, as at cant-timber $u$, fig. 4.
The method of taking the bevellings is at every square
timber, which must be likewise marked on the harpin-mould
before it is diifurbed. The flations of the square timbers
make no alterations, because the harpin is lowered to its
cant in a perpendicular direcion. Fix the flock of a bevel
in the direction of the diagonal, fay the upper one, or third
futtock-ribband $H$, in the body-plan, fig. 3, and the tongue
against the outside of the square timber $O$; then mark it
on a board (the board to be as broad as the harpin is deep
or fided), and fo on with the other square timbers before
$O$, marking each of them, and its respective timber, as
before; then fix the flock of the bevel upon the fame
harpin-line in the body-plan, fig. 3, and the tongue against
the flide of the item, and mark that likewise upon the board;
and by that bevelling the foremost end of the harpin must
be trimmed, to fay against the flim. The fore and aft
part of the harpin against the item is obtained by the foot,
or fwell on the fore-end of the harpin-mould, which is cut
off well with the half-thickness of the item, taken
diagonally, and parallel to the middle line, in the half-breadth
plan, fig. 4. Another bevelling is taken and applied over
the end, after it is cut off to the fore and aft-line, and be-
velled against the item, thus; fix the flock of a bevel upon
the horizontal line of the harpin upon the item, and teach
the tongue down the aft-side of the rabbet; then mark it
on the board, and the bevellings are completed. To com-
plete the harpin-mould, square down from the bevel-plan,
where the fore-side of the rabbet of the item crofes the
upper fide of the harpin, to the mould on the half-breadth
plan, and make a fmark, which being kept to the fore-
side of the rabbet of the item on the ship, is the guide to
fix the harpin to.

To Lay-off the Hawse-Pieces, Plate VIII. Laying-off B.

This plate represents the lines on the floor, as before
oberved, but made separate here for clearness. The hawf-
pieces, in figs. 1 and 2, are fuppofed to fland perpendicular
when in their places, and their fides to look fore and aft.
They may be called square timbers, only they look fore
and aft, instead of athwartships. This being the firft
method of laying-off the hawfe-pieces, will be called under-
flood.

Strike in ftraight lines as much aftarnder, and parallel to
the middle line in the half-breadth plan, fig. 3, as the
knight-head and hawfe-pieces are to be fided, marking them
$K$, $H$, i, 2, 3, and 4.

Where the edges of the foremost cant-timbers, marked
$E$ in the half-breadth plan, fig. 3, crofs the water-lines,
main-
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main breadth, and level line, at their heads A, B, C, D, E, F, G, and likewise do the same with the breadth lines, which will give the sides of the tamarisk or the beam-ends. Thus, by putting a battens to all these points, you will have the ship's view of the tamarisk, as in fig. 1.

Where the lines be called knight-head and hawfe-pieces, in the half-breadth plan, F, fig. 6, is the water line, main breadth, and alike, but be likewise squared up to these corresponding lines in the sheersplan, fig. 1; a battens are laid in to the main trim, as in the line, and the edge raised or cleared up, with the line of the knight-head and hawfe-pieces, and so on in their proper places; and where the lines for the knight-head, and 1, 2, and 3 hawfe-pieces, mark the true edge of the short cant-timber, before cant y, in the half-breadth plan F, fig. 3, let them be squared up to the knee-edge, G, of the same timber, in the sheers-plan, fig. 1; likewise the heel of hawfe-piece 4, calling the fore edge of cant y, which gives the height of the knight-head and hawfe-pieces.

The midship side of the knight-head connecting well with the side of the stem, the rabbet being in the middle of it, makes the ends of the rabbet the fore-sides of the knight-head. But when the rabbet is not in the middle of the stem, it connects well with the side of the apron and dead-wood, consequently the boarding-line represents the fore-side.

Before the moulds for the knight-head and hawfe-pieces can be crossed, if made, the hanging of the hawps must be described in the sheers-plan, fig. 1. Thus, take their heights perpendicularly from the line, where they intersect the square timbers, and at the side of the stem, in the body-plan, fig. 2, and transfer them respectively to the sheers-plan, fig. 1; then, by putting a batten to those heights, we have the lines A, B, C, D, and E, or hanging of the hawps in the sheers-plan, fig. 1.

The heels of the knight-head and hawfe-pieces, where they intersect the cant-timber in the sheers-plan, fig. 1, are lined up perpendicularly, in which direction they must be cut off, to lay against the side of the cant-timbers F and G.

The moulds may now be made of inch-beards to the lines marked K, or knight-head, and 1, 2, 3, and 4 hawfe-pieces in the sheers-plan, fig. 1, from the heads to the heels, and the moulds at the heels to be cut off in the direction of the perpendicular line thereat, and while in their places mark a firm mark on the moulds, wherever the hawps intersect the moulding edge of the knight-head and hawfe-pieces, also the main-breadth and head, and as many between as it may be thought necessary to apply bevellings, as may be seen at the hawfe-piece 4. Thefirmarks at the hawps also show the height to keep the hawps to on the ship.

The beveling may be next taken, and marked on a board, which should be as broad as the hanging of the hawfe-piece, having a board to the knight-head, and each hawfe-piece, or all on one board, if not thought unhandy, as fig. 4. The first beveling taken from the knight-head or hawfe-pieces to the side of the cant-timber in the half-breadth plan, fig. 3, as G, for the knight-head, and H for the hawfe-piece 4, is the inner beveling. To cut off the heels to lay against the cant-timber at the hawfe-pieces, the bevel should be applied square from the heel, as cut off, to the perpendicular lines at the heels in the sheers-plan, fig. 1. But to get the beveling at the heel to counter-mould them, when the heel is cut off and trimmed to the above beveling, the foremost edge of can y must be laid off on the square, as i, and on the cant, as k, in the body-plan, fig. 2, as the junct of any of the cant-timbers were in Plate VII; and is much like the bevel edge of the cant. And, before y, the latter has a bevel edge to form the heel of the knight-head and hawfe-piece. The strike in the body-plan, fig. 2, on the line of the knight-head and hawfe-pieces parallel to the middle line, and where the moulding edge at the heel intersects the face-edge, on line and side view of the cant-timber, in the half-plan, fig. 1, level it out to intersect the line k.

To the three lines, i, j, k, of the height, fig. 1, of the heels of the knight-head and hawfe-pieces at the interline of the sheers-plan of the fore edge of the cant-timbers, as F and G, and let them up to the body-plan, in their respective edges, marking them up from there, then place the block of the heel against the perpendicular line, and the plumb line to the edge of the timber, as G, for the knight-head, and I, for hawfe-piece 4, which will give the exact beveling to be applied on the heel when cut off for the counter-moulding of the knight-head or hawfe-pieces.

The side of the knight-head and hawfe-piece being parallel to each other, they will have, in the sheers-plan, fig. 1, for the beveling, of each other, similar to parallel lines laid down for the cant-timbers; i.e., as much as the moulding edge of the hawfe-piece, 1, is within or abate the moulding edge of the knight-head, from the head to the heel, so much is the beveling of the knight-head within or under a square, in the distance between the knight-head and the hawfe-piece, in the half-breadth plan, fig. 3; therefore with compasses sweep the nearest distance at each haunch, &c. from the moulding edge to the outer edge of the knight-head, and each hawfe-piece, as may be seen at haunch-piece 4, in the sheers-plan, fig. 1, and set it within a square upon the board, as e, f, g, and so on for the others.

The bevelings of the knight-head and hawfe-pieces, if taken from the water-lines, main-breadth, &c. in the half-breadth plan, fig. 3, would be found to alter but little; yet they are not to true in their application as when taken on a square.

But was the counter-moulding beveling at the heel correctly set off, and another at the head for the knight-head, then the mould for hawfe-piece 4, being kept well at the head and heel, and to its proper height, must consequently counter-mould the knight-head exactly, if the knight-head could be gotten long enough to reach to the heel, or if the crack was fayed before it was moulded, and the knight-head properly fixed.

In the same manner, the mould that is made to the moulding edge of the hawfe-piece 2, would counter-mould the hawfe-piece 1, and so on of the rest.

There is no necessity to run the water-lines in the half-breadth plan, fig. 3, on purpose to lay off the hawfe-pieces, because they have a sufficient number of square haunches already run; for in the half-breadth plan, fig. 3, where the knight-head and hawfe-pieces cut the square haunches, let them be squared up to their corresponding haunches in the sheers-plan, fig. 1, which will give the exact form of the knight-head and hawfe-pieces; and, if the work is correct, will agree with the former by the water-lines.

To Lay off the Haufe-Pieces, where the Sides are required to look fore and aft, and likewise to be field off at the Heels.

Every timber in the ship which is fided straight, must appear, either in plan or elevation, as a straight line; therefore it is necessary, before any operation can be performed, to have a clear idea of the disposition of the timber when in its place. The hawfe-pieces are intended to look fore and aft, that is, at any particular height the sides of...
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them are to be parallel to the middle line; but as the heels of them are to be fixed less than the heads, they will consequently be nearer the middle line; therefore they will not appear in a straight line in the half-breadth plan, fig. 7, as they did in fig. 3, and cannot be viewed in a straight line, unless by supposing them really in their places in the body-plan, fig. 6.

Proceed to dispose of the knight-head and hawse-pieces as in the body-plan, fig. 6, where they will appear straight lines. The moulding edges are the thin lines, except the outside of hawse-piece 4, which is intended to be laid off, in order to get the bevellings of No. 4 hawse-piece.

The thwartship view of the foremost edge of cant-timber y, and the cant-filling before it in the half-breadth plan, fig. 7, which the knight-head and hawse-pieces end against, must be squared up and represented in the sheer-plan, fig. 5, as in the proceeding operation.

The fore and aft view of the foremost edge of cant-timber y, and the cant-filling before it, both on the cant and main, must be laid off as b, i, in the body-plan, fig. 6, as before explained.

Now proceed to lay off the hawse-pieces, or to draw the form in which they will appear in the half-breadth plan, fig. 7. The knight-head is already laid off, because it is the same as the half-thicknesses of the stem in the half-breadth plan, fig. 7. Therefore take the distance square from the middle line to the heels of the hawse-pieces, where they intersect the fore and aft view of the cant-timbers i and G in the body-plan, fig. 6, and set them off square from the middle line in the half-breadth plan, fig. 7, on the edges of the cant-timbers F and E; which gives the heels of the hawse-pieces in fig. 7. Take the distance square from the middle line in the body-plan, fig. 6, to where the hawse-pieces cross the harpins, A, B, C, D, and E; and set them off square from the middle line, on their corresponding square harpins in the half-breadth plan, fig. 7. Likewise, in the same manner take the half-breadths in the body-plan, fig. 6, for the main breadth and the harpin at the head; and set them off in the same manner as before in the half-breadth plan, fig. 7. Then pin a batten to those spots, and mark the curves in the half-breadth plan, fig. 7, which gives the form they will appear in, were you right over them, and looking down upon them; occasioned by the different curves of the body when cut by these sections.

The next operation will be to draw the form of the body, supposing it to be cut by the different sections of the hawse-pieces, to which form the moulds are to be made to trace the hawse-pieces. Proceed in the following manner:

Where the hawse-pieces 1, 2, 3, and 4, in the half-breadth plan, fig. 7, cross the square harpins c, b, a, f, and g; and likewise the main-breadth B, and harpin above A; let them be squared up to their corresponding harpins in the sheer-plan, fig. 5, where they end against the edge of the cant-timbers F and E in the half-breadth plan, fig. 7; they may be likewise squared up to intersect the thwartship view F and G of those cant-timbers in the sheer-plan, fig. 5, to give the heels of the hawse-pieces. But this is not so true, as to take the heights of the heels where they intersect the fore and aft view of the cant-timbers i and G, in the body-plan, fig. 6, and transfer them to the sheer-plan, fig. 5, on the thwartship view of the said timbers F and G; this is the proper height of the heels; yet if both ways agree, it shews the truth of the work. Then pin a batten to those spots squared up, and mark the curves 1, 2, 3, and 4, which gives the moulding edges of the hawse-pieces, and shews them as they appear when in their places. This method is usually practised when required to be laid off in this manner, and will suffice for practice; but by explaining the situation of those at present laid off, it will sufficiently shew they are not exact, therefore we shall point out a method the most accurate.

Consider the hawse-pieces as they are now laid off, and as they appear in the sheer-plan, fig. 5; you there see the exact form of them, supposing them to be in their places, and that you are looking level at them. You may therefore observe the exact form of the harpins, when you are looking level at them, where they appear at their proper heights: consequently, then, you have the exact length and form of the hawse-pieces only as they appear in a level view. And because they do not stand perpendicular, you cannot have the exact length nor form properly to mould them.

In order to draw the proper method that may be depended on, lay-off the moulding edge of hawse-piece 4 or the outside of No. 3, which will make the most difference, because it stands most from a perpendicular.

There must be supposing one given point to work from; therefore, it being the most proper, let it be the heel. Strike the level line from the heel in the body-plan, fig. 6, to the heel in the sheer-plan, fig. 5, as f. If the hawse-piece 4 was not laid off in the sheer-plan, fig. 5, the moulding edge must be gotten up, as before, from the half-breadth plan, fig. 7. Therefore, as it is, strike lines upwards, perpendicular from the separate harpins in the sheer-plan, fig. 5, where the moulding edge of hawse-piece 4 intersects them. Then take the distance from the heel of No. 4 hawse-piece, in the body-plan, fig. 6, to each harpin, main-breadth, &c. taken in the direction of the moulding edge of hawse-piece 4; and set them up perpendicular from the heel of hawse-piece 4, in the sheer-plan, fig. 5, on the lines before squared up, at their corresponding harpins: then pinning a batten to those spots, mark the curve in fig. 5, which will give the exact moulding of the hawse-piece, and the heights for the stations of the harpins to be crossed on the hawse-piece moulds.

Though the exact and proper method to lay-off the hawse-pieces is described by laying off No. 4, the explanation must suffice for this, being too minute to be drawn on the plate. Yet the first method is not entirely to be condemned, as they are seen in the sheer-plan, fig. 5, because it makes no little difference in the moulding, that the error is not to be regarded in the practice. The greatest difference it makes is in the length, which, in No. 4, does not make it two inches longer. But the certainty of the latter method being the most correct, must be proved by working at extremes; that is, supposing the head of hawse-piece 4 to stand where it is in the body-plan, fig. 6, and the heel to be fixed at the middle line, then, if laid off by both methods, the difference would be readily seen, which method is best to be depended on.

The moulds for the knight-head and hawse-pieces are made to the lines in the sheer-plan, fig. 5, as before directed.

The bevellings, supposing the hawse-pieces to be properly laid off in the sheer-plan, fig. 5, are taken in the same manner as was shewn in fig. 1; for though they do not appear in the same manner in the half-breadth plan, fig. 7, yet in the sheer-plan, fig. 5, (their sides looking fore and aft,) you there see the form of them square from the plans of their respective sides: therefore the distance, as they appear from each other in the sheer-plan, fig. 5, at each harpin, is the proper bevelling of them, agreeable to their distance from each other taken at their corresponding harpins in the body-plan, fig. 6.

Where the heels of the hawse-pieces lie on the thwartship view of the cant-timbers in the sheer-plan, fig. 5, line them
them up perpendicular, which gives the disposition of the heels of the hawfe-pieces to say against the fore-side of each cant timber.

The bevelling of the heels of the hawfe-pieces must likewise be done the same as in fig. 3; for though in the half-breadth plan, fig. 7, the form of the moulding edges of the hawfe-pieces appear in this view, yet the sides of them, at level heights, are exactly fore and aft; therefore the bevelling to trim the heels to say against the side of the cant-timber, is the same for all the hawfe-pieces, and must be taken with the flock of the bevel looking fore and aft, or parallel to the middle line, as is expressed by the bevel G, which is applied in the half-breadth plan, fig. 7, to take the bevelling of the No. 4 hawfe-piece.

To take the bevelling of the heel, to be applied when the heel is trimmed by the half bevelling, in order to counter-mould the hawfe-pieces, transfer the heels of the hawfe-pieces from the sheer-plan, fig. 5, to the cant-timber in the body-plan, fig. 6, as for taking the bevelling of the hawfe-piece 4, and strike up a perpendicular line, to which apply the flock of the bevel, and the tongue to the fore cant-edge, as at k, fig. 6. This gives the bevelling of the heel, in order to counter-mould the hawfe-pieces.

As the most accurate method of moulding the hawfe-pieces has been treated of, it is requisite it should be so respecting the disposition of the heels, and the bevelling of the heels. As the bevelling of the heel is shown for No. 4 hawfe-piece, the following will explain the difference that may be expected, if the hawfe-pieces were required to be laid off on extremes, or if a section of the body were required in such direction.

Set up any particular height on the hawfe-piece 4, in the body-plan, fig. 6, and suppose it to be the height where the harpin C intersects it; then take that height from the heel of the hawfe-piece No. 4, in the direction of the line of the hawfe-piece, and let it up perpendicular from the heel of No. 4 hawfe-piece, in the sheer-plan, fig. 5. Take the distance square from the middle line at the proposed height in the body-plan, fig. 6, and set it off square from the middle line in the half-breadth plan, fig. 7, on the cant edge E; there make a spot, and carry it square up to the ticked level line in the sheer-plan, fig. 5, and strike the line from thence to the heel of No. 4 hawfe-piece, which gives the exact form of the heel to say against the fore-side of cant-timber 3.

From the spot before mentioned in the half-breadth plan, fig. 7, take the distance to the middle line in the direction of the cant-timber, as E, and set it off from the middle line in the body-plan, fig. 6, on the ticked level line, and draw it down to the heel of the timber; which is the proper line to which the flock of the heel should be applied to take the bevelling of the heel, in order to counter-mould the hawfe-pieces. The explanation of the above must suffice, as it would not only interfere with the method laid off, but also be too minute to be described on the plate.

Where the hawfe-pieces in the half-breadth plan, fig. 7, cross the square harpins e, d, c, f, and g, square them up to their corresponding cant-harpins, as at h, which gives the proper stations of the hawfe-pieces on the cant-harpins; but the direction of the hawfe-pieces to be marked on the harpin-moulds will be fore and aft, as well on the cant-harpins as on those which lie level: such are the harpins at the port-fill and head; for where the hawfe-pieces cross those harpins in the half-breadth plan, fig. 7, is the proper station of the hawfe-pieces on the aforesaid harpins; or otherwise it is the proper distance from the middle line which the hawfe-pieces will be on each harpin, when the harpins are in their places; because these harpins are shown in the half-breadth plan, fig. 7, as they really appear when they are in their places.

The method of laying off and disposing of the hawfe-pieces when casted, is the most complete of any, as it is the bell for the strength of the ship, and will likewise affect the conversion of the timber: for by casting them, they will not only be diminished at the heels, whereby a hawfe-piece of timber will make them, as in the foregoing method, but the bevellings will be lost acute; and as the casting and diminishing of them at the heels are performed by one operation, they consequently must appear as straight lines when viewed in the half-breadth plan; and, as before observed, that all timbers, when casted nearer to a square with the body, add more to the security of the plan, and the timbers are not wounded so much by that security. The casting of the hawfe-pieces is also some advantage to the hawfe-holes; for although the hawfe-holes are generally cut nearly parallel to the middle line, yet casting of them leaves wood at the outside of the hawfe-hole, which is the thickest from the middle line, as it is the wearing side of the hawfe-hole.

Dispose of the hawfe-pieces in the half-breadth plans as in fig. 11, on which plan they will be straight lines, similar to the cant-timbers. Strike in likewise the fore-side of the cant-timbers marked E, F, as before, against which the heels of the hawfe-pieces are to be cut off.

Lay off the thwartship view of the hawfe-pieces and fore-side of the above cant-timbers E, F, in the sheer-plan, fig. 9, in the following manner. Where the fore-side of the cant-timbers E and F in the half-breadth plan, fig. 11, crosses the half-thickness of the dead-wood C, square them up to the hearding-line in the sheer-plan, fig. 9, and in the same manner proceed at every water-line, 1, 2, 3, 4, 5, and 6; likewise with the main-breadth and harpin at the head: then pin a batten to those spots, and mark the curves, as F, G, which gives the thwartship view of the fore-side of the cant-timbers the hawfe-pieces heel against.

In the same manner proceed with the hawfe-pieces: where, in the half-breadth plan, fig. 11, they interface the water-lines, main-breadth, and harpin above, square them up to their corresponding lines in the sheer-plan, fig. 9; and where they intersect the fore-edges of cant-timbers E and F in the half-breadth plan, fig. 11, square them up to interface the thwartship view of the said cant-timbers, as E and F in the sheer-plan, fig. 9. This gives the exact height of the heels of the hawfe-pieces, where they step against the cant-timber, when they are in their places. Then by pinning batten to all the spots squared up, mark the curves 1, 2, 3, and 4, which will give the exact thwartship view of the hawfe-pieces, supposing they were in their places; but as the sides do not look fore and aft, these are not the proper lines to make the moulds to; but will be serviceable hereafter, to get the proper height of the harpins to be croffed upon the hawfe-piece moulds. The moulding edge of the knight-head is the aft-side of the rabbot of the hem.

Where the knight-head and hawfe-pieces interface the fore-side of the cant-timber, marked E in the half-breadth plan, fig. 11, fit a batten in the direction of the line of the knight-head, or hawfe-pieces; mark thence the points where they are intersected by the water-lines; and set them off from the middle line in the body-plan, fig. 10, on their corresponding water-lines. Then take the heights, where the heels of the knight-head and hawfe-pieces intersect the thwartship view of cant-timber F in the sheer-plan, fig. 9, and transfer them to the middle line in the body-plan, fig. 10.

Having
Having the lower height of breadth and harpin at the beak-head laid off in the sheer-plan, fig. 9, take the heights where they intersect the thwartship view of the knight-head and hawfe-pieces, and transfer them to the body-plan, fig. 10. Then take the distances in the half-breadth plan, fig. 11, from the intersection of the knight-head and hawfe-pieces, with the cant-timber marked E, to the main-breadth and harpin at the beak-head, taken in the direction of the line, and set them off from the middle line in the body-plan, fig. 10, on their corresponding heights, marking spots. Then by pinning a batten to those spots, mark the curves K, H, 1, 2, 3, and 4, which are the proper moulding edges of the knight-head and hawfe-pieces, and consequently those to which the moulds are to be made. Now to give the direction for cutting off the heels to lay against the side of the cant-timber, the mould of No. 4 hawfe-piece must be cut off well with the middle line in the body-plan, fig. 10; but as the knight-head and the other hawfe-pieces cut off against the timber, before that which No. 4 heels against, take the height in the sheer-plan, fig. 9, where the heels of the knight-head, and 1, 2, 3 hawfe-pieces intersect the thwartship view of the foremost cant-timber at G, and transfer them to the body-plan, fig. 10; and where they intersect their respective hawfe-pieces, there strike up a perpendicular line, as at No. 3 hawfe-piece, which will also give the direction to cut off their heels against the said cant-timber.

But now since they are laid off by the water-lines, the proper flations of the hawfe-pieces below the main-breadth cannot be marked on the moulds. Therefore the level thwartship view of the hawfe-pieces must be laid-off in the sheer-plan, fig. 9, as before, which is the exact height of them when they are in their places; consequently, then, the points where they intersect the thwartship view of the knight-head and hawfe-pieces, shew the exact height to be transferred from the sheer-plan, fig. 9, to their corresponding lines in the body-plan, fig. 10, which gives the exact flations of the hawfe-pieces to be crossed on the knight-head and hawfe-piece moulds.

The bevellings are to be taken thus: Strike a line in the half-breadth plan, fig. 11, to the siding of the knight-head and hawfe-pieces, as was done for bevelling the cant-timbers, as the ticked line at No. 4 hawfe-piece, it being the clearest to be understood. Then square a line at the heel, where the moulding edge of No. 4 hawfe-piece crosses the cant-timber marked E. Then take the distance from the squared line in the direction of the siding or ticked line to the separate water-lines, where they intersect the ticked line, and fet them off from the middle line in the body-plan, fig. 10, on their corresponding water-lines. Where the ticked line in the half-breadth plan, fig. 11, intersects the cant-line E, square it up to intersect the thwartship view F, in the sheer-plan, fig. 9, as marked with a star, and from whence transfer it to the body-plan, fig. 10, as far as the middle line. Then take the distance from the forward line at the heel in the half-breadth plan, fig. 11, to the cant-line E, in the direction of the ticked line, and let them off from the middle line in the body-plan, fig. 10, at the height last mentioned. Continue the ticked line or sidding of the hawfe-piece to intersect the water-lines 1, 2, and 3, in the half-breadth plan, fig. 11; then take the distance from the squared line at the heel to those water-lines in the direction of the siding or ticked line, and set them off from the middle line in the body-plan, fig. 10, on their corresponding water-lines to the left hand, which serves to prove the spot at the heel by continuing the bevelling edge to the lowest water-line. Where the ticked line or sidding of the hawfe-piece 4, in the half-breadth plan, fig. 11, intersects the main half-breadth and beak-head harpin, square them up to their corresponding lines in the sheer-plan, fig. 9, and transfer them to the body-plan, fig. 10, striking level lines. Then take the distance from the squared line at the heel in the half-breadth plan, fig. 11, to the main half-breadth and beak-head harpin in the direction of the siding or ticked line, and let them off from the middle line in the body-plan, fig. 10, on their corresponding heights, which gives the spots to which a batten must be pinned, and the curve marked out thereby will be the bevelling edge of the hawfe-piece 4; and at whatever distance the bevelling edge in the body-plan, fig. 10, is from the moulding edge of the hawfe-piece 4, so much is the hawfe-piece under from a square in the distance from the siding or ticked line, to the joint of the hawfe-piece in the half-breadth plan, fig. 11.

The bevel G, as shewn in the half-breadth plan, fig. 11, gives the direction to cut off the heel. When the heel is cut off, in order to find the bevelling of the heel to counter-mould the hawfe-pieces, the fore-sides of the cant-timbers, as E and F, in the half-breadth plan, fig. 11, must be laid off in the body-plan, fig. 10, which may be done by the water-lines. Then transfer the height of the heel of the hawfe-piece No. 4, from the sheer-plan, fig. 9, where it cuts the thwartship view of the cant-timber marked F, to its corresponding cant-timber in the body-plan, fig. 10, and strike a perpendicular line to which apply the flock of a bevel, and the tongue, to the cant-timbers, as at M; the fame likewise for hawfe-piece No. 1, as at L, and so on for the others. This gives the exact bevelling to be applied when the heel is cut off, in order to counter-mould the hawfe-piece, if it should be so required. The bevellings of No. 4 hawfe-piece are all taken at their heights, as may be seen in the body-plan, fig. 10, and marked on the bevelling-board, as at a in fig. 12; the laid heights to be all crossed upon the hawfe-piece mould.

To Lay-off the Hawfe-pieces by the Square Harpins when canted.

The square and cant-harpins being of necessity laid off in the half-breadth plan, fig. 11, it is necessary to explain the method of laying off the cant-hawfe-pieces by the square harpins, which are marked c, d, e, f, g, in the half-breadth plan, fig. 11. The point where the knight-head and hawfe-pieces intersect the fore-side of the cant-timber marked E in the half-breadth plan, fig. 11, is supposed to be in the middle line in the body-plan, fig. 10, which middle line will serve for laying off the knight-head and hawfe-pieces, as it did for the foregoing operation by the water-lines. By being laid off in the fame body-plan, fig. 10, it will be a convincing proof that both methods may be depended upon, because they will be found to agree, as near as can be expected on so small a scale as the plate.

To explain the laying off the knight-head and all the hawfe-pieces would be too tedious; (though they are all laid off in the middle line) for by laying off and bevelling the hawfe-piece No. 4, the ticked lines (which are transferred from the sheer-plan, fig. 9, to the body-plan, fig. 10, in order to give the proper flations of the hawfe-pieces on the hawfe-piece moulds, when laid off by the water-lines) will now be proved to agree with the operation by the hawfe-pieces.

Now the knight-head and hawfe-pieces are intended to be laid off together by the harpin-lines. There is no necessity to lay-off the thwartship view of them in the sheer-plan, fig. 9; but the thwartship view of the fore-side of the cant-timber they heel against will be wanted, to find the height of the heels. Having the level height of the hawfe-pieces laid off before in the sheer-plan, fig. 9, where the fore-sides of the cant-timbers, marked E, F, intersect the square.
square harpins, $d, e, f, g$, in the half-breadth plan, fig. 11, square them up to the correspondent harpins in the sheer-plan, fig. 9. This gives the thwarts view of the centre-line, and if the work be true, it will lie per the lines by the water-lines. The exact height of the body should be found, in order to prove the rest of the work, and as the lines of the half-breadth plan, fig. 11, continued above the foot of the cant-timbers, $E, F, G$, to intersect the figure in the figure in the sheer-plan, then by harpips in the body-plan, fig. 12, and the middle line (in this manner, when the bottom is continued in the snake beyond the middle line of the-harpins, it would intersect the middle line at the proper heights). This gives the level of the half-breadth plan.

To get the half-breadth plan, No. 4, as laid out by the water-lines, let it be laid off by the level or square harpins: thus, when the middle line intersects the fore-edge of the cant-timbers, marked $E$, in the body-plan, fig. 12, square it up to intersect the thwart view $F$, in the sheer-plan, fig. 9: and so to the height to the middle line in the body-plan, fig. 11. This gives the level of the half-breadth piece No. 4, exactly similar to the method by the water-lines.

Observe in the half-breadth plan, fig. 11, where the half-breadth piece No. 4 crosses the square harpins, and from thence take the nearest distance to the middle line; and let them off on their respective harpins square from the middle line in the body-plan, fig. 12, there flanking a level line, in the same manner as was done for the cant-timbers. Then take the distances in the half-breadth plan, fig. 12, from the intersection of the harpins piece No. 4, with the cant-edges marked $E$, to where it intersects each of the square harpins, in the direction of the line for the laid half-breadth piece; and let them off square from the middle line in the body-plan, fig. 12, on their respective level lines before mentioned; observing to set off the distance to the left hand of those which were taken about the cant-line $E$. This gives the spots for the moulding edges of the half-breadth piece No. 4; and is likewise the exact station of the harpins to be cored on the moulings.

Proceed in the same manner to find the spots for the moulding edges of the other half-pieces; as those for the main-breadth and beak-head harpins are found in the very same manner as by the water-lines.

The beveling-edge is laid off in the same way as the moulding edge; only the distance taken in the direction of the ticked or budding-line is taken from the squared line at the heel, instead of its intersection at the cant-edge $E$, in the half-breadth plan, fig. 11. The plate will shew the difference of laying-off, between the water-lines and harpins, is in the performance only.

To find the proper stations of the knight-head and haufw-sizes on the harpin-moulds, we need only square up the intersections of them with the square harpins to the cant-harpins, in the same manner as was done for the cant-timbers. And the points where the knight-head and haufw-pieces, in the half-breadth-plan, fig. 11, cross the harpins at the port-fills and beak-head, shew the proper stations of them, as they appear when the harpins are in their places, they lying level in a thwart or direction of the direction of the ship, fore and aft-way. The main breadth is only used as a beveling spot; for was it required to place a harpin to that height, its great sheer would require a very different operation to form the line to make the mould to.

To Lay-off the Transoms, Plate 1X. Lay-off C.

The transoms and fashion-pieces compose the stern-frame. The upper ones are the wing, filling, and deck-transoms; and there may be as many under the deck-transoms as the form of the body will admit, or is readily possible. The upper part is called the water transom, which is the face of the frame.

This may be admitted the easiest and best method of laying off the after part of the ship given in the large, because every transom composed of the body, running through the bottom, they may be considered finished in the breadth; for when the planks are wrought on the bottom, and the water transoms, beak, and foops and deck are laid off, it may be allowed to be a matter of the foot or bow in with the breadth-books, because the bow part of the ship has no other allowance to keep the bowas together.

As there are several operations required to lay-off the stern-frame, Plate IX. Lay-off C., it is made separate plate for that purpose; though it represents the lines on the floor, before observed. The fashion-pieces being struck in the half-breadth plan on the floor, and the water-line runs as in Plate I, square up the intersection of the fashion-pieces with the bearding-line, water-lines, the end of the wing-tranoms, and main breadth line in the half-breadth plan, to their corresponding bearding-line, water-line, wing-tranom, and height of breadth line in the first-plan; thus a battened piece to those spots will represent the thwartview of the after-side of the fashion-pieces, which are marked $S, F, P$, Plate IX. fig. 1.

Where the half-breadth pieces next at the foremost-moulded lines in the half-breadth plan, take the distances square from those to the middle line; and let them off square from the middle line, on their corresponding lines in the body-plan. A battened piece to those spots will give the fore and aft view of the fashion-pieces, generally called the square fashion-pieces, which are marked $S, F, P$, Plate IX. fig. 2.

Transfer from the sheer-plan of Plate I, the heights of all the transoms to the sheer-plan on the floor; likewise the flying or depth of each tranom, as W, E, D; 1, 2, 3, 4, 5, and 6, Plate IX. fig. 1.

In the body-plan, fig. 2, describe the upper side of the wing-tranom $a$, by a segment of an arc to its round-up, till it intersects the aft-side of the foremost square fashion-piece $S$; and below that a parallel curve $b$, where the ends of the planks of the buttocock are intended to be cut off, which is called the margin-line. Square down from the sheer-plan the after-side of the wing-tranom to the middle line of the half-breadth plan; and from these draw the after-side of the wing-tranom at its upper side, by a segment of an arc to its round-up, which shews the line to which the mould is to be made. Take the height of the margin-line $d$, at the middle line in the body-plan, fig. 2, and transfer it to the fore-part of the rabat of the stern-post, in the sheer-plan, fig. 1; and from thence square it down to the middle line in the half-breadth plan, marking a parallel arc between the after-side of the wing-tranom, which is likewise called the margin-line. Continue to draw the level view of the moulding edges of all the transoms in the body-plan, fig. 2, in the following manner; take the wing-tranom and the filling under it lying level, then form the transom and the filling under its round-up, as above. This is the proper curve to which the round-up mould is made for fitting those transoms. The next is the deck-tranom, which is generally laid off to the round-up of the gudgeon beam; the other transoms below the deck lying straight and level, are represented by level lines ly.

Transfer from Plate I, the buttocock-lines 1, 2, 3, 4, 5,
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and let them be struck on the floor in the body-plan and half-breadth plan. Then proceed to run the buttock-lines in the sheer-plan, fig. 1, as directed in the construction of the sheer-draught, Plate I. The buttock-lines, the square timbers, and likewise the water and ribband-lines, should be made to agree to the greatest exactness.

The moulding edges of the other transoms may now be laid off from the buttock-lines in the sheer-plan, fig. 1; but if they are laid off in the half-breadth plan, then only half or one side can be represented. The best method, therefore, will be to lay them off in some convenient place on the floor by themselves, whereby both sides may be represented, and there will not be then such confusion in the lines. This, for distinction, may be termed plan of the transoms, as Plate IX. fig. 3.

The moulding edge of the wing-tranfom is already described to which the mould is to be made; the filling-tranfom is next, which lies between the wing and deck; and as it lies horizontally, the description of it will suffice for all the other transoms that come under the deck, which also lie horizontally.

As there is no more trouble in laying-off a tranfom which is fided straight, and lies level, than there is in laying-off a water-line, strike on each side of the middle line M, in the plan of the transoms, Plate IX. fig. 3, the half-thickness of the dead-wood or boarding-line, and taking it from the body-plan, fig. 2, (and as low down as the deck-tranfom the inner point is fided the fame); likewise the buttock-lines. Take from the half-breadth plan the square timbers 32, 33, 34, 35, 36, and the proof timbers 1 and 2, and strike them in the plan of the transoms, fig. 3, at right angles with the middle line; also strike in the cast of the fashions-pieces F, M, A. Then strike a perpendicular line, P, in the sheer-plan, fig. 1, at the interfeftion of the upper edge of the wing-tranfom, at the fore-part of the rabbit; likewise another at right angles with the middle line, at the aft-fide of the wing-tranfom, as P, in the plan of the tranfoms, fig. 3.

Now from the perpendicular P, above mentioned, called perpendicular of the tranfoms, take the distance in the shear-plan, fig. 1, to where the upper fide of the filling-tranfom, P, interfefts the fore-fide of the rabbit of the poft or boarding-line B, and let it off from the fame line P P, in the plan of the tranfoms, fig. 3, at the middle line, squaring a line across to each boarding-line; which line will be the after-part of the filling-tranfom at the middle line. Observe where the boarding-line, C, of the poft, in the sheer-plan, fig. 1, comes before the fore-fide of the rabbit, to take the aforefaid distance to the boarding-line of the poft, as that terminates the after-part of all the tranfoms; then take the distances in the sheer-plan, fig. 1, from the perpendicular line P, to where the line representing the upper fide of the filling-tranfom interfefts the different buttock-lines 1, 2, 3, 4, and 5, and let them off from the fame line P P, in the plan of the tranfoms, fig. 3, on their corresponding buttock-lines on each fide of the middle line. Then take the distances in the body-plan, fig. 2, from the middle line, to where the upper fide of the filling-tranfom, C, interfefts the square timbers, and let them off on both fides of the middle line on their corresponding timbers, in the plan of the tranfoms, fig. 3; then by pinning a batten through the spots on the buttock-lines and square timbers, to its after-part at the fide of the boarding C, the moulding edge or upper fide of the filling-tranfom will be defcribed on one fide the middle line; the mould may then be made to that fide, and canted over, and the opposite fide marked thereby, being sure thus to have both fides alike. This filling-tranfom having been laid off horizontally, of course, when moulding the filling-tranfom, the mould must lie in an horizontal position; but having no little room between the wing and deck-tranfoms, it becomes neceffary to give the filling-tranfom a round-up between both. Those who would be more correct in laying-off tranfoms, that have a round upwards, may see the subjedt farther explained in the following methods.

To lay-off the deck-tranfom, strike a ftraight line in the sheer-plan, fig. 1, at the under-fide of the deck, at the middle line, to take that part of the hang of the deck only, which is terminated between the rabbeft of the fem-poft and the fashions-piece, as H, fig. 1. Then take the round of the deck R, at every buttock-line, as under the body-plan, fig. 2, and let them off below and fquare to the ftraight line H, in the sheer-plan, fig. 1, marking parallel lines thereto, to interfeft their corresponding buttock-lines, which gives the moulding edge of the tranfom. Proceed in the fame manner with the lower edge, by striking a line for the lower fide of the tranfom at the middle line parallel to the former; and let the round down, as before, upon any buttock-line.

The upper and lower fides of the deck-tranfom being obtained on the buttock-lines, in the sheer-plan, fig. 1, transfer their heights from the sheer-plan, fig. 1, to the body-plan, fig. 2, repectively; then by pinning a batten to those heights, the upper and lower fides of the deck-tranfom, d d, may be represented in the body-plan, fig. 2.

The lines above mentioned, in the sheer-plan, fig. 1, parallel to the fheer of the deck, at the interfeftion of the buttock lines and fashions-piece, should be continued aft to the perpendicular P; then take the distances from that line, in the direction of the parallel lines, to the buttock-lines and fashions-piece, and let them off fquare from the fide line P P, in the plan of the tranfoms, fig. 3, on their corresponding buttock-lines and fashions-piece. Next take the half-breadth from the body-plan, fig. 2, at the interfeftion of the deck, at the fide, with the square timbers, and let them off on their corresponding timbers from the middle line, in the plan of the tranfoms, fig. 3; then by pinning a batten to thofe spots, this forms the moulding edge of the deck-tranfom D D.

The tranfoms under the deck, all lying horizontally, may be laid off by taking the distances of the buttock-lines and boarding-line from the perpendicular P, in the sheer-plan, fig. 1, on the upper edge of each tranfom, and putting them off on their corresponding buttock-lines from the fame perpendicular P, in the plan of the tranfoms, fig. 3, and also at the timbers from the middle line in the body-plan, fig. 2; and let them off from the middle line on their corresponding timbers in the plan of the tranfoms, fig. 3; a batten pinned to thofe spots will represent the moulding edges of all the tranfoms.

To prove the interfeftion of the tranfoms with the fide of the fashions-piece, which is the end of each tranfom, as already laid off in the plan of the tranfoms, fig. 3. Thus, where the upper fide of the wing-tranfom in the body-plan, fig. 2, interfefts the foremoft square fashions-piece S, level it out to interfeft the cant-fashions-piece e. Then take the nearest diance from the cant-fashions-piece at that place to the middle line, and let it off from the middle line in the plan of the tranfoms, fig. 3, in the direction of the line of the foremoft fashions-piece F. In the fame manner prove the filling and deck-tranfoms. Take the distances from the middle cant-fashions-piece to the middle line along the upper fide of Nos. 1, 2, and 3 tranfoms in the body-plan, fig. 2, and let them off on the middle cant-fashions-piece M, from the middle line in the plan of the tranfoms, fig. 3, as before. Take likewise
the distances from the aftermost cant-fashion-piece to the middle line for the transoms 4, 5, and 6, and let them be b, as before, on the line for the aftermost cant-fashion-piece A, in the plan of the transoms, fig. 3, to which spots the transoms in fig. 3, must agree.

Cut out the ends of the wing, filling, and deck-transoms, at the after or a side of the first half-fashion-piece P, and transoms Nos. 1, 2, 3, 5, under the deck at the after-side of the middle fashion-piece M, and Nos. 4, 5, 6, at the after-side of the after-fashion-piece A, as is clearly shown in the plan of the transoms, fig. 3, where the middle fashion-piece is represented as kept at the under side of the deck-transom, and the after-fashion-piece at the under side of the transom No. 3.

To make the Moulds and build the Transoms.

The moulds are made of fir battens laid to the line already laid off in the plan of the transoms, fig. 3, for their after-sides; and another to their fore-side, at their moulding or breadth at the upper side; which are confined together by battens at each buttoc-line, and one at each end to the direction of the fashion-piece, allowing what they are intended to be let into the fashion-pieces; and a broad piece in the middle, to the fire of its seating c c, with the middle line correctly marked thereon.

The bevelling of the transoms are frequently taken from the buttoc-lines in the fier-plan, fig. 1, in the following manner. Apply the flock of the bevel E to the upper side of the transoms, in the fier-plan, fig. 1, and the tongue to the buttoc-line; but let the tongue be off at the upper and lower sides of the transom, as at the filling-transom in the fier-plan, fig. 1, which gives the exact bevelling of the transoms at their corresponding buttoc-lines.

The bevellings for the wing-transom are taken from the margin-line to the under side of the wing-transom, as above. The under side of the wing-transom is transferred from the body-plan, fig. 2, to the fier-plan, fig. 1, by the buttoc-lines.

The bevells for the deck-transom may be taken by applying the flock of the bevel parallel to the hang of the deck, at the middle line, and the tongue to each buttoc-line; keeping the tongue well at the upper and lower sides of the transom, as before observed, and so must be applied on the transom, by placing the bevel at each corresponding buttoc-line, and keeping the flock out of winding with the upper side of the transom at the middle line.

The transoms under the deck may be bevelled by the buttoc-lines in the fier-plan, fig. 1, and the bevellers may be taken very exact; but it requires to be very particular in applying the bevel on the transom; to do which, the flock of the bevel must be kept in the direction of the buttoc-lines, at the upper side of the transom, and the tongue teaching to the buttoc-line below, which ought to be marked at the lower side of the transom, and not treading to the bevel's casting promiscuously, for then the bevel may not be exactly square.

When this trouble is taken to bevel the tranoms, then they may, when trimmed, be depended upon.

This is a method not to be recommended to those who would be particularly exact, because there can be no more bevellings on the transoms than the number of buttoc-lines which intersect the transoms; as for instance, there are only two buttoc-lines which cross the lower-transom in fig. 3, and one of them is close to the end, which is not sufficient to get the exact form of the lower side of the transom. Therefore, the best way to find the bevellings of these transoms is to lay-off their lower sides, which is very easy to be

the distances from the aftermost cant-fashion-piece to the middle line for the transoms 4, 5, and 6, and let them be b, as before, on the line for the aftermost cant-fashion-piece A, in the plan of the transoms, fig. 3, to which spots the transoms in fig. 3, must agree.

Cut out the ends of the wing, filling, and deck-transoms, at the after or a side of the first half-fashion-piece P, and transoms Nos. 1, 2, 3, 5, under the deck at the after-side of the middle fashion-piece M, and Nos. 4, 5, 6, at the after-side of the after-fashion-piece A, as is clearly shown in the plan of the transoms, fig. 3, where the middle fashion-piece is represented as kept at the under side of the deck-transom, and the after-fashion-piece at the under side of the transom No. 3.

To make the Moulds and build the Transoms.

The moulds are made of fir battens laid to the line already laid off in the plan of the transoms, fig. 3, for their after-sides; and another to their fore-side, at their moulding or breadth at the upper side; which are confined together by battens at each buttoc-line, and one at each end to the direction of the fashion-piece, allowing what they are intended to be let into the fashion-pieces; and a broad piece in the middle, to the fire of its seating c c, with the middle line correctly marked thereon.

The bevelling of the transoms are frequently taken from the buttoc-lines in the fier-plan, fig. 1, in the following manner. Apply the flock of the bevel E to the upper side of the transoms, in the fier-plan, fig. 1, and the tongue to the buttoc-line; but let the tongue be off at the upper and lower sides of the transom, as at the filling-transom in the fier-plan, fig. 1, which gives the exact bevelling of the transoms at their corresponding buttoc-lines.

The bevellings for the wing-transom are taken from the margin-line to the under side of the wing-transom, as above. The under side of the wing-transom is transferred from the body-plan, fig. 2, to the fier-plan, fig. 1, by the buttoc-lines.

The bevells for the deck-transom may be taken by applying the flock of the bevel parallel to the hang of the deck, at the middle line, and the tongue to each buttoc-line; keeping the tongue well at the upper and lower sides of the transom, as before observed, and so must be applied on the transom, by placing the bevel at each corresponding buttoc-line, and keeping the flock out of winding with the upper side of the transom at the middle line.

The transoms under the deck may be bevelled by the buttoc-lines in the fier-plan, fig. 1, and the bevellers may be taken very exact; but it requires to be very particular in applying the bevel on the transom; to do which, the flock of the bevel must be kept in the direction of the buttoc-lines, at the upper side of the transom, and the tongue teaching to the buttoc-line below, which ought to be marked at the lower side of the transom, and not treading to the bevel's casting promiscuously, for then the bevel may not be exactly square.

When this trouble is taken to bevel the tranoms, then they may, when trimmed, be depended upon.

This is a method not to be recommended to those who would be particularly exact, because there can be no more bevellings on the transoms than the number of buttoc-lines which intersect the transoms; as for instance, there are only two buttoc-lines which cross the lower-transom in fig. 3, and one of them is close to the end, which is not sufficient to get the exact form of the lower side of the transom. Therefore, the best way to find the bevellings of these transoms is to lay-off their lower sides, which is very easy to be
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where the lines (before mentioned) levelled out intersect the cant-line-piece, is the proper station of the wing, filling, and deck-tranforms on the fashion-piece mould for the moulding edge, but not for the direction in which those tranforms strike the fashion-piece, because of the round of those tranforms; which will be more explained in the following method.

When the latter sides of the tranforms are laid off, it is but little trouble to make a slight mould to counter-mould the under sides of all the tranforms, by making it only to one arm of the tranform, and then canting it over, to mould the opposite arm. Then, when the breach of the tranform is trimmed to the bearding-line, set off the distance from the middle line each way, as far as the bearding-line e is from the middle line in the plan of the tranforms, fig. 2, to which the tranform-mould is made. Then trim the end of the tranform square, and set off the bevelling for the end of the tranform; then cant the tranform over, and applying the mould made for the under side to the breach and bevelling at the end, you have the tranform counter-mould, without the affliction of any other bevelling; or they may be set off, to see if they agree with the mould; and if they do, you may be sure the work is correct.

To Lay-off the Tranforms when laid.

The utility of canting the tranforms is, that it greatly affists the conversion of timber, is better for faffening the plank of the bottom, and bolts square to the stern-post. When the tranforms have a very great bevelling, it is difficult at the upper edge to get sufficient faffening for the planks, which sufficiently points out the utility of canting them: proceed therefore to the operation, which will require the reader's particular attention; as those minute particulars which cannot so conveniently be displayed on the plate, can only be explained in words.

Dipofe of the tranforms in the sheer-plan, fig. 4; let the wing and filling-tranforms be placed level, and the upper side of the deck-tranform to the proper hang of the deck; and the other tranforms below at the fashion-piece, as much above a level as represented in the sheer-plan, fig. 4; so as to make them nearly of an equal opening at the stern-post, and likewise at the fashion-piece. There shew the disposition of the tranforms at the middle line.

Now proceed to shew the level view of the moulding edges of all the tranforms in the body-plan in the following manner: the wing-tranform a, and the filling e, lying level, they form a segment of a circle in the body-plan, fig. 5, to their given round-up. This is the proper curve to which the round-up mould is made for faffing these tranforms, as before oberved. The next is the deck-tranform d, which being confined to the hang of the deck, and the round of the beam, is the most difficult of all, if executed in a proper manner: it ought to undergo the following operation. The ticked line H, in the sheer-plan, fig. 4, is the under side of the deck at the middle line, and is intended to be the upper side of the deck-tranform at the middle line. Transfer the heights of the ticked line H, or upper side of the deck-tranform, in the sheer-plan, fig. 4, at every square timber, to their corresponding timbers in the body-plan, fig. 5; and where the deck at the middle line in the sheer-plan, fig. 4, intersects the button-lines, transfer them to their corresponding button-lines in the body-plan, fig. 5; a batten pinned to these spots shews the interfection of the deck at the square timbers, as H, in the body-plan, fig. 5, supposing the deck had no round-down at the side. Under the line A A, for the upper side of the keel, in the body-plan, fig. 5, marks the round-up of the gun-deck beam K; and where the ticked line H for the deck, at the middle line, in the body-plan, fig. 5, intersects the square timbers, square them down to the round of the deck R, under the body-plan. The timbers and the buttocck-lines are there marked and numbered in the same manner with those from which they were cut off, in which they were placed, and from which they were faffed down. Take the distance at each place on the round of the deck, under the body-plan, fig. 5; square up to the line A A, or upper side of the keel (which is the round of the deck at each timber), and set them down below their corresponding timbers, in a perpendicular direction, from the interfection of the deck at the middle line with the square timbers H, in the body-plan, fig. 5; and from those spots direct them towards the middle line M, parallel to the round of the deck under the body-plan, till they intersect the square timbers, which are the proper stations on the square timbers the curve I of the deck will make, supposing it to be continued to the outside of the timbers; which is required, in order to find the exact form of the moulding edge of the deck-tranform.

Let the buttocck-lines in the body-plan, fig. 5, be continued down to the round of the deck R, under the body-plan; then take the round of the deck at each buttocck-line, and set it down below the deck at the middle line H, in the sheer-plan, fig. 4, on their corresponding buttocck-lines, and transfer those spots to the buttocck-lines in the body-plan, fig. 5; then to those spots on the buttocck-lines, and those on the timbers, pin a batten, and it will shew the curve the deck-line at the side will make, if continued to the outside of the timbers, as I, in the body-plan, fig. 5.

To find the deck at the side in the sheer-plan, fig. 4, take the heights at every square timber in the body-plan, fig. 5, where they intersect the deck at the side, and transfer those heights to their corresponding timbers in the sheer-plan, fig. 4, by pinning a batten to those spots, with those made before on the buttocck-lines, you have the deck at the side, as I, in the sheer-plan, fig. 4, which is the level view of the moulding edge of the deck-tranform.

To find the lower side of the deck-tranform in the sheer-plan, fig. 4, and likewise in the body-plan, fig. 5; this should be done in the same manner as the upper side. If it is intended to be very correct, run the ribband-lines, which will be a proof to the rest of the work, in laying-off the tranforms.

To find the level view of the tranforms below the deck, in the body-plan, fig. 5, observe where the lower and upper sides of the tranforms in the sheer-plan, fig. 4, intersect the buttocck-lines, square timbers, and fashion-pieces; transfer those heights to the body-plan, fig. 5, on their corresponding lines, which give the level view of the tranforms in the body-plan, fig. 5.

To lay-off the cant-tranforms, proceed, as before, to make a separate plan, as fig. 6. The moulding edges of the wing, filling, and deck-tranforms, are laid off so familiar to the former, as not to need repeating here. But should the deck-tranform have much sheer, and a great round, it would be a further proof of correctness, to take the distance from the perpendicular line P, in the sheer-plan, fig. 4, to timber 32, in the direction of the sheer of the deck I, and set it off square from the line P P, in the plan of the tranforms, fig. 6, which will be further forward than the said timber, as before laid off; then pin a batten to the round of the deck under the body-plan, fig. 5, marking the middle line, and the spot that was squared down from the deck at the side, at timber 32, to the round of the deck, and set it off on the new timber 32, in the plan of the tranforms, fig. 6. This would give the exact spot on timber 32, if the deck was required to hang and round to extremes, in the same manner.
by placing a batten to the round of the wing and filling-tranoms in the body-plan, fig. 5, and marking the square timbers, buttck-lines, and square fashion-pieces on the batten; then let the batten be drawn, and it will be the exact half-breadth at every square timber, buttck-line, and fashion-piece, and will give the exact length of the wing-tranoms.

To lay off the tranoms under the deck, take the distance from the line P, in the shee-plan, fig. 4, to the buttck-lines in the direction of the tranoms, and set them off from the line P P, in the plan of the tranoms, fig. 6, on their corresponding buttck-lines. Take the half-breadths in the body-plan, fig. 5, square from the middle line to the intersection of the tranoms Nos. 1, 2, 3, 4, 5, and 6, with the square fashion-piece, and set them off square from the middle line in the plan of the tranoms, fig. 6, to intersect the fashion-piece, marking a line parallel to the middle line, as No. 6. Then take the distances from the line P, in the shee-plan, fig. 4, in the direction of the tranoms, to the fashion-piece, and set them off square from the line P P, in the plan of the tranoms, fig. 6, on the lines a, a, at the intersection of the fashion-piece. Take the half-breadths square from the middle line in the body-plan, fig. 5, where the tranoms intersect square timber 36, and set them off square from the middle line, in the plan of the tranoms, fig. 6. Then take the distances from the line P, in the shee-plan, fig. 4, to square timber 36, in the direction of the lines of the tranoms, and set them off square from the line P P, in the plan of the tranoms, fig. 6, to intersect their several half-breadths, as at k, c, d, c. In the same manner proceed to find all the spots for the square timbers, in order to prove the buttck-lines. This will give the exact form of the moulding edge of all the tranoms below the deck, and the flating of the fashion-piece on the tranom, with the length of the tranom at the moulding edge.

To find the direction of the end of the tranom, to lie against the side of the fashion-piece, observe in the half-breadth plan where the fashion-pieces intersect the middle line, and square them up to the shee-plan, as may be seen ticked, and marked K, M, L, calling them the fashion-pieces at the middle line in the shee-plan, fig. 4. Take the distance from the line P, in the shee-plan, fig. 4, to the middle line of the aftermost fashion-piece K, in the direction of the tranoms No. 6, and set it off from the line P P, in the plan of the tranom, fig. 6, on the middle line, and mark the ticked line g g, from the spot on the middle line, to the spot on No. 6 tranom. This will give the direction to cut off the end of the tranom, in order to lie against the side of the fashion-piece.

To bevel the tranoms when canted.

Those tranoms which are not fided straight, as the wing, filling, and the deck, are generally bevelled by the buttck-lines, as before observed; but rather than trufl to the bevellings only (it being rather difficult to apply them to trv as they should be), lay-off the under sides of all the tranoms, and make a light mould to them. This will correct the bevellings, and make greater dispatch in trimming the tranoms. Then there need only (except for proof sake) be taken the bevelling at the bearding-line, and the bevelling at the end; for the mould will give the rest. But observe to be careful in the bevellings at the ends of the tranoms; for instance, the ends of the wing and filling-tranoms, when they be level, are to be cut off square; but keep the square as much above the end of the wing and filling-tranoms, as they round in their length, and let the square look out of winding with the middle of the tranom. Also the bevel (when applied on the outside it is cut off, in order to bevel the end for canting) must be kept as much above the end of the tranom, and look out of winding with the middle of the tranom.

As the bevelling for the end of the deck-tranom is taken against the cant-fashion-piece by a level line in the body-plan, fig. 5, it must be observed how much the tranom at the middle line in the shee-plan, fig. 4, is below a level (suppose one foot). Then place a batten at the middle line on the tranom, and lift the foremost end of the batten up till it becomes level, as supposing the tranom to be in its place; then proceed with the square and the bevel for the end of the tranom, in the same manner as for the wing and filling, looking out of winding with the batten at the middle line.

To bevel the tranoms, which are canted in the shee-plan, fig. 4, proceed in the same manner as in bevelling the cant-timbers, by making a parallel line to the moulding edge. Therefore lay-off the bevellings of the tranoms, by squaring a line from the upper side, where it intersects the line P, in the shee-plan, fig. 4, to the under side, as the ticked line a at the lower tranom. Take the distances from where the squared line, a, crosses the lower edge in its cant direction, to the bearding-line c, and to all the buttck-lines, and set them off square from the line P P, on their corresponding lines, in the plan of the tranoms, fig. 6. Where the bearding-line c, in the shee-plan, fig. 4, proves to be square from the direction of the tranom, as it is, or very nearly so, at the lower tranom, then the bevelling for the moulding edge, and likewise for the bevellings, will come as near together in the plan of the tranoms, fig. 6. This may sufficiently prove that the method of bevelling is correct.

Where the under side of the lower tranom intersects the square timbers and square fashion-piece in the body-plan, fig. 5, take the nearest distances from thence to the middle line, and set them off square from the middle line, in the plan of the tranoms, fig. 6, striking lines parallel to the middle line, as at ii. Then take the distances from the squared line a, in the shee-plan, fig. 4, in the direction of the under side of the lower tranom, to the square timbers and fashion-piece T, and set them off square from the line P P, on their corresponding lines laid off, in the plan of the tranoms, fig. 6. To these spots, and those on the buttck-lines, pin a batten, and it will represent the ticked line b k, within the lower tranom, which will shew how much the lower tranom is under from a square, agreeable to the depth of the tranom. Take the distance from the squared line a, in the shee-plan, fig. 4, to the ticked perpendicular K, which is the after-fashion-piece at the middle line; and set it off from the line P P, on the middle line, in the plan of the tranoms, fig. 6, and mark the ticked line m, from thence to the spot on the fashion-piece, which will be a line parallel to the ticked line g, before marked to cut off the end of the tranom; and the distance between the two ticked lines shews how much the end of the tranom is under from a square, agreeable to the depth of the tranom.

The ticked line b k, in the plan of the tranoms, fig. 6, which is for the bevellings, is the line to make the temporary mould to, in order to cut the outer mould the tranom, and beveling off one end of the mould to the bearding-line for the breech of the tranom, and cutting off the others to the ticked line m for the end of the tranom, when the mould is applied to the under side of the tranom, it will be easily perceived it the work be true.

To find the exact bevelling to be applied over the end.
of the tranfom, after the end is cut off, in order to counter-
mould the tranfom, proceed in the following manner.
Where the upper and lower fides of the lower tranfom inter-
fect the after-cant-fashion-piece P, in the body-plan,
fig. 5, level them out to interfect the after-cant-fashion-
piece O. Where the upper fide of the lower tranfom inter-
fects the perpendicular ticked line K (which is the af-
ter-fashion-piece in the fheer-plan, fig. 4), transfer that
height to the middle line, in the body-plan; fig. 5; and
from there draw a straight line to the upper fide of
the lower tranfom, on the cant-fashion-piece, as the ticked
line e, to which line fix the flock of a bevel, as at B,
and the tongue to the cant-fashion-piece O, as low down
as the spot for the lower fide of the tranfom. This is
the proper bevelling to be applied on the end of the
tranfom, after the end is cut off, in order to counter-mould
the tranfom. The ticked line e, to which the flock of the
bevel is placed, is the direction of the tranfom to be croffed
on the fashion-piece mould. The bevel B, which is repre-
sented in the body-plan, fig. 5, fhewing the bevelling of
the end of the lower tranfom, fufficiently proves the utility
of canting the tranfoms; for, by having fo little bevelling,
it greatly afifts the converfion of timber, as well as that it
muff certainly be better for the security of the plank of the
buttock.

To Lay-off a Square-Tuck, Plate IX. Laying-off C.

We have already explained the utility of the tranfoms in
composing the ftern-frame, by which method most ships are
inclined abaft. But yachts and cutter-built veffels are
owing to their clearerms of run abaft, inclined by a square
tuck, by which room is gained; and, when properly put
together, this mode of conftuction is, perhaps, stronger
than tranfoms would be in veffels of this defcription.

The tuck propofed to be laid off is that of the royal
yacht, Plate XIII. But that the reader may be led pro-
gressively on from the eafieft to the moft difficult part of
the operation, we fhall firt propofe a square tuck, the
fides of which are to be out of winding, or in the fame
direction as the rabbit of the poft, in confequence of which
the wing-tranfom muft be ftraight athwarthips, and the
whole will be one flat furface (fimilar to the tranfoms of
boats), or a fection of the veffel cut athwarthips, but not
in a perpendicular direction, which is the only difference
between it and the fquare timbers; and as the fection is
agreeable to the rake of the ftern-poft, it confequently
follows, that the laying it off must differ from the fquare
timbers in the operation.

The horizontal view of the tuck muft firt be reprefented
in the body-plan, fig. 8, which is done in the following
manner: ftrike a horizontal line in the fheer-plan, fig. 7,
at the height of the wing-tranfom at the fide, as at 5; and
likewise as many horizontal lines below that as may be
thought fufficient; and where they interfeft the aft-part of
the rabbit of the poft a, square them down to the half-
breadth plan, fig. 9; then transfer their heights to the
body-plan, fig. 8; and where they interfeft the fquare
timbers 21, 22, 23, 24, 25, and P, in a horizontal di-
rection, take those difiances from the middle line, and let
them off upon their correffponding timbers from the middle
line, in the half-breadth plan, fig. 9; then by pinnnig a
batten to those spots, the horizontal view of the tuck, as
will be reprefented in the body-plan, fig. 8, as high as the
wing-tranfom at the fide. But was the head of the fashion-
piece required to run up, to take a bolt or two through the
heel of the fide, a counter-timber, proceed in the fame manner
for a horizontal line or two above that at the fide of the
wing-tranfom; lay, one at the upper fide of the wing-
tranfom at the middle line; then run the main half-breadth
line in the half-breadth plan, fig. 9; then, where the half
horizontal line and main height of breadth line interfect the
aft-side of the rabbit a, in the fheer-plan, fig. 7; square
them down to the half-breadth plan, fig. 9, and take their
difiances from the middle line in the half-breadth plan, fig. 9,
to where they interfect the horizontal line 6, and the main
half-breadth line, and fet them off from the middle line on
their correffponding horizontal lines, in the body-plan,
fig. 8; then by continuing the curve, a, upwards through
those spots, the horizontal view of the tuck will be con-
tinued up to the height of breadth.

Now, where the horizontal view of the tuck in the body-
plan a, fig. 8, interfects the bearding-line b, take that height;
and transfer it to the fheer-plan, fig. 7, ftriking there the
horizontal line S, which repreffes the feting of the tuck;
then take the diftance from the feting of the tuck, in the
fheer-plan, fig. 7, on the rake, in (the direftion of the rab-
bet of the poft a), to the repective horizontal lines and height
of breadth, and fet them up the middle line, from the hori-
ontal line S, at the feting of the tuck, in the body-plan,
fig. 8; ftriking a horizontal line to the rake, at every
height, as fhewn by the fine-ticked lines; then, where the
horizontal view of the tuck, a, interfects the horizontal
lines firft ftuck, carry it up parallel to the middle line, to
their correffponding horizontal lines on the rake; which will
give the spots through which the fine-ticked curve is to
pafs, that will repreff the proper shape of the tuck,
agreeably to the rake, as e; and the line to which the
fashion-piece mould muft be made.

The bevellings for the fashion-piece may next be taken,
by proceeding as follows. The aft-side of the rabbit of
the poft a, in the fheer-plan, fig. 7, repreffes the aft-side
of the fashion-piece of the tuck; therefore, take the fiding
of the fashion-piece, and fet it off afore the rabbit, and
square thereto; then, by ftriking a parallel line to the aft-
side a, the fore-side of the tuck b will also be repreffed;
next, from the feting of the tuck S, on the aft-side, square
the line C from the rabbit to the fore-side; and from its
interfeftion at e, take the heights of the horizontal lines up
the fore-side, and fet them up on the middle line from the
horizontal line S, at the feting of the tuck, in the body-
plan, fig. 8; ftrike horizontal lines for the fore-side of the
fashion-piece, as diftinguifhed by the long-ticked lines;
then, where the fore-side of the fashion-piece b, in the fheer-
plan, fig. 7, interfects the horizontal lines and height of
breadth, square it down to their correffponding horizontal
line and main half-breadth, in the half-breadth plan, fig. 9;
at which interfeftions take the difances fquare to the middle
line, and fet them off from the middle line on their corre-
ffponding horizontal lines, for the fore-side of the fahion-
piece, in the body-plan, fig. 9. Continue the fore-side
of the fashion-piece down to the bearding-line d, as you fee
ticked in the fheer-plan, fig. 7; then take the diftance from
the interfeftions of the fquared line at the feting e, down
the fore-side of the fashion-piece to the horizontal line 1,
and where it interfects the bearding-line d, and fet it off in
the body-plan, fig. 8. Below the horizontal line S, at the feting
of the tuck down the bearding-line, ftrike a horizontal line
for No. 1, and proceed as before directed to obtain the half-
breadth
breadth spot on the half-breadth and body-planes, figs. 9 and 8; then stick a stick to a batter, and mark the curve which will intersect the beaver-line, and the fore-side or lower face, d, of the fashion-piece will be represented in the body-plan, fig. 8.

The attitude and fore-side appear now in their proper shape, as in the body-plan, fig. 8, and of the same form as the fashion-piece, when turned and laid flat with the attitude upwards, as thus both edges will be seen, in consequence of its having a bending bevelling; therefore, the distance from the line represents the attitude to the line of the fore-side, taking the greatest distance, at a, which will show how much the bevellings are tending, or without a square, in the breadth of the bevelling-board, which should be equal to the thickness of the fashion-piece.

When the mould is made to the ticked line, c, of the attitude, the heel of it must be cut off well with the line for the seating of the tack, and likewise well with the middle line, in order that it may dovetail and bolt into the fore-poll. Mark also on the mould the beading-line, or side of the inner poll. The different firmarks for the ribbands must be marked on the moulds, but, in order that the firmarks of the ribbands may be correctly marked, observe where the diagonal lines intersect the horizontal view of the tack a, in the body-plan, fig. 8, and carry them up parallel to the middle line, to the line for the side of the fashion-piece c, to which the mould is made. This will be their proper flatness or upper sides, and may thence be marked on the mould.

The bevellings may be taken at the different firmarks or ribbands, and set off where taken, as the bevel at the fourth riband, which will show it more clearly. The ticked line c, drawn parallel to the black of the bevel in the same distance from the outside of the bevel, as the fashion-piece is fised. Then draw a line square from the black of the bevel to the ticked line c; and where it intersects the ticked line g, as at b, set off from b to i, the same distance as the fore-side t, from the side of that place, as before directed, and open the tongue of the bevel to i. This will show the bevelling of the fashion-piece at that place. The bevel is to be applied square from the moulding edge.

Run in the half-breadth plan, fig. 9, the diagonal 7, although the ending of it only differs from those explained before, and need only be described. Transfer the height from the body-plan, fig. 8, where the diagonal 7 intersects the horizontal view of the fashion-piece a, and set it up in the beaver-plan, fig. 7, at the side of the fashion-piece; and from its intersection there, square it down to the half-breadth-plan, fig. 9; then take its distance in the body-plan, fig. 8, from the middle line to the horizontal view of the fashion-piece a, its diagonal direction, and set it off from the middle line, in the half-breadth-plan, on the line squared down, which gives its ending at the fashion-piece. In the same manner transfer its height where it intersects the upper side of the wing-tranom, in the body-plan, fig. 8, and set it up in the beaver-plan, fig. 7; and where it intersects the side of the fashion-piece, square it down to the half-breadth-plan, fig. 9; then take the distance from the middle line, in the body-plan, fig. 8, as before, to the upper side of the wing-tranom, and set it off from the middle line, in the half-breadth-plan, fig. 9, on the line squared down; then mark a line through those spots, as the long-ticked line c, is the half-breadth-plan, fig. 9, which will be the true ending of the diagonal 7, or any diagonal crossing the wing-tranom and fashion-piece.

Square tucks of lighters are like those above described, and the lines are laid off at a similar manner, but composed of only one piece between tucks, and their upper line is bounded by the upper side of the beaver. But the tucks of lighters (or legeras), is best of the parts of the body, i.e. the tucks of the wing-tranom, which makes the side of the fashion-piece to take a part of it also the whole or at least its length, which makes them rather more difficult to be laid off. But, supposing the former to be clearly understood, we shall give a description of a tuck, the outside of which is to be finished forward, in its finished state.

Suppose a flat surface, of such a level (as longer from the head of the fashion-piece or height of breadth to the seating of the tuck, and in breadth to the outside of the tranom) as was placed upon one side to the rabbet of the poll, and the other edge bent round to a curve, as much as the outside of the tuck in intended to be round forward, in which position suppose it to be confined; then draw the shape of the outside of the tuck or fashion-piece down to the poll, and cut it out. The true shape of the tuck or fashion-piece is now shown as it is to be trimmed, and it will appear in its finished state. Then take it from its position, and lay it flat, letting the round be uncorked; and it will then appear, as it is required to be laid off in the body-plan, in order to make the mould therefrom.

The fashion-pieces for the square tuck being already laid off, the same horizontal lines, &c. may be transferred to the beaver and body-planes, figs. 10 and 11; then proceed to lay it off upon the flat, agreeable to the help of the rabbet of the fore-poll, as before directed, with this difference, having no round-aft pedals, but one straight line in the half-breadth view, in the beaver-plan, fig. 7, which was the side of the rabbet of the fore-poll; but, in the present square tuck, when the head of the fashion-piece is carried forward, to connect with the end of the wing-tranom, the moulding edge of the fashion-piece forms a serpentine line.

Therefore, where each horizontal line intersects the side part of the rabbet of the poll a, in the beaver-plan, fig. 10, square down the distances to the middle line of the half-breadth-plan, fig. 12, making of spots; then upon the horizontal line, No. 5, at the height of the wing-tranom, at the side, let off from the side of the rabbet of the poll a, the round-forward of the wing-tranom, in the beaver-plan, fig. 10, and square it down to the half-breadth-plan, fig. 12; upon which let off the half-breadth of the wing-tranom, and thence sweep a curve, the centre of which radius being in the middle line, shall cut the spot for the said horizontal line, in the middle line of the half-breadth plan, fig. 12, which will represent the side of the wing-tranom a, at the height of the horizontal line at the side. Now, from the other spots squared down on the middle line of the half-breadth-plan, sweep curves with the same radius, and they will be parallel to the curve of the wing-tranom a. The horizontal lines being transferred from the half-breadth plan, figs. 9, 10, to fig. 12, take the distances from the middle line in the half-breadth-plan, fig. 12, where the horizontal lines intersect their respective curves for the side of the tuck, and let them off from the middle line on their corresponding horizontal lines, in the beaver-plan, fig. 11; a batter pinned to these spots will show the horizontal view of the tuck a, in the body-plan, fig. 11. Also, where the horizontal lines in the half-breadth-plan, fig. 12, intersect their respective curves, square the distances up to their corresponding horizontal lines in the beaver-plan, fig. 12; and by drawing a curve to pass through those spots, the horizontal view of the side of the fashion-piece, a, will be represented in the beaver-plan, fig. 10; and what the thwart-
thwartship view of the aft-side of the fashion-piece leaves
the rabbe't of the stern-post, in order to be conformable to
the wing-tranform at the side, is easily perceived by the
shaded lines.

Till this thwartship view of the aft-side of the fashion-
piece, b, be shewn in the sheer-plan, fig. 10, the ribband
lines cannot be truly ended, although the operation is the
same as before described.

Though the aft-side of the fashion-piece b, in the sheer-
plan, fig. 10, leaves the rabbe't of the stern-post at the
head conformable to the end of the wing-tranform, yet a square
line at the footing must be drawn as before, to lay-off the
tuck on the flat; therefore, take the nearest distances from the
square line a, in the sheer-plan, fig. 10, to where each
horizontal line crosses the aft-side of the fashion-piece b, and
let them up from the horizontal line S, in the body-plan,
fig. 11, striking horizontal lines, as distinguished by a fine
tick.

Then take the half-breadth of the wing-tranform, in the
body-plan, fig. 11, square from the middle line, and let it
off from the middle line, on the line A A. Next, fix one
leg of the compasses at the end of the wing-tranform, in the
sheer-plan, fig. 10, and take the nearest distance to the aft-
part of the rabbe't of the stern-post a, which is square from
the rabbe't, as the line e; and let it off square from the line
A A, at each end of the tranform b b; and sweep the arc
e e, which gives the round-aft of the tuck at any height,
square from the rabbe't of the stern-post. Square down the
fine-ticked lines, or horizontal lines, 2, 3, 4, 5, 6, and 7; on
the rake where they intersect the horizontal view, a, of the
fashion-piece in the body-plan, fig. 11, to the round-aft
line, on a square under the body-plan. Then take their
distances from the middle line, on the curve e e, or round-
aft, on a square, and let them off from the middle line of the
body-plan, fig. 11, on their corresponding horizontal lines;
then pin a batten to these spots, and to where the footing
intersects the post, and it will give the form of the aft-side
of the fashion-piece d, to which the mould is to be made,
that will agree with the other timbers, when in their
places.

To be correct with the length of the wing-tranform on the
flat, take the half-breadth from the body-plan, fig. 11, on the
round for the upper side of the tranform; then continue the
end of the tranform in the half-breadth plan, fig. 12,
square out from the middle line, as at c; on which (square
from the middle line) let off the half-breadth taken on the round
from the body-plan, fig. 11, and from that spot sweep an arc to break into the middle of the tranform, at the middle line, as represented by the dotted line a; then from the before mentioned spot, or end of the wing-tranform at b, take the half-breadth round the dotted curve to the middle
line, and let it off from the middle line in the body-plan,
fig. 11, round the curve, for the upper side of the tranform.
This will give the exact length of the tranform on the
round-aft of the tuck.

Previous to the laying-off of the fore-side of the fashion-
piece, it will be proper to understand in what manner the
fashion-piece is to be moulded and trimmed, particularly on the
fore and after-sides.

Make a mould to the moulding, or outer edge of the
fashion-piece laid off on the flat, as the fine ticked line d in
the body-plan, fig. 11. The upper end may be made as
high as the height of breadth, or horizontal line 7, and the
lower end may or ch to the footing on the post. Let the
upper end of the mould be cut off well with the direction
of the horizontal line 7, and let the heel be exactly perpen-
dicular at the side of the inner post. Make another mould
to the round-aft, on a square c c, as shewn under the body-
plan, fig. 11, and of a parallel breadth, like part of a beam-
mould. Make it as broad as the fashion-pieces are intended
to be fitted, and let the midship-end be well with the side of
the inner post, and cut off parallel to the middle line. Let
the side-end correspond well with the moulding edge of the
fashion-piece, and cut off agreeable to the round of the side
when the mould lies in its proper place, underneath the
body-plan, fig. 11. Let the fashion-piece be fided suffi-
ciently for the wing-tranform to dovetail into the aft-side
of it, and let the fore-side of the fashion-piece, that runs
above the wing-tranform, be of sufficient length to receive
the bolts of the side stern-timber, and long enough at the
heel to meet at the middle line.

When the fashion-piece is roughly fided on the aft-side, so
as to lay the mould on the aft-side, to mark the upper and
lower end nearly, then cut off the head by the mould for
the thwartship-way, and the fore and aft-way, square. Then
fatten the round-aft mould, that is made to the fiding, on
the head of the fashion-piece, by which may be trimmed the
fore and after-sides of the fashion-piece out of winding,
by lines parallel to the middle line. Thus will you have
the best opportunity of seeing how to convert the piece, by
seeing both sides at once. Then will the fashion-piece be of a parallel thickens from one end to the other,
by all lines that are parallel, whether perpendicular or
horizontal.

To Lay-off the Fore-side of the Fashion-Piece.

Having the fiding of the fashion-piece on a square, set it
off in the sheer-plan, fig. 11, square from the rabbe't of the
stern-post a; then with compasses take the fiding of the
fashion-piece in the direction of the horizontal lines, and
set it off square from all the aft-sides of the horizontal lines,
prolonged in the half-breadth plan, fig. 12, on each horizontal
line, and square them up on their corresponding lines in the
sheer-plan, fig. 10. Then pin a batten to those spots,
and the fore-side of the fashion-piece e will be represented.
Take the heights above and below the squared line d, in the
sheer-plan, fig. 10, to the intersection of each horizontal line
with the fore-side of the fashion-piece e, in the same manner
as the aft-side was done; and set off above and below the
ticked line S, in the body-plan, fig. 11, and strike horizontal
lines, as there distinguished by long-tick. Then take the
half-breadths in the half-breadth plan, fig. 12, to the fore-side
of the fashion-piece on the horizontal lines, square from the
middle line; and set them off square from the middle line
on to the line for the round-aft, on a square e e, under the
body-plan, fig. 11. Then take them off again on the round-
aft line, and set them off from the middle line, on their
Corresponding horizontal lines in the body-plan, fig. 11.
Then pin a batten to those spots, and the form of the fore-
side of the fashion-piece e will be agreeable to the fiding
proposed.

The aft-side of the fashion-piece not being straight, will
render it more troublesome than neful, to run lines in order
to trim the outside of the fashion-piece by bevellings;
therefore it would be better to make a mould to the fore-side, e,
and trim a spot to lay to the side of the inner post or dead-
wood; and set off a bevelling for the outside at the main-
breath, as at B, fig. 12.

Mark the line at the footing S, in the body-plan, fig. 11,
on the mould for the aft-side, and on the mould for the fore-
side, and when the aft-side is moulded, and the side trimmed
to lay to the inner post, mark the spot b square from the
aft-side
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affines to the fore-side, to which place the lappet $b$, on the mould for the fore-side, must properly correspond; and the head of the mould must be kept well with the lappet to the bevelling at the main-breath. The mould lies then in its proper place to mould the fore-side of the fainion-piece.

It is customary, in boats, for the planks of the bottom to run through to the aft-side of the transom, and sometimes to the aft-side of the fainion-piece of lighter; but in larger vessels it is better to rabbot the fainion-piece; for when the planks of the bottom are rabbotted into the fainion-piece, and the inside of the butts left longer than the outer, the planks are apt to be pelled to the timbers on caulk {ing their ends; while, on the contrary, when the planks run through the fainion-piece, they are not able to bear the force that is required to be made by caulk{ing their ends sufficiently. In vellets of this class, likewise, the ends of the planks would be liable to be startled off by accident.

The fainion-piece, as it is laid off, both fore and aft-fines, is conformable to the timbers of the body, being for that reason easier understood; but when the fainion-piece is moulding, be careful to leave enough without the lines for the thickness of the plank; which may be found exactly by holding a batten at the out{side of the fainion-piece, at several places, parallel to the lines for the fore and aft-fines of the fainion-piece, and square from the lines.

Then extend the compas{es to the thickest of the bottom plank, or otherwise run as many fictitious diagonal lines as shall be necessary, and square from the moulding edge of the fainion-piece. Then set off the thickness of the plank of the bottom, and lay off the extreme out{side of the fainion-piece, likewise the aft-side, observing the round in the direction of the diagonal line, whereby a mould may be made to the aft-side, at the extreme breadth, and the outside may be trimmed by bevellings from the diagonal lines. But great care must be taken to place each diagonal line square from the moulding edge of the fainion-piece; and then, as the fainion-piece at the aft-side will wind or twist in the direction of the diagonal lines, the tongue of the bevel may not cast at all the bevelling spots, exactly in the direction wherein the diagonal lines were laid off; for the diagonal lines at the middle line (suppose in the floor-plan) are parallel to the upper side of the keel; and are cut down similar to the flap of a table, as before observed; in which direction the tongue of the bevel ought to cast, when the bevellings are taken from the diagonal lines.

The fainion-pieces are rabbotted on their aft-fines, to receive the planks of the tuck; but do not take the rabbot too low down as where it intersects the poll, but leave it square some inches above it, that the midthip piece may be gotten in its length as it rabbot{ts into the poll, and it will also leave a better butt for caulk{ing, as shewn in the body-plan, fig. 11.

The wing-tran{on mould must be made to the fine ticked curve $a$, in the half-breath-plan, fig. 12. The bevelling of the wing-tran{on will be the fame arrow{head on the aft-side, which bevelling is the rake of the rabbot of the poll $a$; and the wing-tran{on is rabbotted at the aft-side at the lower edge for the planks of the tuck, and at the upper edge for the planks of the lower counter, (if thought proper,) therefore the breadths of the fainion-timbers should be placed as much before the aft-side of the wing-tran{on as the thicknesses of the planks of the lower counter allow.

To prevent any error in the true height of the fainion-pieces, let the finmark $c$, in the body-plan, fig. 11, be correctly marked on the mould and side of the fainion-poll, so that when the heels of the fainion-pieces are letting on the poll, these finmarks must exactly agree.

To lay off the several Parts of the Head, Plate X. Layning-off $D$.

The knee, cheeks, rails of the head, and block for the figure, must be laid off to their full size on the floor from Plate I., which is the horizontal and thwarting view, when the cheeks, rails, &c., are fixed in their places.

To make the Mould to the Knee of the Head.—The lower part of the knee at the fore, as at X, Plate X., fig. 1. Layning-off $D$, may be made by the board about an inch thick, and up the fore-part of the knee and them, as high as the cutting-down and beveling of the figure; but these need be no broader than about five inches for lighter, as at 39, 39, fig. 1. Then across the mould are slaters, batters, which not only keep the mould togeth{er, but the manner of sliding the knee is expressed thereby. Thus, take any perpendicular, as at 24, fig. 1, and level out the several heights 13, 14, 15, 16, and 17; and at 13 and 17 let off the half-fining of the flem, striking a line thereto. Then let fall a perpendicular from the fore-side of the knee at the upper part, as at 25, fig. 1, and let off the half-fining of the knee at 4, and at 12, and strike a line. Strike the lines across the knee of the head, where it is intended to have the upper side of the battens, as at 1, 2, 3, &c. Then apply the batten to the perpendicular 25, fig. 1, keeping it fall at the upper end, and mark on the perpendicular the spots 1, 2, 3, &c. Then from the perpendicular 25, fig. 1, take the half-fining at each spot, and let them off on their corresponding lines at the fore-side of the knee: proceed in the same manner for the half-fining of the flem at 24, fig. 1, and strike in the lines as ticked across the knee. Then batten the lines, being made to those lines, and nailed across the mould, the half-fining of the knee may be readily let off at the upper side of each batten, and the knee, when put together, may be trimmed straight from the fore-side to the flem or aft-side of the knee: the cutting-down, as at 1, 2, 3, &c, and 4, fig. 1, is fided in the same manner.

To make the Mould to the Gripe, G, fig. 1.—The gripe is only the completion of the knee to the keel, and the mould is made so similar to the knee above as to need no further description.

To make the Moulds to the Cheeks.—The cheeks must be laid off to their moulded size on the half-breath-plan, fig. 2, at $C$, $C_1$ to the main half-breath line, allowing the thickness of the plank, as at $R$, and against the side of the knee. Another mould must be made to the flight of each cheek, in the floor-plan, fig. 1, at $C$, or upper cheek; and $L$, $C$, the lower cheek, from the heel of the figure $Z$, to reach as far as the cheeks are there fewn, marking a finmark at the fore-side of the item. Then, to mould the cheeks to their proper flight, draw off the knee-arm to the mould made in the half-breath-plan, marking on the piece the fore-side of the item from that mould: then fullening the flight-mould to the knee-arm of the cheek, observing to keep the finmark well at the fore-side of the item, and keeping the mould parallel to the middle line, let the cheek be trimmed out of winding by the thwart{ing lines, or lines which are square from the mould. Then there is a certainty, when the cheek is bevelled, no angle will appear in the throat, as there will be sometimes by the usual method, particularly in full-bowed ships, where the beav sprins more than the flight of the cheeks. When the side-arm of the cheek is trimmed
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Determine the fore-and-aft arms by the flight of the cheeks laid off on the floor, there will sometimes be a very disagreeable throat, which cannot happen when trimmed by the above method. Although the side-arm may not hang so much as the sheer of the ship, yet it will not look disagreeable, because the throat of the cheek is the only part that takes the flight.

To find the Head-Rails.—Strike in the perpendiculars Z and Y from the fore-side of the figure, and perpendicular to the half-breadth of the in the queer-plan, fig. 1, down to the half-breadth-plan, fig. 2. Determine on the half-breadth of the lacing, as at 1, 2, 3, &c., as shown in fig. 1. Set off the flight lines from perpendicular Y, on the middle line in the half-breadth plan, fig. 2, and square them out to the line P, or outside of the mainrail, numbering them, as before, at the middle line; then square them out from the line P. Take the distances from the line 32 in the queer-plan, fig. 1, to the upper and lower parts of the main-rail at each perpendicular line, and set them off on their corresponding numbers in the half-breadth plan, fig. 2, which was squared out from the line P; and then, by pinning a batten to these spots, it will give the form of the main-rail, and it will shew the same form, when in its place, as that in the queer-plan, fig. 1. Where the lines squared out from the middle line in the half-breadth plan intersect the inside of the main-rail, strike them from thence square from the line P to the rail already laid off, and take the distances on these lines from the line P to the upper part of the rail, and set them down from the line 32 in the queer-plan, fig. 1, on their corresponding perpendiculars; which will give the inside of the main-rail in the queer-plan, fig. 1, as the ticked line, which rises above the middle of the rail forward, being the upper line, and below towards the after end as the after part, falls below the outside. The inside of the rail at the lower edge must be set off in the same manner in the queer-plan, in order to lay off the timbers exactly.

Strike the ticked line in the plan of the rail in the half-breadth plan, fig. 2, which is the line to which the chamfer at the under side of the rail the mouldings are intended to be wrought to. This must likewise be laid off in the queer-plan, because in a thwartship view this is the proper sight of the lower edge of the rail: for the lower part of the rail in the queer-plan (which was first laid off in order to lay off the rail to its proper cant in the half-breadth plan) may now be rubbed out, when the rail is supposed to be chamfered or wrought.

In the half-breadth plan, fig. 2, where the lines squared out from the middle line intersect the ticked line before-mentioned by the front edge of the rail, then take the distance of those lines from the line P to the lower part of the rail-laid off, and set them off from the line 32 in the queer-plan, fig. 1, on their corresponding perpendiculars. This gives the lower part of the rail in the queer-plan, at the chamfer, being the fight part of the rail when trimmed and in its place.

Before the main-rail is cant, as in the half-breadth plan, fig. 2, the proper form of it cannot be ascertained in the queer-plan, fig. 1; for the rail, when canted in order to make the mould, must be gradually diminished from one end to the other, and from thence transferred to the queer-plan; for instance, the middle line at the after-part of the rail in the queer-plan, is the aft-part of the rail at the outside; so that from thence to the fore-side of the rail shews less than the rail in the middle; also, at the foremost end the rail will not shew so much as it does in the half-breadth plan; whereas in the middle it shews the same.

Before the middle rails can be cant in the half-breadth plan, fig. 2, to their proper spread, proceed in the following manner: Strike an horizontal line from where the aft-side of the stem-timber 20, in the queer-plan, fig. 1, intersects the upper side of the upper cheek, as the line 27, in fig. 3. Take the heights from the upper side of the upper cheek, at the perpendicular line 7, in the queer-plan, fig. 1, to the upper and lower parts of the three rails L, M, and N, and set them up from the horizontal line before-mentioned in fig. 3, as you fee ticked at L, M, and N. Then take the distances from the middle line in the half-breadth plan, fig. 2, at the line 7, to the outside of the main-rail; likewise to the inside, and the ticked line for the chamfer of the rail at the under side; and set them off on their corresponding lines in fig. 3, and draw the thwartship section of the main-rail. Set off in the half-breadth plan the half-thickness of the knee S Y of the head, and the moulding of the upper cheek C C; then take the half-thicknesses of the knee at 7, or aft-side of the stem-timber in the half-breadth plan, fig. 2, and set it off from the middle line u in the plan of the timbers, fig. 3, on the line 27. Then determine the breadth of the timber at the upper side of the cheek, and pin a batten to the curve for the outside of the timber. Then in the plan of the timber, fig. 3, determine on the half-breadths of the middle rails L and M; and transfer them from thence to the half-breadth plan, fig. 2, at the aft-side of the stem-timber. Then set off the distance of the foremost end of the rails from the middle line, and strike in the two lower or middle rails N, O, in the half-breadth plan, fig. 2.

The middle and lower rails being determined in the half-breadth plan, fig. 2, the outsides of them, being the fight-sides, are the proper end to be laid off. The outside of the middle rail is marked O, and the outside of the lower rail N. Where the upper sides of the middle rail M, and lower rail L, in the queer-plan, fig. 1, intersect the aft-side of the hair-bracket H, strike the horizontal lines 33 and 34, answerable to thec in the half-breadth plan, fig. 2.

Where the lines 1, 2, 3, &c. which are square from the middle line in the half-breadth plan, fig. 2, intersect the lines O and N, let them be squared out from the lines O and N, in the same manner as was performed for P. Then take the distances from the lines 33 and 34, in the queer-plan, fig. 1, (at the same perpendiculars as before,) to the upper side of the middle and lower rails, and set them off in the half-breadth plan, fig. 2, from their corresponding lines O and N, on the lines squared out. This gives the form of the upper sides of the middle and lower rails, which is sufficient to shew the method of laying off each rail, agreeable to their different cant or spread. The lower side of the rails may be determined by the diminishing line to the moulding or depth of the rail at each end.

It is very seldom that the middle and lower rails are laid off on the floor only; the main or upper rail, when trimmed, is gotten up into its place, and moulds are there made to the head-timbers, and then the middle and lower rails are spread and equally divided thereon between the upper rail.
rail and upper check, and the moulds made to them when their situation is determined on.

But in order to shew what may be performed on the floor, the timbers of the head may not only be laid off, but the bevellings taken, and the very foars for the rails be cut out thus:

"Take the heights in the sheer-plan, fig. 1, at the side of each head-timber, from the upper side of the upper check in the upper and lower sides of each rail, for the outside of the rail, and let them up from the base line of their corresponding timber, fig. 3, striking the horizontal lines as there ticked. Then take the distances from the middle line to the half-breath plan, fig. 2, at the side of each timber to the outside of each rail, and set them off on their corresponding ticked lines, fig. 3. Where the aft-sides of the timbers, in the half-breath plan, fig. 2, intersect the inside of the middle and lower rails, let them be drawn square from the lines N and O, to intersect the lines of the rails laid off. Then take the distances from the lines N and O, on the lines squared out, to the lines of the rails laid off, and set them down from the lines 33 and 34, at the asf-sides of their respective timbers in the sheer-plan, fig. 1, making spots which form the upper side of the rails at theinside, the same as was performed for the upper rail. Take the distances from the upper side of the check in the sheer-plan, fig. 1, at the asf-sides of the timbers, to the spots last mentioned, and likewise to the line for the upper side of the upper rail at the inside, and set them up from the base line of each respective timber in fig. 3, and strike a faint line. Then take the distances from the middle line in the halff-breath plan, fig. 2, at the asf-sides of each timber, to the inside of the before-mentioned rails, and set them off from the middle line \(u\), in the plan of the timbers, fig. 3, on their corresponding faint lines. This gives the upper part of the rails at the inside. The same operation may be performed to find the lower part of the rails at theinside; or you may draw the inside of the rails perpendicular, and set down the depth of the rails agreeable to what they measure on the moulds, taken in the direction of the timber. This may determine the under side of the rails at theinside.

As the line of the chamfer of the upper rail \(N\) (being the sight-side of the rail when it is trimmed, and in its place) is before represented in the sheer-plan, fig. 1, take the height from the upper side of the check to the chamfer of the rail, at the asf-sides of each timber, and set it up from the base line of each corresponding timber, fig. 3, striking faint lines parallel to the base line. Then take the half-breaths at the asf-sides of each timber in the half-breath plan, fig. 2, to the ticked line of the upper rail, (which is supposed to be where the rail is also to be chamfered,) and set them off from the middle line \(u\), in fig. 3, on their corresponding lines last struck, and from thence draw the under side of the rail to theinside.

Having the upper side of all the rails, inside and outide, in the plan of the timbers, fig. 3, set off, draw the line for the upper side of the rails, which shews how much the inside of the half-breath is higher than the outside, if cut off in the direction of the asf-side of the timber. Then having the spots, as before mentioned, for the outside of the rails, (being on the ticked lines first drawn,) the under side of the rails may be drawn parallel to the upper, or to intersect the spot before-mentioned for the inside, which was set down agreeable to what it measured in the mould, taken in the direction of the rail, as it is marked on the mould.

Having the scores for the timbers, the half-thickness of the knee of the head at the asf-side of each timber, set it off from the middle line \(u\) on the base line of its corre-

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loping timber in fig. 1. Likewise take the height from the upper side of the upper check in the sheer-plan, fig. 1, to the ticked curve, representing the centre line of the knee, and let it up from the base line of each timber in fig. 3. Thus will give the score to be cut off, in order to let the timber meet its opposite at the mould. Then set off the distance at the upper side of the upper check, and draw the inside and outside of the timber as described in the plan. This will be the exact form of the timbers, or more particularly, of the scores of the middle and lower rails, and laid off in the groin, might be performed to the greatest number.

To brewh the Timbers in the Head.—In the sheer-plan, fig. 1, set off the side of the timbers, and strike in their fore-side. Then figure a line from the asf-side to the fore-side, from where the asf-side intersects the upper side of the check, as at 18, 19, 20, in the same manner as was done to find the bevellings of the east-timbers.

Take the heights at the fore-side of each timber from its heel, as squared, to the upper and lower sides of the rails, in the same manner as directed for the asf-side, and set them up on the plan of each respective timber, fig. 3; then set off the fore-side of each timber in the half-breath plan, fig. 2, and take the distances from the middle line to the outside of each rail at the fore-side of each timber, and set them off on the plan of each respective timber, fig. 3, on their corresponding horizontal lines last mentioned. Where the fore-side of each timber in the half-breath plan, fig. 2, intersects the inside of the middle and lower rail, let them be squared out from the lines N and O, to intersect the lines of their corresponding rails laid off. Then take the distances from the lines N and O, in the half-breath plan, fig. 2, agreeable to the lines squared out, to the lines of the rails laid off, and set down below their corresponding lines 33, 34, 35, 1, at the fore-side of each corresponding timber in the sheer-plan, fig. 1, making spots. Then take the heights from the square line at the heel up the fore-side of each timber in the sheer-plan, fig. 1, to the spots last mentioned, and set them up in the plan of their respective timbers, fig. 3, striking new horizontal lines. Then take the distances from the middle line in the half-breath plan, fig. 2, at the fore-side of each timber to the inside of the rails, and set them off on their corresponding horizontal lines last struck, in the plan of each respective timber, fig. 3. This will give the direction of the upper side of the rails, and, if rightly performed, will be parallel to the upper side of the rails laid off for the asf-side.

In the same manner every operation performed for the fore-side as was directed for the asf-side, the heights being taken from the heel as squared in the sheer-plan, fig. 1, instead of the upper side of the check, which shews how much the rails lift at the fore-side from a square; and the half-breaths being taken at the fore-side of the timbers in the half-breath plan, fig. 2, shew how much the scores at the fore-side of the timbers are under from a square with the asf-side, because the timbers in the half-breath plan are square from the middle line.

Having the disposition of the rails for the fore-side of the timbers, let off the same distance from the rails as it is from the rails of the asf-side, both inside and outside, and mark the curves as ticked for the inside and outside of each timber, in the plan of the timbers, fig. 3. Then whatever distance the ticked lines of the fore-side are from the lines of the asf-side, so much is the outside of the timber under, and the inside flanging from a square, agreeable to the fore-side of the timber. Or, having the asf-side of the timbers laid off exactly, the fore and asf bevellings might be taken more cor-

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rect from the half-breadth plan, fig. 2. The bevelling for the
heel of the timbers may be taken agreeable to the flight of
the upper check, because the check stands fore and aft; but
it will not answer exactly to the other bevellings agreeable
to the flight of the rails in the sheer-plan, fig. 1, unless they
are taken to the lines of the rails when laid off in the sheer-
plan; and then the bevellings must be applied close to the
fores that are trimmed for the cant of the rails.

To Lay-off the Rails to the Cant in the Sheer-Plan.—The
perpendicular lines must be drawn in the sheer-plan, fig. 1,
the same as before, and likewise those in the half-breadth plan,
fig. 3, anfwerable to them. Let fall a perpendicular from
the interfection of the upper part of the upper rail N, with
the aft-side of the hair-bracket H, in the sheer-plan, fig. 1,
down to the upper rail P, as before canted in the half-breadth
plan, fig. 2, to which point the rail mufl be suppfed fixed.
Then place a batten to the inside of the rail, as canted in
the half-breadth plan, fig. 2, and mark on the batten the
perpendiculars as at 12, and the interfection of the lines
1, 2, 3, &c.

Then in the sheer-plan, fig. 1, where the perpendiculars
1, 2, 3, &c. interfept the upper fide of the upper rail, level
aft-lines at pleafure, as you there fee ticked; then place the
batten to each level line, marking thereon its correpofponding
perpendiculars, obferving always to keep the fooniorm
perpendicular marked on the batten to the perpendicular Y.
This gives the spots to which a batten pinned will form the
upper fide of the upper rail O, and is exaftly anfwerable in
form to the upper fide of the rail N, in the half-breadth
plan, fig. 2. While the batten is pinned to the form of the
rail, mark thereon the interfections 1, 2, 3, &c.; and when it is
straight, place it to any perpendicular line, and mark the
exteriors of the rail, and the ferveral interfections, as at 26, fig. 1;
then fet off the moulded fize at each end, and strike a
ftraight line, which will give the tapering at every perpen-
dicular, and a batten pinned thereeto will form the under-side
of the rail.

In the fame manner are the other rails to be performed
in the sheer-plan. The aft-side of the after-timber being
already laid off, and the cant of the middle and lower rails
being determined on the half-breadth plan, fig. 2; let fall
the perpendiculars 35, 36, where the lines 33, 34, interfept the
aft-part of the hair-bracket H, in the sheer-plan, fig. 1,
down to the half-breadth plan, fig. 2, and proceed as
above.

It may be neceffary to notice here, that when Plate 1.
was engraved, all veffels above a frigate in the royal navy
had beak-heads, which mode has lately been discontinued:
but fuch of our readers as may be defirous of knowing the
belt method of laying-off the beak-head timbers, are referred to
the "Elements and Practice of Naval Architecture," by
Steel.

To Lay-off the several Parts of the Stern.

To Lay-off the Side Stern-Timber.—The fide stern-timber
mufl be laid off on the floor, and a mould made to it, fo that
when trimmed and put up in its place on the ship, that is, to
the tumbling-home of the fide, it fhould appear as its ticked
line in the fl eer-plan, Plate 1. from whence it is transferred
to the floor.

Strike the horizontal lines from the ftern-timber in the
sheer-plan, Plate VII. fig. 11. Laying-off A, to square-
timber 36, at the wing-tranfom, at the fide, at the knuckles
of the upper and lower counters, at the top-breadth, and at
the top-fide. Likewise strike as many between the wing-
tranfom and lower counter as may be thought neceffary,
that part being the moft critical to obtain the exact form
of the timber. Then transfer these horizontal lines to the
aft-body plan, fig. 5, as you fee ticked in the plate, and
number them accordingly. Then take off the half-breadth
of each horizontal line in the body-plan, fig. 5, at every
square timber, as far forward as timber 28, and transfer them
to their correpofponding square timbers in the half-breadth
plan, fig. 6. To these spots pin a batten, and mark the
curves, or half-breadths, and continue them as far aft as the
ftern-timber in the fl eer-plan, fig. 11, and number them in
the half-breadth plan, fig. 6, as in the plate.

Where the horizontal lines in the sheer-plan, fig. 11, in-
terfept the aft-part of the ftern-timber, square them down,
or let fall perpendiculars to their correpofponding lines in
the half-breadth plan, fig. 6, as fhewn in the plate. This
gives the ending of the after-part of the half-breadth lines.
Then take off the half-breadths of the horizontal lines in the
half-breadth plan, fig. 6, at their ending, as above-mentioned,
and fet them off on their correpofponding horizontal lines in
the body-plan, fig. 5. A batten pinned to thefe spots forms
the aft-side of the ftern-timber A, agreeable to the form in
the sheer-plan. But if these half-breadths, when fet off in
the body-plan, fhould not make a fair line, then in the half-
breadth plan, fig. 6, which seem moft to require it, mufl
be altered at the after-end, till they all correpfond to make
a fair line in the body-plan.

Now let off the moulded fize of the ftern-timber upon
each horizontal line, in fig. 11, to which pin a batten, and
the fore-side of the timber will be repreffented, and from the
mould is to be made broad enough to be anfwerable to the
fore-side of the timber.

Then, where the horizontal lines in the sheer-plan, fig. 11,
interfept the fore-side of the timber, tranfer them to their
correpfponding lines in the half-breadth plan, fig. 6, parallel
to the other lines, which are ticked down from the aft-side,
and on the half-breadth lines make the fots as you see fere
in the plate. Then take the half-breadth of each horizontal
line in the half-breadth plan, fig. 6, at the spots laft-men-
tioned, and fet them off on their correpfponding horizontal
lines in the body-plan, fig. 5. Pin a batten to thefe spots,
and mark the line B, which is the fore-side of the timber,
agreeable to the line for the fore-side in the sheer-plan.

Having in the body-plan, fig. 11, the form of the aft-side
and fore-side of the ftern-timber, as it appears upon an
horizontal view when in its place, it follows next to point
out a method to make a mould, in order to mould the
ftern, fof that it fhall have the fame appearance when it is in
its place upon a horizontal view, as it now fhews in the
sheer and body-plans. Unles there be a method which may
be depended upon for the exact heights of the counters,
it can be to no purpofe to design a view of the stern, in order
to difplay of the decks, the lights, and all other heights,
in fuch a manner, that each part may bear a juft proportion to
the rest.

Strike the line C in the body-plan, fig. 11, the thicknefs
of the mould from the fide of the timber, to which place
a batten, and keep one end well with the horizontal line at
the end of the wing-tranfom, and mark on the batten all the
horizontal lines in the body-plan. Then carry the batten
to the sheer-plan, fig. 11, and keeping the end of the batten
well with the horizontal line A of the wing-tranfom at the
fide, fet up all the heights on the batten perpendicular, and
strike them through the ftern-timber parallel to the hori-
izontal lines first struck, as you see in the plate. Where
the ticked horizontal lines in the sheer-plan, fig. 11, first
struck interfept the fore-side and aft-side of the ftern-timber,
square them up to the horizontal lines last struck. This
will give the spots, to which a batten pinned will give the
ticked
ticked lines 1 and 11, to which the mould is to be made. The last heights which were set up are the proper heights of the knuckles and horizontal lines to be marked on the mould.

The ticked lines 1, 11, in the sheer-plan, fig. 11, to which the mould is to be made, are supposed to be the straight line C in the body-plan, fig. 11, having fall at the wing-tranform, and the head lifted up till it stands perpendicular; which, if lowered again to the direction of the straight line C, in the body-plan, fig. 11, will appear exactly the same as the stern-timber itself laid off in the sheer-plan, fig. 11, which is the form of the timber required when trimmed and in its place.

In the next place, the mould should be so made, that the stern-timber shall be trimmed both ways by this one mould; that is, to the shape as it appears in the sheer-plan, fig. 11; and likewise to the fore-side and aft-side thwartship appearance in the body-plan, fig. 11.

Proceed to make the mould of dry seasoned inch-deal to the ticked lines 1, 11, in the sheer-plan, from the upper side of the wing-tranform at the side to the head G; then, when the mould is in its place, mark on it the upper horizontal lines, in the same direction as they are laid off, distinguishing them by their proper names on the mould, as the lower counter at D; upper counter at E, heel at A, No. 1 at B, No. 2 at C, No. 5 at F, and head at G. Then take the distances from the straight line C, in the body-plan, fig. 11, to the fore-side of the stern-timber B, at every horizontal line, and in the direction of the horizontal lines, and let them down in figures at the fore-side of the mould on their corresponding horizontal lines: then proceed in the same manner, and let down the distances or spilings on the aft-side of the mould from the lines C and A. But to mould the timber from those spilings requires much trouble, and without great care taken, the stern-timber will not be exactly moulded.

Therefore, the most correct method of finishing the mould, and the easiest in application when moulding the piece, is, instead of having the spilings marked on the mould, to have brackets made of 2-inch deal, agreeable to the spilings (deducting the thickness of the mould) at each horizontal line, having their ends at the fore-side and aft-side cut exactly square from the mould, or their aft-sides may reach to the round-ast; then fasten those brackets to the under side of the mould, keeping the middle of their thickens very well with their respective horizontal lines, as they appear haded in the sheer-plan, fig. 11, observing to keep the side of every bracket in the same direction from the mould as the bevel at F, fig. 11, in the body-plan, that is, to the inclination which the straight line C has from an horizontal plane in representing the tumbling-home of the stern-timber.

To be more exact, let the half-thickness of the brackets be gauged down to their ends, and the sides clamped away thereto, which will direct upon the timber, when trimmed, the exact flations of the knuckles, and also of the horizontal lines.

The brackets may be so fixed on either side, as to mould the timber for both sides of the ship.

The mould, thus made, may be applied in any direction in moulding the timber, provided its upper side is kept straight, and out of winding. Then examine where the timber, in its rough state, deviates most from the under side of the brackets, and make that the general spiling to be applied from the under side of the brackets. Wherever this spiling must be applied beyond the brackets, owing to the inequalities of the piece, let a straight-edged batton, of sufficient length, be kept well to the under side of the brackets, from which let down the spiling required, whatever it may touch the piece. Then by boring holes with a small gimlet, exactly in the direction of the gauge-line, at the ends of the brackets, and full as much below the brackets as the general spiling, you will preserve the exact moulding of the timber, after the rough wood is sawn off, agreeable to the mould.

To take the bevelling of the ast-side of the timber, the round-ast of the stern at the counters, and top-timber line, must be laid off thus in the half-breadth plan. Take the distance from the midship to the side stern-timber, on a square in the sheer-plan, Plate 1., and set it off upon the mid-line, Plate VII. fig. 6, abaft its corresponding perpendicular, as squared down from the counters, &c. at the side, sweeping curves towards the laid round-ast on a square; then fix the tongue of a bevel to the different round-ast lines, and the flock parallel to the middle line will be the bevelling of the round-ast at each place, to be applied square from the mould.

Take the bevelling to cut off the heel from the body-plan, Plate VII. fig. 11, thus: fix the flock of a bevel to the line C, and the tongue to the round-up of the wing-tranform, as at D; and apply it over the heel of the mould, when it lies in its proper place, to where the lower bracket strikes the timber.

Supposing the heel of the timber to be carefully trimmed, as above directed, a thin mould may be made to the section of the heel on the wing-tranform, and the bevellings taken to pay it to the fashion-piece from the stern-frame, as that is generally in its place before the stern-timbers are trimmed.

The bevellings for the round-up of the knuckles of the lower and upper counters may be taken from the body-plan, Plate VII. fig. 11, by fixing the flock of a bevel to the ast-side of stern-timber A, and the tongue to the round-up, as at E, and so applied from the timber when it is trimmed.

To Lay-off the Stern and Quarter-Galleries, Plate X. Laying off D.

In Plate VII. Laying-off A, the laying-off of the side stern-timber to make the mould to, is represented in its proper situation, that the reader might have a clearer idea of the operation. But we are not to suppose that any mould loft is broad enough to admit of the stern to be laid off in that manner; neither would it appear clear enough, if laid off in the body-plan.

Therefore, in some convenient part of the floor, lay off the horizontal (or level) view of the stern, as Plate X. fig. 6, from Plate 1.; and likewise the quarter, as far forward as timber 32, as fig. 4.

Strike an horizontal line at the upper side of the wing-tranform at the middle line, which will be a base line to the stern; likewise the lines 17 and 18 parallel to the bafe line, to intersect the knuckles of the lower and upper counters, at the side stern-timber 33, in fig. 4; continuing them through their respective timbers in fig. 6. Then take the heights from the base line, in fig. 4, to the knuckles of the lower and upper counters at the midship stern-timber 32, and set them up the midship line above the base line, in fig. 6. Then spring the arc of a circle through those heights in fig. 6, and as far as the quarters project, as B, B, which will be the knuckles of the timbers. Design the lower and upper counter-rails in fig. 4, and set off the projection of the plank of each counter, thus: square out a line from the knuckle of each counter at the midship stern-timber 32, as a and t, and draw the thickens of the plank of each counter parallel.
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parallel to the timber, which gives the under side of the rails; then transfer the upper and under sides of those rails from fig. 4, to the middle line, fig. 6, and describe parallel curves to the knuckles 42 and 43; and the upper counter-rail B, and lower counter-rail A, will also be represented in the plan of the ftern, fig. 6, and that will shew how much the flight-part of the rails will be on a level view below the knuckles of the timbers.

But the round-up and round-aft of the counter-rails, to make the moulds to for trimming the rails, must be laid off on a square, thus: from the fore-side of the rails at the midship-timber 34, in fig. 4, square in a line from the knuckle to touch the side-timber 33; then take the distance from the knuckle of the upper counter from the midship-timber 32, to the side-timber 33, in the direction of the above square line, and let it off from any straight line, as AA, at CC, fig. 9, which is the knuckle or breadth of the upper counter, squared down from fig. 6. Then spring the arc BB, which is the round-aft of the upper counter, on a square.

Next take the distance from the knuckle of the upper counter, at the side-timber 33, to the line squared in from the knuckle of the midship-timber, and let it off as before at CC; above the line AA, fig. 9, and spring another arc, which will be the round-up of the upper counter, on a square. Proceed in the same manner with the lower counter, and we shall have both rails laid off to the round-up and round-aft on a square.

This is the best way to make the moulds for the round of the rails; because if the rails were cut out of a faying plank, or piece of thick-fluff, the round-up would be the same; that when in put in the boiler, and let to the round-aft, they would then have their proper round-up on a level view; or, were they cut out of a small piece of timber, it would answer the same purpose, and be most expeditions and exact.

The counter-rails may be cut out of a straight piece of timber, without kilning them, as they are apt to fly after that proceeds, thus: take the round-up and round-aft together, that is, from the knuckle of the side-timber to the knuckle of the midship-timber, and spring an arc thereto, as before; then when the rails are trimmed to the sheer, and the fore-side fanted to the timber, they will exactly conform to the round-up and round-aft, when put in their places.

Having the round-up of the lower and upper counter-rails in fig. 6, and continued them far enough out for the projection of the quarter-galleries, round up the quarter-deck in the stern, agreeable to the upper counter-rail, in the following manner: take the height from the upper counter-rail, in fig. 6, to the quarter-deck, in the direction of the side-timber at the inside; and let it up the middle line of the stern. This makes the quarter-deck round more than the upper counter-rail, and adds life to the stern; for the upper part of the lights in the stern should be parallel to the tranfon. And if they were to round by the fame mould as the upper counter-rail, the bars in the fables next the fide would be longer than thofe in the middle line, and would appear as if the top of the lights rounded less than the upper counter-rail. In the fame manner difpofe of the round of the poop, or round-house.

This shoud determine the round of the decks abat; and the beams of thofe decks, as they approach aft in fig. 4, must be gradually increafed in their round-up, to correspond with the tranfon.

Obferve that the above lines, in fig. 6, for the quarter-deck, fhow the round of the deck at the ftern-timbers, without confidering at prefent the projection of the balco-

Set off withinfe of the ftern-timber, in fig. 6, the thickens of the clamp, and the projection of the cornice in the cabin, and let that be the fide of the light. Then detemine on the breadth of the muctions, allowing fufficient for the weights and pulley-pieces, and divide the other lights equally. Set off likewise the mock-light in the aft-part of the quarter-galley, the fame fize as the rell. About half the breadth of the muctions from the mock-light, place the inside of the quarter-piece; then determine on the breadth of the quarter-piece at the heel. About the middle of the quarter-piece place the outside of the gallery, which determines the outside of the gallery on the quarters, fig. 4. Having the breadth of the lower part of the lights in the clear, let the depth be one-third more than the breadth at the lower part; set off upon the rake of the ftern-timbers, in fig. 4, and transfer that to fig. 6, which makes a good proportional light. But obferve, between the upper counter-rail and the lights must be room allowed for the faii-fills, and about one inch and a half between their heads and the tranfon above. Then determine on the out-bounds of the taifrail and quarter-pieces, and lower finifhing.

Next difpofe of the quarter-galley in fig. 4, fhowing the out-lines of the quarter-piece and taifrail, thus: let fall a perpendicular from the knuckles of the lower and upper counters of the midship-timbers, in fig. 4, as you fee ticked and numbered 14 and 15; then where the horizontal line 17 and 18, from the knuckles of the fide-timber, intersect the perpendiculars 14 and 15, take the diftances, and let them off from the knuckles of the side-timber, in fig. 6, down the perpendiculars, c, c, c; from thence prating the arcs 24, 24, and 26, 26, to touch the horizontal lines 17 and 18, at the middle line, which are called round forward on a level. Then will the ticked curves 24, 24, and 26, 26, be answerable to the ticked perpendiculars 14, 15, which fall from the knuckles of the midship-timber in fig. 4.

Take the heights from the bafl-line, in fig. 6, to the knuckles of each counter, at the outside of the gallery, at the ticked perpendiculars d and e, and let them up from the bafline in fig. 4, striking the ticked horizontal lines c and d. Then from the horizontal ticked lines 17 and 18, in fig. 6, take the length of the perpendiculars d and e, to where they intersect the ticked curves 24 and 26, or round forward on a level, and let them off forward from the perpendiculars 14 and 15, in fig. 4, on the horizontal lines c and d respectively, which will give the exact knuckles at the timbers, in fig. 4, at the outside of the gallery. Then take the heights of the ends of the rails from the bafl line at A and B, fig. 6, and let them off from the bafl line in fig. 4, at the knuckles of the timbers laft mentioned, and continue them forward, agreeable to the sheer of the fhip. This will give the exact heights of the lower and fecord-counter-rails, as they will appear on the fhip, if the work be conformable to the floor.

To Lay-off the Foot-Rail of the Balcony.

Here we may again repeat the obfervation, which was made about laying-off the beak-head timber, that since Plate I. was engraved, the sterns of all fhips of the line are now continued upwards to the round-aft of the second counter-rail, without any balcony, as they are much stronger so, and more useful, if guns are wanted to be used right-aft occa-

Neverthelefs, fhips of 50 guns have at prefent a balcony or walk in the stern.

To understand the exact form of the balcony-rails, as they appear in the sheer-plan, and likewife in the plan of the stern,
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dern, will require much attention, and some pains taken to be made correct.

Where the quarter-deck line at the side intersects the side-dern timber, as in fig. 4, let fall the tailed perpendicular 13 to the half-breadth plan, fig. 5; and from that perpendicular set off the half-breadth of the quarter-deck at the stern-timber, from the middle line in fig. 5, as taken from fig. 6. Then square down from the last perpendicular, where the under side of the deck at the middle line intersects the midship-timber, in fig. 4, to the middle line in fig. 5; and spring an arc, as the tailed curve 1, having the round aft of the fleet, at the under side of the quarter-deck, and also at the aft part of the timbers, the heads of which run up to the under side of the quarter-deck. But items having no balcony, the timbers are continued upwards as much above the taffrail as they may be wanted, which certainly must add strength to the stern.

In fig. 5, draw the side stern-timber, which requires to project aft, about ten inches farther than the midship-timbers, as at 2, for the convenience of the necessities in the quarter-gallery, and abaft that allow three or four inches for the ballusters in the aft part of the quarter-gallery, and let that be the aft part of the quarter-deck at the side. Then design, in fig. 5, the midship part of the ends of the deck. That part, from the side-timber to the outside of the gallery, (being the aft part of the floor,) must be parallel to the tailed line 1.

Strike the perpendicular line 43 abaft fig. 4, and 5, and where the tailed line 1, which is the round aft at the heads of the timbers in fig. 5, intersects the outside of the timbers, take that half-breadth, and let it off on the perpendicular 43 from the middle line. Then take the round-up of the quarter-deck on a perpendicular, in fig. 4, at the side-timber, and set it off on the half-breadth laid taken from the perpendicular 43, and spring the arc H, which is the round-up of the quarter-deck, on a perpendicular.

Let the quarter-deck, at the middle line in fig. 4, be continued as far aft as the ends of the deck c, in fig. 5; then from the line for the under side of the deck, drop as many perpendiculars as may be thought sufficient to find the true form of the under side of the deck, from the side to the midship, as may be seen numbered 23, 3, &c. in fig. 4. Carry down these perpendiculars parallel to the line 43, to intersect the ends of the deck c, in fig. 5, and from thence carry them at parallel to the middle line, to intersect the round-up of the deck H. Then take the distance from the line 43, to the curve H, for the round of the deck at 14, fig. 5, and let it down the perpendicular 3, from the under side of the deck, fig. 4. (for pers. 2 was too small a round to be perceived in the plate); continue the same regular to 29, fig. 5, which answer to pers. 9, in fig. 4. Take the half-breadth in fig. 6, to the outside of the quarter-deck floor, and set it off square from the middle line to intersect the ends of the deck c, in fig. 5. Then carry that as before, to the curve H, the intermediate lines 21, 22, with 23, at the outside of the floor, and also carry them up to the under side of the deck in fig. 4, as 11, 12, 13.

Then take the distances from the line 43 to the round of the deck H, in fig. 5, at 21, 22, 23, and let them off below the under side of the deck, on the perpendiculars 10, 11, 12. Then through these spots, and those before set off, draw the tailed curve to the aft part of the quarter-deck at the middle line. This will be the exact form of the under side of the quarter-deck, if cut off agreeable to the plans, fig. 5, from the outside of the floor in fig. 4. Draw the tailed line 45, in fig. 4, agreeable to the lines of the hump, and set off below the line 40 about one inch and a half, or as much as the joiners require for the penilling which is at the under side of the balcony, and forms that set up the depth of the rail. This will give the exact height of the taffrail in the figure, fig. 4.

To find the proper height of the aft part of the quarter-deck at the under side of the taffrail, in fig. 4, take the half-breadth at the side of the deck to the under side of the taffrail in fig. 5, and let it off from the middle line on the base line, as in fig. 6, and exact perpendiculars far back to the under side of the deck. Then take the heights from the base line, in fig. 4, to the under side of the deck, as Nos. 2, 3, &c., set them in on their corresponding perpendiculars, in fig. 6. Through these points 1 get in a tailed line, which will give the under side of the deck in fig. 6; then set off the tailed lines of the deck, and get in the parallel lines above it. 1, 4, to the side of the taffrail, as before described, in fig. 4. This will give the exact form of the taffrail, in fig. 6, agreeable to the round-off in the plan of the quarter-deck, fig. 5.

To Lay-off the Breast-Rail of the Balcony.

It has been customary to mould the breast-rail of the balcony with the same mould as the first-space-rail is done with. But to complete the range of balconies in the balcony, so as to make them have an agreeable rake in the figure, fig. 4, and likewise a proper diminution of moulding, in the plan of the stern, fig. 6, the following method only can be relied on.

In the plan of the stern, fig. 6, let the side-timber be produced upwards till it intersects the middle line; and from that point to the above-mentioned distances at the under side of the quarter-deck, in fig. 6, make ticked lines as high as the breast-rail. Whatever height the upper side of the breast-rail is intended to be at the middle line, in fig. 6, take that height from the deck at the middle line, and let it up from the deck at the several ticked lines in the direction of the said lines, as well as at the side-timber. Through these points get in the upper side of the breast-rail, D, in fig. 6. Supposing these ticked lines to be ballusters, they should all be of an equal length. Where the perpendicular ticked lines 2, 3, &c. in fig. 4, intersect the ticked line for the deck at the side, draw them upwards parallel to the side stern-timber; then take perpendicularly the heights of each of the ticked lines at the upper side of the breast-rail from the base line in fig. 6, and set them, as taken from the base line, fig. 4, to intersect their corresponding lines last-mentioned. Through these points draw the curve K, which is the upper side of the breast-rail, as it will appear in the figure, fig. 4.

Drop the ticked perpendicular 1, from the side of the breast-rail, fig. 4, to the middle line, fig. 5, and parallel to that the ticked perpendiculars 2 to 13, which will be found to intersect the ticked lines at the upper side of the breast-rail in fig. 4. Then take the distances (or breadths) from the ticked lines above-mentioned at the upper side of the breast-rail in fig. 6, to the middle line, and set them off on their corresponding perpendiculars 2, 3, &c. from the middle line in fig. 5; a batten passed through these half-breaths forms the line G, at the upper side of the breast-rail. But observe, it only gives the form of the breadth corresponding with the side part of the deck; therefore, if the ballusters are laid off in this manner, the form of the half of the rail to the reader to apply on the deck, in order to cut off the deal, and what is intended to rebate on the ends of the deals must be added the side, and as much wood as is necessary to raise the members of the rail must be left on the mould abaté the line.
line 5. Whatever is left abaft the foot-rail mould must be also left abaft the line G for the mould of the breast-rail, upon a supposition that both moulds are made to suit the aft part of the ballusters. The half-breath of the rails only being laid off is the most correct, for then the moulds will be made in two halves exactly alike, and may be scarfed and nailed together in the middle from any straight line. The middle line and outside of the timber should be marked on each mould.

To Lay-off the Taffrail and Quarter-Piece.

The form of the taffrail and quarter-piece, in fig. 6, being laid off from the plan of the stern, Plate I., square up from fig. 5. what the taffrail projects at 24, to the quarter-deck in fig. 4, and continue it upwards parallel to the taffrail, as you see ticked; then set off the half-breath of the stern at the quarter-deck, and likewise at the top of the taffrail on the tier line 25, fig. 6, taking the round-aft at each place, and set it at the corresponding height from the above ticked line in fig. 4. This will give the ticked line T being the midship-timber at the upper part of the stern, or the fore-side of the taffrail at the middle line. Let this ticked line T be answerable to the line A A, fig. 9.

Drop as many perpendiculars from the top of the taffrail and outside of the quarter-piece, as in the left-hand of fig. 6, as may be thought necessary. Take the perpendicular heights from the base line in fig. 6, to the several perpendiculars last mentioned on the taffrail and quarter-piece, and set them up from the base line in fig. 4, and strike in the horizontal lines 22 to 31, the half being the height of the taffrail at the middle line. Take square from the middle line in fig. 6, where each perpendicular intersects the upper part of the taffrail and outside of the quarter-piece, and let them off from the middle line on the ticked line 25, fig. 6; then take the distances from the ticked line 25, to the round of the stern on a level 26, 26, at each line squared down, and let them off on their corresponding lines laid ticked in fig. 4, from the ticked line T, forward in the direction of the ticked lines. A batten pinned to those spots will give the ticked curve Q in the middle of the quarter-piece (which, in a thwartship view, is the aft part of the timbers, supposed to be continued to the heel of the quarter-piece); then abaft this ticked line set off the aft-side of the taffrail, and continue it to the heel of the quarter-piece; that will determine the aft-side of the quarter-piece, from which set forward the fiding of the quarter-piece, and that gives its fore-side, as it will appear when in its place.

The rims and fiddles might be all laid off on the floor; but it would appear confused on the plate, and perplex the reader. And, indeed, the making of a handsome quarter-galley depends chiefly on the performance on the ship; therefore an explanation may give more useful information than a drawing.

The length of the rims and fiddles being determined in fig. 4, the breadth abaft need only be taken from fig. 6, and let the fiddle at the quarter-deck serve for all the rims and fiddles in the quarter-galley, keeping the foremoist end well. At least, the same mould that moulds the fiddle at the upper parts of the lights, may mould the rim at the lower part of the lights, because the mullions in the quarter-galley should be all out of winding; and in order to make them so, the fiddle at the quarter-deck will require to be longer than the rim at the lower part of the lights, more or less, according to the winding of the top-fide. This might be allowed for exactly in laying-off the fiddles; but it is better to leave the fiddle at the quarter-deck long enough, and proceed in the following manner.

Suppose the rim at the second counter-rail to be trimmed agreeable to the form of the fiddle at the quarter-deck, and to be in its place on the ship; and suppose the fiddle at the quarter-deck to be fayed to the tide: then set off the breadth of the fiddle at the aft part, and nail a batten from thence to the rim. Then let off the mullions on the rim, and at every mullion on the rim hold a straight batten from thence to the under side of the fiddle, and look them out of winding with the batten at the aft part, or with each other, observing to set off the same distances at the under side of the fiddle from as they are on the rim. Then the wood may be dubbed away, or the fiddle taken down, and mould the under side (which will nearly agree) to every spot, with the fame mould as the rim was moulded with. Then you may be certain the fiddles will be out of winding, and, if required, would slide from one end of the gallery to the other. Then, when the mullions are let off, you may find a greater distance from the foremost mullion to the fide of the fiddle, than there will be on the rim; but this cannot be avoided, and is of but little consequence; because the canting-livre, or confole-bracket, is introduced on purpose to intercept the finishing of the gallery with the flipp-fide: for if the fiddle at the quarter-deck was to be no longer than the rim at the second counter, it would fall into the hollow of the top-side at the foremost end, and the foremost mullions in the view of the flippers, fig. 4, would appear to take more than the after ones; and when looking from before the gallery, the mullions in the lower and upper gallery would not appear out of winding, but the whole gallery would seem in confusion; therefore the upper gallery must undergo the same operation, and then it will bear to be viewed in any direction.

It is requisite, at least, to lay off the fiddle and rim of the lower gallery, and allow for the winding of the top-side, in order to mould them nearly; but by following the above method in the performance of the work, any little error that may happen will be corrected.

To lay off the lower rim B, and middle fiddle C, fig. 4, to make the moulds to, transfer the height of the upper side of the lower rim B, and upper fiddle C, in fig. 4, continued forward to square timber 32, to the body-plan, Plate VII. fig. 5, upon its corresponding square timbers. Then take the half-breaths as far forward as square timber 32, and set them off from the middle line on their corresponding timbers in Plate X. fig. 5, and produce the half-breaths, and thickness of the planks A and B without it, as far aft as in the plan, fig. 5.

Then square down the knuckles of the upper counter from fig. 4 to fig. 5, and spring an arc to the round-aft, which will be the fore-side of the upper counter-rail. Next sweep another arc to the thickness of the upper counter-rail, parallel to and abaft the ticked curve, and the upper counter-rail will be shown in the plan, fig. 5. Then take the half-breath of the upper side of the upper counter-rail to the outside, B, in fig. 6, and set it off from the middle line in fig. 5, on the ticked perpendicular 13, as squared down from the outside knuckle. Thence form the curve F, or outside of the lower rim. The ticked parallel line within is the outside of the mullions, upon which set off the flations of the lights, making them all alike, and the mullions 44, 45, 46, 47, between. Square up the mullions to the upper side of the lower rim in fig. 4; and from the spots squared up strike lines parallel to the side stern-timber, to the under side of the middle fiddle. The aft part of the middle fiddle is already laid off in fig. 5, and the form of the outside may be
be determined by the inside of the mould of the lower rim, keeping the fore and after, and allowing the additional length required by the wading of the top-side, &c. Then to prove that the outer-edge of the rim and floor are out of winding, square down the sides of the munsions from the under side of the middle floor in fig. 4, to the outside of the middle floor in fig. 5; and at the sides of the munsions, take their half-breadths from the middle line, and let them off square from the middle line in fig. 6, upon the under side of the middle floor. In the same manner take off the half-breadths of the munsions on the rim, and let them off on the upper side of the upper counter-rail. Then strike lines to these spots in fig. 6, and they will be parallel to the side timber and each other, consequently out of winding. The upper gallery rim and floors may be laid off in the same manner, and the moulds all made; observing to take the munsions of the upper lights agreeably to those below, which may be set off as follows. Determine on the far part of the upper gallery, and continue it upwards as the ticked line H, in fig. 4; then with a batten, fitted as square as possible from the fore-side of the foremost munion, mark on it the sides of all the munsions. Then fit the frame end of the batten to the ticked line H, and move it diagonally, till the side of the after-munion touches the fore-side of the quarter-piece, and mark all the sides of the munion as on the ticked line 41; then striking lines through those spots parallel to the rake of the lower munsions, the lights and munsions will be represented in the upper gallery.

The upper and lower fillings may be formed at pleasure, making them as light as possible, to please the eye, and containing sufficient room in the upper filling to hold a cuttern.

To Lay-off the Stern upon the Rake.

The horizontal plan of the stern being laid off, proceed to lay off the stern upon the rake; or, at least, the taffrail and quarter-pieces. For, were moulds made to them as already laid off, it is easy to conceive that they would be too low and too narrow, when fixed upon the stern, to its round-alt and rake; which must be the case upon the ship. In the plan of the stern, fig. 6, strike up lines in the middle of each munion, one in the middle of the side timber, one up the inside of the quarter-piece, and one between, to raise upwards to the centre of the stern, in the middle line, as marked 35, 36, 37, and 38, as on the right hand.

Draw the horizontal line B B through fig. 7 and 8, which will correspond with the ticked lines 26, 27, at the upper counter in fig. 6. Take the perpendicular heights of all the timbers, from 35 to 38, and at the inside of the quarter-piece in fig. 6, from the lines 25, 26, to the ticked curve for the knuckle of the upper counter, and set them up from the line B B in fig. 8, and draw parallel lines thereto, as you fee ticked, and numbered 9, 10, &c. Take likewise the perpendicular heights from the lines 25, 26, 27, in the intersections of all the timbers, with the under and upper sides of the taffrail and quarter-piece; and set them up from the line B B, in fig. 8, where they are ticked and numbered as before. Strike lines to the rake of the midship and side counter-timbers above the upper counter-rail, taken from fig. 4, and transferred to fig. 8, as the ticked lines 32 and 33. Draw a line square from the midship stern-timber 33, in fig. 8, to intersect the knuckle at the upper counter at the taffrail-timber, as the ticked line 30; then continue the midship-timber 32 down to the line 30; then take the distance from the midship to the side-timber in the direction of the ticked line 32, and set it off from the line B B, in fig. 7, on the ticked lines C, C, and raise the are B B, which shows how much the stern rounds off on a square, agreeable to the breadth of the upper counter, which round off gives the stern above, as before observed.

Where the timbers 35, 36, 37, 38, and inside of the quarter-piece, fig. 6, lie on the ticked line 42, or knuckle of the upper counter, square them down to fig. 7; then take the round-off of each timber from the line A A, in fig. 7, and set them off square from the midship timber 32, fig. 8, to intersect their corresponding level lines in fig. 8. Where the above timbers in fig. 6, intersect the upper part of the taffrail and quarter-piece, let them be squared down as before; and transfer the round-offs to their corresponding level lines in fig. 8, letting them off square from the midship-timber, as before. Then from these spots, down to the spots on the level lines of the knuckle of the upper counter, strike the lines of the intermediate timbers, and mark them 1, 2, 3, &c. which shews the thwartship view of the timbers, as hatched in fig. 6.

If the side-timber 33, and midship-timber 32, were prolonged in fig. 8, till they intercet each other, that would be the centre for the intermediate timbers, as disposed in fig. 6, and prove the work.

It will be necessary to have one spot at the outside of the quarter-piece, as 39, fig. 6, and squared down, as before, to the round-alt, fig. 9; then take its round-alt at 11, fig. 9, from the line A A, and set it off square from the midship-timber, fig. 8, on its corresponding level line 16, as transferred from fig. 6.

Square down the heel of the quarter-piece where it intersects the knuckle-line, 42, fig. 6, to fig. 9, to the round-alt B B. Then pin a batten to the round-alt on a square B B, in fig. 9, and keeping it fast at the middle line, mark spots on the batten, where the ticked lines 2, 4, 7, 10, 12, and outside of quarter-piece, are squared down from the knuckle-line 42, fig. 6. Then fit the same end of the batten well to the middle line, fig. 7, keeping it straight along the line B B, and thereon mark the several spots on the right hand, and leeward, as before. Then, if the floor will admit of it, continue upwards the spots in the middle of the side counter-timber, at 33, at 12, 13, fig. 7, till they intersect the middle line, and from thence, as a centre, may all the other spots be continued upwards, as in the plate. But if this cannot be performed, the heights of the timbers 35, 36, &c. must be taken up their perpendicular lines, from the line 25, 26, 27, fig. 6, where they intersect the upper side of the taffrail and quarter-pieces, and set them up from its corresponding line 28, the middle line in fig. 7, striking horizontal lines; then pin a batten, as above, to the round-alt B B, in fig. 9, and mark spots thereon at the middle line, and perpendicular lines 1, 2, 3, 5, &c. squared down from their heads; and set them off upon their corresponding heights last set off in fig. 7; then lines struck through those spots to the spots before set off on the line 25, or B B, the timbers will have their regular tumble-home, as from the centre in the plate. Then take the distance square from the line 30 in fig. 8, up each separate timber, to the spots on the level lines for the upper part of the taffrail and quarter-pieces; and set them up square from the line B B, in fig. 7, to intersect their respective timbers, and in like manner the spot at the outside of the quarter-piece; then a batten pinned to those spots will represent the boundary of the stern of taffrail T, and quarter-pieces Q, Q, on the rake, fig. 7. Then take the heights square from the line 30, fig. 8, up the separate timbers, to the heights for the lower part of the taffrail and inside of the quarter-pieces, and set them up, as before, on their corresponding timbers in fig. 7; then by pinning a batten
SHIP-BUILDING.

batten to those spots, the under side of the taffrail I, and inside of the quarter-pieces, will be completed to make the moulds to. The cove-rail D may be also marked on the taffrail mould, and likewise upon the quarter-piece mould.

Practical Directions for the actual Building.

Having now explained the usual methods of forming the draughts, and laying off the several parts of the ship, it remains only to describe the progressive manner of its actual building, or putting together the several parts.

A flap being provided, the blocks on which the keel is laid are usually about five feet asunder. Each block is laid upon a ground-way in the middle of the flap, unless a smaller vessel is intended to be built where the launch has been laid for a large ship. In this case, by keeping the blocks towards one side, the sliding-planks may be preferred for that side.

The blocks, being the foundation of the whole, must be very carefully fixed, and their upper surface to a declivity of five-eighths of an inch to every foot in the length, observing that there may be water enough to launch the ship into, and keeping them high enough at the fore-part to clear the fore-foot of the ground-ways in launching, and to admit of the sliding-planks to be laid with a declivity of about seven-eighths of an inch to a foot.

The caps or upper blocks should be more in depth than the false keel; and they should be clear-grained oak, that they may split out the easier when the false keel is put under.

The upper sides of the blocks are made straightforward and aft, and level athwartships; sometimes the after-blocks are raised above a straight line, as the great weight of the stern and overhanging generally fettle in building.

Keel is generally elm, fawn straight and square, and is scarf ed together with coaks, with tarred flannel between each scarf, which are firmly bolted together and caulked.

The rabbert for receiving the plank of the bottom may be trimmed out, leaving about a foot at each end of the scarf, for the better caulking the butts. In the navy, the rabbert is lined parallel to the upper side of the keel to the thickness of the bottom plank; but, in most merchant-ships, the rabbert is taken out of the middle of the keel, to prevent its canting, should the ship take the ground. The keel is fast fair and straight along the middle of the blocks; and, to keep it in that position, tree-nails are driven along its sides into the blocks.

Dead or rising-wood is of oak timber, and fayed upon the upper side of the keel. The pieces along the midships are of a parallel thickness, and in breadth to overhang the keel about two inches on each side. The dead-wood above and abaft, for the security of the half-timbers, is as high as the cutting-down. This part of the dead-wood below the fairing-line is trimmed to the shape of the body, and above the fairing, perpendicular to the fize of the keel. The scarefs or butts of the dead-wood should give scarf to the butts of the keel, and to each other.

Stern is composed of two or more pieces of oak timber, of the belt quality, as shifting it is very expensive. It is fawn to its fiding and moulding, and trimmed and scarfed together as the keel, and the rabbert taken out likewise.

On the stem should be marked, from the mould, the heights of the harpins, decks, cheeks, &c. and a line square from the keel, and a middle line as a guide to let it by.

Apron is also oak fawn to its fiding and moulding, and fayed to the aft-side of the stem, to secure it at the fcares, which are bolted through the apron, observing to place the bolts within the rabbets.

Bollard-timbers are oak fawn to their fiding and moulding, their heads in wake of the bowspirt to be left the thickness of the plank inside and out; they are fayed and scarfed to the sides of the stem and apron, and bolted through, where practicable, observing to place the bolts clear of the deck-hooks. Sometimes oak fillings are fayed between the stem and bollard-timbers, to keep them more open in wake of the bowspirt.

Hawse-pieces are oak fawn to their fiding and moulding, and are fayed to the bollard-timbers, and to each other, in wake of the hawse-holes; and are opened above and below the hawse-holes, for the admission of air, to about one inch and a half. When in their places, they are to be bolted to the bollard-timbers and each other, clear of the hawse-holes and breast-hooks. Let it be observed, that the hawse-pieces should be so disposed as to be equally cut by the hawse-holes.

Stern-post is oak fawn to the fiding and moulding, and should be provided for the top, and to work upwards, if to be got. The rabbert is trimmed out on each side, to receive the plank of the bottom, to the shape of the body; and a tenon left on the heel, one-third the depth of the keel.

Inner-post is oak fawn to a parallel breadth, and fided, as the shape of the body may require, below the heel; it is fayed to the fore-side of the stern-post, and a tenon is made on the heel as on the main-post, and the head left long enough to tenon an inch into the tranfort next above it.

Tranffoms are oak fawn to their fiding, whether rounding upwards or square; and to the moulding by their respective moulds. The wing-tranffom, if faved only to the margin bevelling, may be brought in for other uffes, if found defective; for tranffoms require much trouble and expense to shift them; the quality of the timber ought, therefore, to be of the best, and quite free from any defect whatever. In converting the tranffoms, let care be taken to work them top and butt alternately.

The tranffoms are to be trimmed with the greatest nicety, and then let on the post, with fcores on each side of about an inch; observing the greatest exactness in letting them down, and that they stand at right angles with the middle line on the post. The ends, when cut off to the mould, are left one inch and a half longer, to tenon and face on to the aft-sides of the fashion-piece. The ends may be opened or mouthed, to admit the air.

Fashion-pieces are oak fawn to their fiding, then to the mouldings and bevellings; and, when trimmed, let on to the ends of the tranffoms, in the manner already described.

Frame-timbers are oak fawn to their fiding, straight, and out of winding, then moulded and fawn to their respective bevellings, except the cant-floors, which are fided to their proper cant.

The frame-timbers should be converted of found well-grown timber, without fap or vein appearing in wake of the ports, and fawn full to their fidings, so that their fcatting may remain after the ports are trimmed out. Every timber should also be provided to its length, consequently each should stand upon its proper head; or if one timber happens to be short, provide the next long enough to make good the deficient length, as through-chocks should always be rejected, or only admitted on extraordinary occasions. The heads and heels of all the timbers to have one-third of the subflance left the moulding way, when trimmed; and the feats of the chocks should not exceed once and a half the fiding of the timber.

In providing the floors, care should be taken to reverse the butt end of each preceding floor, because the tops may sometimes
sometimes be scanty; and, when short of the floor-head, may be admitted, if the second futtock runs down and meets upon its respective floor.

All floors are required to have sufficient wood to seat themselves on the dead-wood, and the beams to run up to the cutting-down on the under side of the keel; then any wood wasting below the seating may be made good by a chock.

The floors, when correctly trimmed, are let down into scots cut in the dead-wood, to the exact height of the cutting-down from the upper edge of the rabat of the keel, in their respective situations; set precisely level, and at right angles with the middle line of the keel. The floors are then ribbanded and floored, securing the floors at the head and heel to prevent any alteration; for the truth and precision of the whole fabric may be said to depend upon the accuracy of the floors, when set into the ribbands.

Futtocks.—The several futtocks are trimmed straight, and out of winding on the joint side; and the lower futtocks in the navy run down to the side of the dead-wood, but in merchant-ships they are from nine to twelve inches short of the keel, that water may not lie above the ceiling. The wood wasting on the inside of the lower futtocks, in the navy, is made good by cross-chocks up to the cutting-down.

The timbers that compose a frame, or bend, are bolted together, either close or opened, as required: the joint-side of the second futtock to the joint-side of the lower futtock, to the middle of its length or paying, and bolts thereto with three bolts of square iron. The heel of the third futtock joins the head of the lower futtock, and bolts, as the former, to the second futtock; the heel of the fourth futtock joins the head of the second futtock, and bolts to the third; and the heel of the top-timber shears on the head of the third futtock, and is bolted or fastened with tree-nails to the fourth futtock, taking care that no bolts are driven in wake of the ports or port-fills.

They are raised into their places by sheers and tackles, and great care should be taken that the frame be not strained in hoisting, as its form would be altered, and of consequence the true shape of the body lost; to prevent which, the joints of the sheers and heads are secured by nailing quarter over them, and a shore fitted on the inside or bag of the frame.

The frames, as hoisted, are kept to their true breadth, and equally distant from the middle line, by the cross pales, which are nailed at the main height of breadth, or in the ports: the latter is preferable, if not thought too high, because the ends need not be cut, and they may remain till the ship is planked, and the beams in and kneeled.

The frames are next ribbanded thus: the cant-frames may be gotten near to their flating by the harpin-moulds, then the harpins gotten up; and, if the frames come fair, may be nailed and floored to their timbers.

The square frames, corresponding at the floor-farmark or guide, must be levelled, and the joints set at right angles with the middle line, observing that the spacing of the ports agrees. The ribbands may then be nailed and floored, and the lower futtocks bolted to the floors.

Filling-timbers, or the timbers between the frames, are trimmed and hoisted into their place separately; then equally spaced asunder, and nailed to the ribbands; then chocked at their heads and heels, and the whole frame dubbed fair inside and out to its scantling for planking.

Keelson is oak fawn to its fiding and depth, or moulding, then fayed along the middle of the floors, and bolted through every floor and the keel, with three or more dows on each leaf, which should give as much fast as possible to the leaft of the keel. In from 3 feet to 4 feet of the keel planks have been fayed upon the upper side of the keel, and the bolts driven through that keel planks.

Stemens is oak fawn to its fiding and moulding, then trimmed and fayed to the orphan, and fainted with lower or double into the first part of the keel. The bolts through the fird planks of stem will be considered, and the two bolts may then be driven through between them.

Stemmen, or keeves, is oak fawn to its fiding and moulding, then trimmed and fayed against the transoms and supports of the dead-wood, and shears with a hook, or double into the after-piece of the keel. It is bolted to the frame, and then joint as the keel planks, of which it is a continuation.

Wales are next wrought, and the thickest fluff below them: they should be fainted with a stuffing for the frame, as the tree-nail holes, which are double and square alternately in every timber, and should be left open as long as possible, for the admission of air. A douil is the timber next each butt in the wales, in the hark above and below it, has been lately introduced in the navy, as an additional security. The wales and diminishing harkes are then doubled down fair, and large cleats nailed at the first part of every port, to which the hark is subliminally floored.

Planking.—The bottom is next planked down sufficiently low to work the orlop-clamps. See Planking expanded, Plate V. II.

Inboard Clamps, Thick-fluff, &c.—These are wrought similar to the outisde fluff above. The clamps to the floor of the deck, and their upper sides to the round-up of the beam, and the lower edge, square to the timbers, unless they work down to the ports; then, in wake of the ports, the lower sides are trimmed level, and between the ports square to the timbers. Clamps over ports are bearded from half their depth to one inch less in thickness on the under side, excepting over the ports, where the wood is left on, for the muzzles of the guns to have to; and the douils are doubled as the wales.

The thick-fluff is to be wrought with a square close edge over the joints of the timbers; and the sprikings are to have a beam allowed, agreeable to the thickens in the outisde fluff, which should be a full sixteenth to every inch in the thickens.

Beams are fawn to their fiding, and to the moulded depth square to the fiding. Beams of two, three, or four pieces are scarfed together; and if in three or four pieces, the middle pieces may be fit, excepting in the hatchways.

Beams in two pieces have a scarf one-third the whole length of the beam. Beams in three pieces have the middle pieces and the end pieces each half the length of the whole beam, the middle piece having a scarf each way to take the arms. Beams made of four pieces have two middle pieces, each similar to the former: the arms and middle pieces are each to be in length three-sevenths of the whole length of the beam. See Gun-deck, Plate V. I.

Beams are either tabled or douelled, and bolted together at the scarfis: if tabled, the lengths of the tables are once and a half the moulded depth in length, and divided at the middle of the depth; and where the wood is taken out on the upper side, it is left on the lower side, and so alternately; taking the wood out on the upper side at the table next the butt, as it will the better hang and support the lip. At each lip, beyond the tables, is a coak about six inches long; and next to that is a straight lap, about the same length.

The beams, when cut off to their length, have their ends mouthed and charred, and then are let down about one inch into
into the clamps, at their several stations, at right angles with the middle line; keeping their upper sides out of windings with the beam line.

Knees.—The beams, at their ends, are connected to the sides by knees, or other substitutes for knees. The knees are fawn or trimmed to their fiding, and fayed to the fide, taking as little wood as possible out of the throat the moulding way, as the greatest strength of the knee is there. Each knee tapeyers towards the toe to which it is fided; and the subflance in the throat should be about twice and a half the fiding, and not to admit of any chock that would reduce the knee at any part less than the fiding.

Each knee should have two douls in the beam-arm, and from three to four bolts; and the two upper bolts in the fide-arm of the hanging-knees should be kept up as high as possible, and the others equally spaced to the toe, and bored as square to the fide as the frame outsife will allow.

In those parts of the ship afore and aft, where wooden knees cannot be procured of kindly growth, (for upon that depends the strength,) knees of iron are generally placed. These, although much used, particularly in merchant-ships, cannot be so fully depended upon as those of wood, because they cover less surface, are noT wise flexible, nor can the bolts be driven so tight in iron as in wood. If, therefore, the ships strain, they must inevitably work loose. Again, the holes must be bored in the direction in which the knees are placed, so that the iron knees are intended to be placed, oak fillings should be driven between the timbers; otherwise the bolts may come in the openings, which is inadmissible. Besides this, the bolts may come in the fames of the outside plank; when it so happens, the belt way is to cut out a piece, and clenche the bolt upon the timbers.

Bolts in wooden knees are mostly driven from the outside, and clenche upon the knees inside; but bolts in iron knees are driven from the inside, with collar or stout heads, because upon the head depends its fastening; or if the bolts be of copper, they must havc a ring under the head, and the head spread or made large in driving. All bolts driven from the inside should be carefully clenched upon a ring, let fiush into the plank, by means of a machine or centre-bitt for that purpose, and the points under water carefully caulked after the ring is let in.

Wooden knees having becom scarce for some years past, many substitutes have been attempted; and iron knees, or rather knees formed of iron and wood conjointly, are certainly best when properly applied. See Substitute.

Standards, either on the deck or to the fides of orlop beams, are fo familiar to knees, as to require no further description.

Breast-hooks, steps, and crutches, are oak, fawn to their fiding, then moulded. The deck-hooks are fayed to the timbers, the others to the inside fluff. The holes for the bolts are bored alternately, near the edges, equally aluncifer, and square with the body. Breast-hooks, steps, and crutches, are affixed in the moulding by chocks; and the deck-hooks may be affixed by large eakings, worked behind them. All the chocks, &c. are douelled or tabled, and ought on no account to have less wood or substance than their fiding, clear of the chock.

Riders are oak fawn to their fiding, moulding, and bevelings; then fayed to their respective places, as follows.

Floor-riders in two pieces have a crofs-chock fayed over the heels, with a hook and but scarf; their heels run down to the limber-flate, and the heads run upwards between the joints of the floor-heads and firft futtock-heads.

First futtock-riders fay close to the fides of the foor-riders, and their heels extend downwards within four feet of the keel; their heads run upwards between the joint of the firft futtock-head and under side of the orlop-beams, with a crofs-chock fayed over the heels as the floor-rider.

Second futtock-riders fay close to the fides of the firft futtock-riders, and scarf with a hook-scarf under the head of the floor-riders, or connect thereto with a chock. Their heads run up within two inches of the under side of the gun-deck beam, and are fawn with a swell at the orlop-beam, to which they fayl sideways; and they bolt through the beam and the adjoining riders fore and aft.

Third futtock-riders fay bolt and fay to the fides of the second futtock-riders, and are fawn with a swell, as the above, at the gun-deck beam. The heads run up within two inches of the under side of the upper deck beam, or middle deck, in three-deck ships; and the heels come within two inches of the upper side of the orlop-beam.

Ships in the navy at present have no inside fluff below the clamps, but have their timbers filled in between with dry flakes of oak, driven in tight and caulked; and the riders are fayed over the timbers, and fland diagonally at the angle of forty-five degrees.

The knee of the head is oak, each piece fawn to its fiding, agreeable to the tapered batters, where they interact. The main piece should make the lower part of the knee, and run up to the fore part of the elem, to which it fays high enough for a hole to be cut in it to receive the main-flay collar. The front piece runs up to feature the figure, and should be broad enough to take the hoefay holes and the Venk end flay in the main piece about one foot below the load draught of water. Another piece must be provided to make the facing to secure the figure. The other pieces between may then be provided, as most convenient, marking on the mould the shape of each piece, as provided; the surface of each piece is then fayed close together, and douelled. The knee is hoisted up into its place, and then bolted with seven or more bolts through the flen and apron, and some times through the deck-hooks.

Cat-heads are now fawn straight, fideaways, and plumb, moulded to fliight, in ships of the line, to five inches in a foot above a level line without the bow; and in frigates and smaller vessels, to the angle of forty-five degrees. The inner end fays up to the under side of two or more of the forecattle beams, so as to fland square with the bow.

Supporters of the cat-heads are knees of oak fayed to the under side of the cat-head, and the arm to the flde to fland perpendicular; the upper arm bolted through the cat-head, and the other through the flde.

Rudder.—The main piece to be oak fawn to its fiding, and the upper part to the given dimensions, and the lower part to be moulded as broad as the piece will admit. Whatever the main piece may require to complete its f Sid^-may be elm, fayed close to the main piece, and douelled. The other pieces to complete the surface of the rudder may be fir, fayed close to the main piece and each other, and douelled. The whole is then trimmed fithrough to its thickners, and bolted together between the straps of the pintles. The back is then fayed on, and fastened to the aft-side, and the fole at the heel; when cut off to its length, which is nine inches short of the under side of the keel. The fore-side may be then bearded from the middle to two-fifths the thickners, lined down on each edge; but this has been found to cut or wound the main piece so much at the upper pintle, that, lately, the aft-side of the stern-poit is likewise bearded at the upper end; and consequently the fore-side of the rudder so much the less. The pintles may next be let on thus: the braces being let on to the stern-poit, and square from the ast-side, a staff of the whole length.
material

The head, if not round-headed, is thirded and bearded back about three-quarters of an inch, and the edges taken off to a hold round. The 1 lbs. for the tillers may now be cut through the lower half three inches clear of each frame, and the higher part of the upper half three inches clear of the deck; latey, the head-hoops may be driven on.

Amongst all other useful machines for drawing bolts out of flats (the Boleris), the following was invented by Mr. William Hall. See Transactins of the Society for the Encouragement of Arts, &c. vol. x.

"First, The use of this machine is to draw the keelson and dead-wood bolts out, and to draw the knee of the head bolts. Secondly, The head of the keelson bolts here before were all obliged to be drawn through the knee, floor-lumbers, and knee, to get them out: by this means the keelson is entirely ruined, and a large hole the head makes materially wounds the floors; and frequently, when the bolt is much corroded, it works loose and the bolt comes out of the side of the keelson. Thirdly, The dead-wood bolts that are driven with two drifts, or 1 lb. dam or new, out, by which means the dead-wood is condemned, so some of it is easily serviceable. Fourthly, In driving the knee of the head bolts, sometimes the keelson flares off, and it must be got to again, but is furred up; but with this machine it may be drawn away again."

In Plate XIV. Ship-buildings, fig. 3. A represents two strong male fresws, working in female fresws, near the extremities of the cheeks, against plates of iron, E. E. C C is the bolt to be drawn, which, being held between the chaps of the machine at D D, by turning the fresws by the lever B, forced out of its hold. F F are two dogs, with hooks at their lower extremities, which, being driven into the plank, serve to support the machine till the chaps have got a full hold of the bolt. At the upper part of the dog, are two pins passing through holes in it, and in the head of the bolt. Fig. 4, is a view of the upper side of the machine, where A, the hole is which the bolt passes out of work; B, the chaps, which is has no fresw over it, the head of the bolt is more by the two pins, V 6, of the chaps, apart from the sides, the letter is &

SHIPLUND, or Shippond, in Camden, a large weight: Hill, Derby, Warwick, and Shropshire, contain, each, one, or two, none in the other places. At London the shippond contains 3 cents, 20 lyndons, 371 lbs. 14 oz., and 320 lbs. A lyndon is 15 lbs., and 3 oz. At Ipswich, a shippond contains 12 shipponds, each of 20 lyndons, or 240 lbs.; and all shipponds are half a lyndon in 320 lbs. At Hamburg, a shippond contains 23 cents, 20 lyndons, or 25 lbs., a lyndon is 14 lbs, and a centner 15 lbs. Hamburg weight. At Copenhagen the shippond contains 3 cents, 20 lyndons, or 320 lbs.; a lyndon is 16 lbs., and a centner 161 lbs.

SHIPLEY, Jonathan, in Geography, an English poet, was born in the year 1714, and was educated at Christ Church, Oxford, where he wrote some verses upon the death of queen Caroline; and in 1736 he took his degree of M.A. Soon after this he entered into holy orders, and obtained a living. In the year 1744 he was imlisted prebendar of Winchelsea, and in 1748 appointed chaplain to the Duke of Cumberland, whom he accompanied abroad. In 1749 he became canon of Christ church, and in 1760 dean of Winchelsea. In 1756 he was advanced to the bulk of St. Asaph. He died in 1788. He was author of poems, and sermons on public occasion.

SHIP-MONEY, an imposition which was most heavily charged upon the ports, towns, cities, boroughs, and counties of the realm; by virtue commonly called ship money, under the great seal of England, for the provising and furnishing certain ships for the king's service. This imposition was revived by king Charles I. in the years 1635 and 1636; but by Act 17 Car. I. it was declared to be contrary to the laws and statutes of the realm, claim of right, liberty of the subject, &c.

SHIPPANDSTOWN, in Geography, a town of Virginia, on the south side of the Patsowack; 40 or 50 miles from Alexandria.

SHIPPENSBURGH, a town of Pennsylvania, in Cumberland county, on branch of Conadium, west creek, which divides itself into the Shenquebbagh; containing about 200 houses, chiefly built of stone, 1750 of years, and three meeting-houses, one for Quakers, one for Gospellers, and one Methodist. It derives its name from its proprietor John Shippen, esq., of Philadelphia, who leased out the land in small lots to the crown, except from two to four acres a year; 120 miles W. of Philadelphia.

SHIPPER, or Shipper, a Dutch term, signifying the master of a ship. We also use the word, properly, for our countrymen.

SHIPPIGAN, or Shipigian, in Geography, is the cult of St. Lawrence, on the south side of Canada, S.W. of, and separated by a narrow chanel from Moscow island.

SHIPPING, denotes a multitude of vessels.

SHIP-SHAPE, in Salt Lake, is the state of a ship, or the manner of an expert lake; as, they
fay, the maff is not rigged ship-shape, and trim your fails ship-shape.

SHIPSTON-UPON-STOUR, in Geography, a market-town in the upper division of the hundred of Ofwald-flow, and county of Worcestershire, England, is situated in a district entirely detached from the body of the county, and close to the left bank of the river Stour, whence is derived the latter part of its name. The houses here are chiefly built of flone; but notwithstanding this advantage, the town cannot boast much of its appearance, many of them being small, and thatched with straw. Several attempts have been made to establish manufactures here, but without any permanent success. The market-day is Friday, weekly; and there are two annual fairs, one on the 22d of June, and the other on the first Tuesday after the 10th of October; both of them for horses, cows, and sheep. The manor of Shipston formerly belonged to the priory of Worcester, and is now part of the possessions of the dean and chapter. The church is only a chapel of ease to the mother church of the parish of Tredington, which extends about nine miles in length and two in breadth. According to the population returns of 1811, the parish contains 297 houses, and 1377 inhabitants, of whom about 1000 reside within the township of Shipston-upon-Stour. Nash's Survey of Worcestershire, 2 vols. fol. Beauties of England and Wales, vol. vi.

by Mr. Loud, 8vo. 1813.

SHIPTON, a flourishing township, of excellent land, in Lower Canada, on the east bank of the St. Francis; 20 miles N.W. of Acot, and containing about 356 inhabitants.

SHIPWRECK. See Wreck.

SHIRAVERD, in Geography, a town of Peria, in the province of Ghilan; 30 miles S. of Altara.

SHIREBURY, a town of Syria, the residence of a sheik; 15 miles E. of Aleppo.

SHIRBORN, a river of England, in the county of Warwick, which runs into the Sow.

SHIRE, Scyrin, originally Saxon, shir, or shires, formed from scriran, to divide; a part or portion of the land, called also a county; which fee.

SHIRE-Clerk, he that keeps the county court; and his office is so incident to that of the sheriff, that the king cannot grant it away.

SHIRE-Man, was anciently the judge of the shire, by whom trials for land, &c. were determined.

SHIRE-Mote, in our Old Writers, an assembly of the county or shire at the aules, &c. See Scyregemot.

SHIRE-REVE. See Sheriff.

SHIRE, Knights of the. See Knight.

SHIREWOOD or SHERWOOD FOREST, in Geography, is an ancient and extensive forest, comprehending a large portion of the county of Nottingham, England. Thoroton, in his History of Nottinghamshire, says that it stretches into the hundreds of Broxton, Thurgarton, and Bassetlaw; and measures about twenty-five miles in length, by from seven to nine in breadth, an extent which seems to agree with its ancient boundaries, as stated in a perambulation made in the sixteenth year of Henry III. The period when this district was originally constituted a forest is unknown, but that event must have occurred previous to the time of Henry II., as in the first year of that monarch's reign, it appears from official records, that William Peverel was called upon to answer "De Placitis Foretarum in Comitate Nottingham." At that time Peverel had the whole profit and command of this forest; but it must soon afterwards have reverted to the crown, for in 1161 the sheriff of the county prays to be discharged of "f. in valto forestae," and in 1163 he prays for a similar discharge, and for the discharge of "40l. paid to the canons of Shirewood for alms." In the Forell books is inserted a copy of a charter by king John, granting to Matilda de Caux, and Ralph Fitzlephem her husband, and their heirs, all the liberties and free customs which any of the antecedents of the said Matilda, lords of Laxton, had held in Nottinghamshire, including the forest of Shirewood. The same rights afterwards fell to John Barking, as heir-general to Matilda de Caux; and in 1226 the forest is mentioned as being then in possession of his son; but this line failing, it descended to the family of the Everinghams, in whom having lost their possessions by forfeiture in the reign of Edward I., it reverted to the crown. Since that event, its civil jurisdiction has been generally vested in the sheriffs of the county, and its forest jurisdiction only granted to various individuals among the nobility and gentry, as special marks of royal favour. An inquisition taken before Geoffrey de Langley, in the reign last mentioned, illustrates the customs of this forest. By it the chief keeper appears to have been obliged to have three deputy keepers for a like number of districts, in order to attach all trespasses, and prevent them at the attachment before the verderers. In the first keeping, which lay between the rivers Lene and Doverbeck, he was to have one forester riding with a page, and two foresters on foot; two verderers, and two agisters. This keeping contained the three hundreds of Baskwood, Lindeby, and Willey. The High Forest, including the hundreds of Birkland and Bilbigh, and the park of Cliffton, formed the second keeping; and here were two foresters riding, with two pages and two agisters. The third keeping, Runnwoode, had one forester on foot; two woodwards, one at Carburton, and the other at Budby; and the same number of verderers and agisters. The chief keeper was further bound to have a page bearing his bow, whose duty it was to gather "chimineage," which is usually supposed to have been a tax for the formation and preservation of roads. By the last survey made of this forest in 1609, it was parcelled out into three walks, called the north, middle, and south walks. The forest officers, under the superintendence of the chief justice in eyre north of Trent, are a lord warden, a bow-bearer and ranger, four verderers, a feward, and nine keepers, besides two sworn woodwards for Sutton and Carleton. The surveyor-general of the woods has likewise a jurisdiction over this forest, as far as regards the wood and timber of the crown. He has a deputy in the forest, who has a fee-tree yearly, and a salary of 20l. Thorneyc-wood Chace, though a branch of this forest, is distinct from it in jurisdiction, having been granted by queen Elizabeth to John Stanhope, esq. and his heirs, as hereditary keepers. This chase comprehends a large portion of the south walk, and was formerly well stocked with fallow deer; but these, of late years, have greatly diminished in number.

Of the ancient woodland in this extensive tract, little remains except in the hundreds of Birkland and Bilbigh, which form an open wood of large old oaks, covering about 1500 acres of ground; but modern plantations have lately increased rapidly, and there are, in different districts and parks, a few trees, remarkable alike for their great age and magnitude. In Cliffton park is an immense oak, called the Parliament Oak, from a tradition that a parliament was assembled here by Edward I.; and in the same park is another tree, styled the Broad oak, the bole of which measures 27 feet in circumference. Many of these venerable oaks may likewise be seen in Welbeck park, on the skirts of the forest, where some of them are upwards of 44 feet round. Rookes, in his "Sketch of the Forest," mentions a recent discovery of a very curious mode of ascertaining the great antiquity of some of these trees. He tells us, that in cutting down some timber in

Birkland
Burkland and Billagh, letters were found cut or damp'd in the body of the trees, dotting the king's reign in which they were so marked. The cyphers were of King John, James I., and William and Mary. The mark of John was eighteen inches within the tree, and about a foot from the centre; it was cut down in 1509; but the middle of John's reign was 1529, from which, if we subtract 120, the number of years requisite for a tree of two feet diameter to arrive at that growth, it will make the date of planting 1387.

The forest of Shirwood was, in ancient times, frequently the scene of royal molend. As early as the reign of Henry II., Maudfield was the general residence of the court upon these occasions, and it was in this vicinity, according to tradition, that Henry made acquaintance with the miller of famous memory, John Cokele. This forell was likewise the retreat of another personage, equally celebrated in the chronicle of L Ballard, the illustrious Robin Hood, who, with little John, and the rest of his associates, making the woody yew of its thyme, laid the whole county under contribution. Thoroton's History of Nottinghamshire, republished, with additions, by John Thirkell, 3 vols. 4to. 1590. Beauty of England and Wales, vol. xii. by Mr. Lord, 8vo. 1813.

SHIRKING, one of the Kurile islands, about 26 versts from Pomoruzh'th. It rises a round mountain top; and about it, on the coast, walks of rock and loose brittle stone, but it has no sandy bay, nor any safe inlet for shipping. The island is nearly as broad as it is long, and may be about 40 versts in circumference. It is only inhabited by fea-huns and other marine animals, with some red foxes and sea-fowls that have been carried thither with the ice. There is no wood on the island, except a few flocks of the mountain pine and some elder bushes; and it has neither a stream nor a spring of water. The rocks are very much disjointed and fall in fragments. N. lat. 50° 40'. E. long. 138° 5'.

SHIRLEY, Anthony, in Biography, second son of Thomas Shirley of Welton, in Sudley, a celebrated traveller, was born in 1565. He studied at Oxford, where he took his bachelor's degree in 1581, after which he joined the English troops, which, at that time, were serving in Holland. In 1596 he was one of the adventurers who went to annoy the Spaniards in their settlements in the West Indies, and on his return he was knighted. After this he was sent by the queen into Italy, in order to affright the people of Ferrara in their contest with the pope; but, however, he arrived, all the disputes were accommodated, and peace was signed; he accordingly proceeded to Venice, and travelled from thence to Perse, where he came in great favour with Shah Abbas, by whom he was sent ambassage to England in 1612. By the emperor of Germany he was raised to the dignity of count, and by the king of Spain he was appointed admiral of the Levant seas. He died in Spain about the year 1630. There is an account of his life in his own Expedition in the third volume of Huet's Collection, under the following title: "A True Relation of the Expedition undertaken by Sir Anthony Shirley, Knight, in 1596, intended for the Island San Tome, but performed to St. Jago, Dominica, Margarita, along the Coast of Tierra Firma to the Isle of Jamaica, the Bay of Honduras, Thirty Leagues up River Dolee, and homewards by Newfoundland, with the memorable Exploits achieved in all this Voyage." His travels into Perse are printed separately, and were published in London in 1613; and his travels over the Cappan sea, and through Russia, were printed by Pococke's Parmenius, 1727.

SHIRLEY, James, a poet and dramatic writer, was born in London about the year 1594. He received the early part of his education at Merchant Taylors' School, from which place he was removed to Oxford. He was, on account of his talents, patronized by Dr. L'Estrange, who, however, would not consent to his utter orders, by reason of his being disqualified by a large rent on his pious estate, which, in his estimation, according to the rules of the church, rendered him unfit to officiate in clerical duties. Shirley therefore left Oxford, without a degree, but he afterwards removed to Cambridge, and, writing with such facility, he took orders, and delivered a curacy. His religious creed was not sufficiently settled, and he went over to the church of Rome, where he joined his orders, and opened a grammar-school at St. Albans. After some time he deserted this employment, and became a writer for the stage. His productions were successful, and he acquired a reputation which enabled him to be taken into the service of Queen Henrietta-Maria. When the civil war broke out, he accompanied the earl of Newcastle in his campaigns, and also assisted him in the composition of several of his plays. On the ruin of the king's castle he came to London, and assumed his occupation of a school-master, in which he met with considerable encouragement, and he showed his attention to the duties of his office, by publishing some works on grammar.

During the Commonwealth, theatrical amusements were suppressed, Shirley had no room in which he could display his dramatic talents; but after the Restoration several of his pieces appeared on the stage. The death of this author is thus described: his house in Fleet-street being burnt in the great fire of London, in the year 1666, he was forced with his wife to retire to the suburbs; the consequence of the fire and the alarm which this occasioned, both himself and wife died within a few hours of each other, and they were buried in the same grave.

Mr. Shirley was author of thirty-seven plays, consisting of tragedies and comedies, and of a volume of poems, published in 1646. He had the reputation of being the chief among the second-rate poets of his time, but his works have long since disappeared from the stage, and they are scarcely ever referred to by modern authors; yet there have been critics who thought highly of them. Dr. Farmer, in his Essay on the Learning of Shakspere, favours the imagination of Shirley is sometimes fine to an extraordinary degree. He alludes Mr. Ogilvie in his translation of Homer and Virgil, with pleasing notes on them.

SHIRON, or Shorison, a town of Thibet; 120 miles N. of Catmandu. N. lat. 30° 10'. E. long. 85° 5'.

SHIRVAN. See Shirvan.

SHISNIEZ, a town of Poland, in Volhyna; 12 miles N. of Conflantina.

SHITAKOONTHA, a name of the Hindu deity Siva. It means the blue-throated; and the fable accounting for the name is often alluded to in the writings of that fanciful people. It relates, that when the ocean was churned, in the manner described under our article KURMATAVARA, poison was produced among the fourteen precious articles resulting from that marvellous operation. The word, as well as poison, means medicinal drugs. This was swallowed by Siva.

"To soften human ills, dread Siva drank
The poisonous flood that flowed his azure neck."

In the songs of Jayadeva, translated by Sir W. Jones, in praise of Vishnu and Lakshmi, under their names of Kritika and Radha, the following passage occurs, which we are in
duced to extract as an instance of the playful gaiety of Hindoostane poetry, and the prevalence of mythological allusions, in all their writings. Heri and Narayana, we may premise, are names of Vilhun; and Padma, or the Lotos, of Lakshmi.

"Whatever is delightful in the modes of mufic; whatever is divine in meditations on Vilhun; whatever is exquisite in the sweet art of love; whatever is graceful in the fine branches of poetry,—all that let the happy and wise learn from the songs of Jayadeva, whose soul is united to the foot of Narayana. May that Heri be your support, who expanded himself into an infinity of bright forms, when eager to gaze with myriads of eyes on the daughter of the ocean, he displayed his great character of the all-pervading deity, by the multiplied reflections of his divine perfon in the numberless gems on the many heads of the king of serpents, whom he chose for his couch: that Heri, who, removing the lucid veil from the bofon of Padma, and fixing his eyes on the delicious buds that grew on it, diverted her attention by declaring, that when she had chosen him as her bridegroom, near the sea of milk, the disappointed husband of Parvati drank in despair the venom which dyed his neck azure."—Jones's Works, vol. x. Af. Ref. vol. iii.

The many-headed king of serpents is named Sehha, a frequent subject of poetical exuberance. See Seshā.

Of the blue-necked Siva, Íntikanatha is another name, of similar meaning as that at the head of this article; and which indeed occurs oftener than Síntakantha, or Íntakanatha.

SHITTAT, in Geography, a town of Arabia Deserta; 50 miles W.N.W. of Melched Ali.

SHITTEN BAY, a bay on the W. coast of the island of St. Christopher.

SHIVAL, a town of Hindoostan, in Viflapour; 25 miles E. of Baddamny.

SHIVERAPILLY, a town of Hindoostan, in the cir-
car of Cicacole; 20 miles W. of Cicacole.

SHIVERS, in a Ship, the seamen's term for those little round wheels in which the rope of a pulley or block runs. They turn with the rope, and have pieces of brass in their centres, which they call the cock, with holes in them, into which the pin of the block goes, and on which they turn.

These shivers are usually of wood, but some are of brass, as those in the heads of the top-masts. See Sheave.

SHIVERS, in Rope-making, the foul particles taken from the hemp, when hatchelling.

SHIVERING, the flute of a sail when the wind is too oblique to fill it, so that it flutters about. This must be the case when a vessel is put about, till the sails are filled again with the wind.

SHIVERY SALT, a name given by the salt-workers to a fort of salt, very little different from the brine-salt. See Salt.

SHIUMLA, in Geography, a town of Bulgaria, in the fanjacat of Dridra. In this place, thought by the Turks to be impregnable, they were defeated by the Russians with terrible slaughter; 62 miles E. of Varna. N. lat. 43° 10'. E. long. 26° 27'.

SHIZAR, a town of Syria, in the pachalie of Aleppo; 15 miles S. of Famieh.

SHOAD, in Mining, a term for a train of metallic stones mixed with earth, sometimes lying near the surface, sometimes at considerable depths, but always serving to the miners as a proof that the load or vein of the metal is thereabout. The deeper the shoad lies, the nearer is the vein.

SHOAD-Stones, a term used by the miners of Cornual, and other parts of this kingdom, to express such loose mafles of stone, as are usually found about the entrances into mines, sometimes running in a straight course, from the load or vein of ore to the surface of the earth.

There are shoads of the common kinds, appearing to have been pieces broken from the flata, or larger mafles, but they usually contain munde or maccaric matter, and more or less of the ore to be found in the mine. They appear to have been at some time rolled about in water; their corners being broken off, and their surface polished and rounded.

The antimony mines in Cornwall are always easily discovered by the shoad-stones, these usually lying upon the surface, or very nearly so; and the matter of the stone being a white spar, or deabed crytal, in which the native colour of the ore, which is a shining blueis-black, easily discovers itself in streaks and threads.

Shoad-stones are of so many kinds, and of such various appearances, that it is not easy to describe or know them: but the miners, to whom they are of greatest use in the tracing, or searching after new mines, distinguish them from other stones by their weight; for if very ponderous, though they look ever so much like common shoads, there is great reason to suspect that they contain some metal. Another mark of them is their being spungy and porous; this is a sign of especial use in the tin countries, for the tin shoad-stones are often so porous and spungy, that they resemble large bodies thoroughly calcined. There are many other appearances of tin shoads, the very hardset and firmest stones often containing this metal.

When the miners, in tracing a shoad up hill, meet with such odd shoads and earths, that they know not well what to make of them, they have recourse to vanning, that is, they calcine and powder the shoad, clay, or whatever else is supposed to contain the metal; and then valling it in an instrument, prepared for that purpose, and called a vanning box, they find the earthy matter washed away, and of the remainder, the shoad, or gravelly matter lies behind, and the metallic matter at the point of the shovel. If the person who performs this operation has any judgment, he easily discovers not only what the metal is that is contained in the shoad, but also will make a very probable guess at what quantity the mine is likely to yield of it in proportion to the ore. Phil. Trans. No. 69. Price's Mineralogy, p. 124, &c.

SHOAL, in Sea-Language, is the fame as shoal, and is applied to flats in the water.

They say it is good floating, when a ship sailing towards shore, they find by her founding it grows shallower and shallower by degrees, and not too suddenly; for then the ship goes in safety.

SHOAL INLET, in Geography, a channel between two small islands on the coast of North Carolina. N. lat. 34° 5'. W. long. 77° 58'.

SHOALNESS, a low cape on the west coast of North America. Captain Cook met with some Indians on the coast, near this cape, who came off to the ships in canoes, expressing, as he conceived, their pacific intentions by hallowing and opening their arms, as they cautiously advanced. At length some of them approached near enough to receive some trifles that were thrown to them. This broucht on, says Captain Cook, "a traffic between them and our people, who got dresse of skins, bows, arrows, darts, wooden vesels, &c.; our visitors taking in exchange whatever was offered them. They seemed to be the fame kind of people that we had lately met with along this coast; wore the same ornaments in their lips and noses, but were far more dirty, and not so well clothed. They appeared to be wholly unacquainted with people like us;
SHOA, or Shoal, a prop, or counter-feet, set up to support any thing of weight which leans on one side. See Buttress.

SHOALS, or Shores, in Ship-building, are ship-banks, spars, or pieces of timber, fixed under the rabbards, or against the sides and bottom of the ship, to prop or support her while building or repairing.

SHOBA, or Shoët, in Geography, a town of some note in Africa, in the kingdom of Dah: 42 miles or 42 days' journey W.S.W. of Cobe. The place is said to be well supplied with water, and has not one chalk-pits, which, when Mr. Browne visited them, were almost exhausted for the purpose of adorning the royal residence, and for others, with a kind of white-wash. In Shoba reside some babals; the rest of the people are Persians, and occupied in other pursuits.

SHOCK, or Schlock, in Commerce, a German word expressive 6 c. pieces.

SHOE, in Geography, a small island in the Pacific Ocean, near the coast of New Guinea. S. lat. 6° 11'. E. long. 179° 53'.

Shoën Indians, Indians of North America, on the island of Lake Mülloren. N. lat. 48° 15'. E. long. 127° 45'.

Shoes, a covering for the foot, usually of leather. Its structure, though the object of a particular art, is too popular to need explaining.

Its history is more obscure. Berd. Baudouin, a shoe-maker by profession, has learned the treatment of the ancient shoe, De Solea Veterem, where the tongs, matter, form, &c. thereof, are particularly defined.

Baudouin maintains, that God, in giving Adam flax of beards to clothe him, did not leave him to go bare-footed, but gave him shoes of the same matter; that, after raw flax, men came to make their shoes of raffia, broom, paper, flax, shoe, wood, iron, leather, etc. In America there is a tree, the Sapelo Tree, which produces a tree, the sapel, which is used in making shoes.

Now, to make the two sides of the upper-leathers, let us place all round the edges of the sole, and half round the insole, which are of the same length to penetrate through the sole and the tarsus of the upper-leather, and also through the inner sole, to reach the metal face of the heel, and being forcibly driven, they will be turned by the iron, so as to cleat with the sole, or rivet through the leather, and firms instead of the wire or stitching commonly employed to unite the sole to the upper-leathers.
SHOES.

Shoes, Machines for making. These are the invention of Mr. Brunel, of whose mechanical genius we have had frequent occasion to speak in this work. He has lately established at Battersea an extensive manufactory of shoes, chiefly intended to supply the army, where all the operations are performed by the aid of machines, which act with such facility, that they can be managed by the invalid soldiers of Chelsea Hospital, who are the only workmen employed, and most of them disabled by wounds, or the loss of their legs, from any other employment.

The shoes made by these machines are different from the common shoes, in the circumstance of the sole being united to the upper-leathers by a number of small rivets instead of sewing, in the same manner as those we have mentioned in the preceding article. To facilitate the description we intend to give of the machines, we shall first describe the structure of one of these shoes. Its upper-leathers are the same as any other shoes, and consist of three pieces; viz. the vamp, or part which covers the upper part of the foot, and the two quarters which surround the heel, and are fewed together behind it; they are also sewed to the vamp at about the middle of the length of the shoe. The sole part of the shoe is composed of the real or lower sole, with its welt, the heel, and the inner or upper sole.

The lower sole has an additional border, which is called the turner, or semi-flute, fixed upon its upper side, all round the edge, by a row of rivets, so that it makes a double thickness to the sole towards the edge; but this additional piece is only of small width from the outside of the sole inwards, and gradually diminishes away in thickness to nothing, as it recedes from the edge of the sole, so that the middle part of the sole is only of the same thickness as the single leather.

The upper-leathers are made sufficiently large to turn in, all round, beneath the foot, under the edge of the inner sole, for about three-quarters of an inch wide, and the outer sole, reinforced by the welt, is applied beneath, so that the turning-in is included between the two soles; that is, it is included between the edge of the inner sole and the welt, or extra thickness which surrounds the lower sole.

To hold the shoe together, a row of rivets is put through the sole, all round the edge, and they are of sufficient length to pass through all the four thicknesses, viz. the lower sole, the welt, the upper-leathers, (where they are turned in,) and also through the inner sole; and these rivets being made fall, unite the parts of the shoe together in a much firmer manner than sewing. The rivets have no heads, but are made tapering, and the largest ends are on the outside of the sole, which prevents them from drawing through; and at the same time, the strength of the rivetting will not be materially impaired by the gradual wearing away of the sole leather.

The rivets prevent the wear in a very great degree, and for this reason there is a greater number of rivets put into the sole than merely those which hold the shoe together. The different nails are, first, the short nails, or rivets, which only penetrate through the single thickness of the lower sole; these are arranged in parallel rows across the tread of the foot, that is, about two-thirds of the length from the heel; there is likewise a double row of short nails, which is carried round parallel to the outline of the toe, at about three-quarters of an inch from the edge, and extends as far as the middle of the foot. Next, the tacking nails, which are of a sufficient length to reach through both the sole and the welt, and thus fix the two together; of these, there is a row all round the edge of the foot, nearer to the edge than the row of short nails before mentioned. Lastly, the long nails, which, as before described, fasten the shoe together; these form also a complete row round the edge of the whole shoe, and nearer to the edge than any of the preceding rows. The heel is also fastened on by a row of long nails round its circumference. The heads or thick ends of all these nails appear on the lower surface of the sole, and all contribute to preserve the leather from wearing. We shall now proceed to a description of the ingenious instruments and machines used in this manufactory, beginning with those for Cutting out the Leather.—This is performed by stamps, each of which is an iron frame or ring, bent to the faze and figure of the sole, or other part to be cut out by it; one edge of the frame is edged with file, and ground sharp, so that it will cut the leather: the sharp edge of this frame being placed upon the skin, and struck with a mallet, will cut out a piece from the skin, which is exactly of the same fize as the interior opening of the frame. The leather for the soles is first softened, by soaking it in water; the skin is then spread out on a block or table of lead about two feet long and eighteen inches wide, and the stamp or knife for the soles is placed upon the skin in the most advantageous position to cut out the piece; then two or three blows upon the top of the knife with a beetle or large wooden mallet, forces its edge through the leather, and cuts out the piece, which remains in the opening of the knife, but being taken out another is cut in a similar manner.

A knife of this kind is provided for all the pieces which are used to form the shoe, and they are called after the names of the respective pieces, which are as follows: 1. The sole, which is not cut out the full faze for the sole of the shoe, but wants a piece at the heel. 2. The piece-piece is a semi-circle, to be joined to the sole to make up the heel. 3. The heel: these two last pieces are cut out of the small pieces, or scraps of leather. 4. The runner, or welt, which is applied upon the sole, all round the edge, to make the extra thickness where the upper-leather is to be joined to the sole. All these parts are cut out from the strong hides. 5. The inner sole. The upper-leathers are, 6, the vamp, or part which covers the toes and upper part of the foot; and 7 and 8, the right and felt quarters, which surround the heel, and are fewed to the vamp, being also fewed together behind the heel.

All these parts, except the welts, are cut out by knives of the above description, there being a lot of knives for every different-sized shoe which is made in the manufactory. For cutting out the inner soles, the knife is fixed horizontally, with its edge upwards, beneath a heavy cast-iron lever, which moves on a centre pin, supported in the frame which supports the knife. The lever has a plate of lead attached to it near the centre, so that when it is brought down horizontally the lead will descend upon the knife, the edge of which being imprinted into the lead, will cut through the leather which is previously spread upon the knife. To use this cutting-out machine, the sole is first cut out roughly from the skin by a common cutting-knife round a wooden pattern, and the lever being lifted up nearly to a vertical position, the rough sole is laid fairly upon the edge of the knife; then, by letting fall the lever, its weight, and the leverage upon the plate of lead, causes a sufficient pressure upon the leather to force it upon the edge of the knife, and cut it to the exact shape required. The lever is guided in its descent, to ensure that its lead shall fall precisely upon the knife.

Immediately after the soles are cut out, they are stamped on the grain-fize of the leather with a number which denotes the fize of the shoe to which they belong. The stamp is engraved on the face of a small hammer, so that one blow makes the desired mark. The heels and other parts are also marked,
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marked, that the workman may make no mistake in putting the shoe together.

The leather for the soles is cut into strips of about an inch wide; for this purpose, the piece is spread on a flat table about two feet square, the surface of which is covered with a flat iron ruled in the width of the desired strips, and forced down upon the wooden table, leaving between these divisions spaces to admit the point of a knife. Several small pins project up from the iron rulers to penetrate the leather and hold it fast. To form the leather down which it is cut, a frame of iron is fixed to the table by hinges at one end; so as to fold down horizontally upon the leather; and the frame is moved over all with similar rulers, the intervals between them corresponding exactly with those between the rulers on the table. The cutting is performed by a hooked knife, fixed into a long handle. The workman holds down the frame upon the leather, and introducing the hooked point of the knife between the bars, draws it towards him; this cuts through the leather, and he repeats it at every interval between the rulers, and thus divides the whole leather into strips of the same breadth as the rulers.

To prepare these strips for use, each one is split lengthways into two other strips, by an oblique cut along the middle of it; thus producing two strips, which have bevelled or feathered edges, similar to a ruler for drawing. The splitting of the strips is performed by a very complete machine, consisting of a pair of brass rollers, one of which is turned by a lever, and the other receives its motion from it by means of a pair of equal cog-wheels, one wheel being fixed upon the ends of each of the rollers. The rollers are mounted above the other in an iron frame, in a similar manner to those used for lamination: the lower one has a groove formed round it, which is of a proper size to receive the strip of leather before it is divided, and the pressure of the upper roller compresses it into the groove. A guide, consisting of an iron frame, with a square hole through it, is fixed up before or in front of the rollers, to conduct the leather into the groove; and on the opposite side, or behind the rollers, is a stem, or stand, which receives a cylindrical steel pin, and holds it fast in an horizontal position, in the direction in which the strip of leather will move when it comes through the rollers. The end of this steel pin is flattened and ground to a sharp edge, like that of a chisel, and preventing itself to the end of the strip of leather as it is passed through the rollers, will evidently divide the strip longitudinally into two pieces, when the leather is forced forwards at an angle of the cutter by the motion of the rollers. This edge is placed obliquely to the axis of the rollers (or to the surface of the leather which passes between them), and therefore will divide it by an oblique cut, so as to produce two narrow feather-edged pieces from each strip. The pressure of the rollers upon the leather tends to consolidate its texture, and supply the place of hammering.

Preparation of the Soles.—The leather is hardened by palling it between rollers, to produce the same effect as hammering does in the ordinary method of shoe-making. The rollers used for this purpose are made of brass, about five inches diameter, and as much in length; they are mounted in the usual kind of frame, except that instead of screws to hold down the upper roller, and regulate its distance from the lower one, two plain cylindrical pins are inserted into the holes which usually receive the screws, and these pins have a strong lever bearing upon their upper ends, to press the upper roller down upon the lower, by the action of a weight at the extremity of the lever. These pins are only about four inches distant from the centre or fulcrum of the lever, and the weight (of about 100 pounds) is at a distance of four feet from the centre, it therefore presses down the upper roller upon the lower, with a force of nearly 1200 pounds. The lower roller has a cog-wheel upon the extremity of its spindle, which is attached by a pin, upon the end of an arm turned by a hand-wheel; the upper roller is moved from this wheel, and another pin the links between the rollers. Two holes are provided together, being had one upon the other, with the fifth hole of the latter towards each other, and a plate is placed between them, which is made thick in the middle, and dimpled every way to the edges, where it is thin. The foot of the wheel of the two latter is outside, so as to be in contact with the roller when the holes are transferred to the machine which draws them up; and when they have nearly pulled through, the man who turns the wheel reverses the motion, and rolls them back again, then forwards, and so on for four or five times, in the same manner as the action of many linens. After this operation the leather becomes hard and fold, and much reduced in thickness, partly at the middle part.

The heel being so small cannot conveniently be rolled; but to produce the same effect they are flapped in a fly-pref; for this purpose, a heel-piece is put into a small box or cell of cast-iron, of a proper shape to receive it, and a thick plate, which is fitted to the box, being laid upon it, the whole is put beneath the screw of the press, one blow of which is sufficient to press the iron plate upon the leather, with a force which will render it hard and fold.

The sole is made complete by joining to it the small semicircular piece at the heel; for this purpose, the parts which are to be joined together are cut bevelled, so that they will overlap without increasing the thickness, and then three or four nails are driven through the bevelled parts, to hold them together. To cut the joints bevelled, a simple press is used; the sole is laid flat upon the edge of the bench, and a piece of iron is pressed down upon it by a lever, upon which the workman leans his elbow. The edge of the bench is bevelled, and faced with iron, and this, together with the upper piece of iron, guides the knife, so that it will cut the joint bevelled: the heel-piece is then cut in the same manner, but reversed.

Application of the Short Nails.—The leather for the sole is next inlaid with short copper or iron nails, which are put through holes in the leather, in the broad part of the foot, where the greatest wear will take place; and there is also a double row of similar rivets, inlaid round the toe part, at about three-quarters of an inch within the edge of the sole. The holes for these nails are first punched in the leather of the sole by a punching machine, and then a second machine cuts the nails, and inserts them into the holes.

The punching machine is moved by the foot of the workman, who is seated before a small semicircular table of cast-iron, on which he places the leather. This table is supported by a strong column, rising from the floor to a height of about two feet above the table, which is joined to the column by a projecting bracket, so that the column is on the opposite side to that where the workman is seated. The upper part of the column has two arms, projecting forwards from it towards the workman, and extending over the table; at their extremities they are formed into sockets, to fulfil a square iron rod or perpendicular rudder, which at the lower end has the piercer or awl screwed into it; one of the sockets guides the upper part of the slider, and the other the lower part, so that it has a freedom of motion in a perpendicular direction, but no other. The slider is caused to descend by means of a treadle moving on a centre pin, attached to the foot of the iron column, beneath the bench, from this treadle an iron rod ascends through a hole in the

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bench (and also through holes in the arms, which project from the column to fulfill the slider), and at the upper end this rod is connected with a lever, which moves on a joint at the upper end of the iron column, whilst the extreme end of the lever is connected with the top of the perpendicular slider. By this arrangement it is clear, that the foot, being prefixed upon the treadle, will communicate motion by the iron rod and upper lever to the slider and piercer, and force its point through the leather, which is placed upon the small iron table. A short lever and counterpoise are provided to raise up the slider again the instant the pressure is removed. To prevent the piercer striking upon the iron of the table, and breaking the point, a ferow is inserted in a piece projecting from the slider, and its point in descending comes to rest upon the upper of the two arms which fulfill the slider, and thus stops the descent of the slider at the proper place.

The piece of leather for the sole is fixed upon a pattern made of iron plate, cut to the same size and shape as the sole, which is united to it by two sharp gauge pins, which are fixed in the pattern, one at the middle of the tread, and the other in the centre of the heel; and these pins project so far, that they will just penetrate through the leather, to hold it fast against the pattern, which is perforated with all the holes which are intended to be pierced in the sole. The leather is applied upon the pattern, and struck with a mallet, so as to force the gauge pins into the leather, and unite the sole and the pattern together; the pattern is then laid flat upon the table of the machine, with the leather uppermost, and is brought beneath the joint of the piercer, so that it will penetrate in the defined place. To ascertain this place, a small fluid or pin is inserted into a hole in the table, in the exact spot where the point of the piercer descends; the fluid projects a little above the surface of the table, but is only held up by a spring, so that it can easily be pierced down. The pattern being placed so that any of the holes therein receive the point of the fluid, it is evident that when the pressure of the foot makes the piercer descend, its point will make a puncture in the leather which is fastened upon the pattern, which puncture will be opposite to the hole in the pattern; and though it perforates the leather quite through the thickness, the point of the piercer cannot be blunted against the iron, because it is received in the hole in the pattern, and the fluid descends by the pressure, so that the pattern will lie quite flat upon the surface of the table. In this manner the workman pieces any number of holes in the leather, placing it beneath the point of the piercer by the aid of the pattern, and then piercing the foot to bring the point down and pierce the hole. As soon as the piercer rises, he removes the pattern to another hole, and so on. A small piece of iron is fixed jut above the leather, which prevents its being lifted up, and following the piercer when it rises. The piercer pierces through a hole in this piece.

Nailing Machine for short Nails.—The sole being thus pierced with holes, the short nails are put into it by a very curious machine, which at the same time forms the nails, by cutting them off from the end of a strip of iron or copper, of the same breadth as the length of the intended nails. The sole is pretreated to the machine by laying it upon a small table, similar to the last machine, and is directed by means of the same pattern; so that each of the holes in the leather will be successively brought beneath the point of a blunt piercer, which descends by the action of a treadle. In the upper part of the machine is a pair of shears, to cut the nails: they consist of a lever, loaded at the extremity with a weight, and connected with the treadle, so that the end of the lever is lifted up when the treadle is depressed by the foot. Near the centre of this lever is a cutter, which is fixed to it, and moves with it. Another cutter is supported by the frame, so as to be stationary, and in the proper situation to come in contact with the edge of the moving cutter, when the end of the lever is lifted up. The cutters act in a manner similar to a pair of shears, to cut off a small piece from across the end of a strip of iron, which is introduced between the cutters. This piece forms the nail or rivet, which is to be put into the hole in the leather; and immediately after it is cut, it falls into a tube, by which it is conducted down to a small cell or tube, situated immediately over the leather. In this the nail stands perpendicular, and ready, when the piercer descends, to be forced down into the hole in the leather; because the cell which receives the nail is exactly beneath the point of the piercer, so as to hold it perpendicularly in the proper situation. The workman is seated before the machine, and with his right hand directs the sole, with its pattern beneath the piercer, in the same manner as before described. In his left hand he holds the strip of iron or copper which is to make the nails; and he introduces the end of it through a small hole, which communicates to the cutters, pushing it forward with a gentle force: this causes the end of the strip to enter between the cutters, when the shears are open. Then adjusting the sole by the pattern, so that one of the holes in the leather will be beneath the nail contained in the cell, he presses down the treadle: this forces the nail down from the cell into the leather, by the descent of the piercer, and at the same time closes the shears, and cuts off a nail across the end of the strip. The nail immediately descends by the tube into the cell, where it places itself perpendicularly, and ready to be put in its place in its turn. Thus the machine, at every stroke, cuts a fresh nail to supply the place of that which it puts in the leather by the fame stroke. The strip of copper is turned over every time, to form the nails alternately head and point.

When all the nails are put in, they are battered down with a hammer; and as they are but very little longer than the thickness of the sole, this reduces them to an even surface.

Application of the Welt to the Sole.—The welt, or runner, is a narrow strip of leather applied upon the sole, round its edge, to make the sole of a double thickness round the edge, where the upper leather joins to the sole, although the sole is only fingle within. The welt is made from the leather, the thicknesses of which we have before mentioned, and is fastened to the sole by tacking nails of sufficient length to pass through both the sole and the welt. These nails are arranged round all the circumference of the sole, and the holes are first pierced through the sole by the punching machine, which we have before described, but by a different pattern of iron, which is attached to the sole by its two gauge pins entering the fame holes which were made through the leather in the first operation. This pattern is pierced with a row of holes all round the circumference, which are arranged within the former row of rivets, or farther from the edge of the sole; but around the toe and tread of the foot, for half its length, the holes are in double number, or at half the distance that they are in the heel part. This pattern being used in the dance manner as before depicted, the punching machine pierces the sole with holes, exactly corresponding to it; which holes are filled with tacking nails in a separate machine, something similar to the nailing machine before described. But as the nails are longer, it would be too laborious to cut them by the fame motion; the nails are, therefore, cut by a machine made on purpose, and applied to the leather by
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The nailing Machine for Long Nails.—This is made exactly the same as the punching machine before described, but with additional apparatus to supply the nails, and put them into the holes. Thus it has a vertical column, with a table and two projecting arms to support the perpendicular divider, which in the former case was applied to the table, and to rest against the earth, and the weight. The piercer at the lower end is sharpened, and is intended to penetrate the leather, but only to stop the nails, into the holes previously placed by the punching machine. The additional parts are as follows: a wheel or wheel of nails, also a wheel of punches, which thence, having been placed, are forced with a great number of nails, the number of which, the holes are really made in reference, as shown in the figure, consisting of only four circles, one within the other. The inner space within the circle is filled with nails, like a wheel; and in the centre is a hole, which is barely large enough for the centre pin, which, as before mentioned, is placed from the vertical column of the machine, and fulfills the upper end of the perpendicular divider. Upon this circular table the wheel is supported in a horizontal position, at the height of 18 or 20 inches above the table on which the leather is placed, and by a lever to turn upon its centre pin. The wheel is filled with nails when it is used, one being put into every hole of its circumference, with the points downwards; and the holes are sufficiently large to let the nails drop through the wheel, except when their points rest upon the circular table which supports the wheel. At one part of the circumference of this table an opening is cut through it, and a small tube descends from it, to conduct a nail down to the point of the piercer. The motion of the wheel upon its centre brings the nails successively over the opening or mouth of the tube; and therefore each nail, in its turn, drops by its weight through the hole in the tube into the tube itself, which is made so small, that the nail nail remains with its point downwards, and fall into a small cell, so situated that the nail will fall exactly beneath the point of the piercer, when the same is in its highest position. But when the piercer is depressed by the action of the treadle, its point will act upon the head of the nail, and force it down through the cell into the leather, placed upon the table of the machine; the hole in the leather having been previously pierced by the punching machine. The cell which receives the nail is very ingeniously contrived to hold it in a perpendicular direction, beneath the end of the piercer. It is situated immediately above the leather, and is conical within, so that the nail drops down into it until it becomes fixed fast; but when the nail is to be forced down by the piercer, the cell opens in two halves, being formed by notches in two pieces of steel, which are held together by being screwed together at one end, and are made so thin as to spring together, and form a cell for the reception of the nail, although they will readily separate when the piercer forces down the nail. It is during the ascent of the piercer that another nail is dropped down from the wheel through the tube; and received into the cell, whilst its two halves are still kept open by the piercer, or rather as the piercer at this moment occupies the interior of the cell, the nail is received into the space, or open joint, at which the two halves of the cell meet, so that the nail lies close by the side of the piercer. But when the piercer has risen up completely out of the cell, its two halves spring together, and the joint in which the nail is placed being formed with a notch inclining inward, they throw the nail into the cell, while the piercer is sunk in. Back on the lever, and the wheel is brought back into its position on the opening of the cell, the wheel is turned over, and contained in the wheel of punches, and the wheel of nails, and the holes are thus filled in their places. A small lever is placed by the balance of the weights, which will turn it, when the machine has finished its work. The action of this mechanism is to the following effect:—when the lever descends, it forces the end of the short lever to move forward; this motion is communicated by the small upper lever to the wheel, which slips over the flaps, to the teeth of the wheel; but as the wheel is turned by the hand of a person, and the back of the wheel, having contact with the teeth of the wheel, will turn the wheel round the face of the tooth. In this manner, at every descent of the lever the wheel engages a fresh tooth of the wheel; and at every ascent, the wheel turns round upon its centre pin; the weight of the wheel, resting upon the flat circular table, being sufficient to retain as it is placed.

The nailing machine sets with the same rapidity as the other machines, to put a nail into every one of the holes previously made; and for this purpose the leather is kept upon the fame pattern by which those holes were pierced, not only for the purpose of placing the leather so that the nails shall be inserted into those holes, but that the thickness of the pattern may allow the nails to penetrate and project through the leather on the under side. When the nails are all put in, they are bent down, with a mallet, to drive all the heads to a level with the surface. The leather is then separated from the pattern, and put into a frame called

The swelling Stand.—This machine is a small square table of cell-iron, fixed on the top of a pedestal, in which it is capable of turning round, for the convenience of the workman, and to enable him to work at the different sides, as he remains seated before the table. An iron frame is connected with the table by hinges at one side, so that it can be lifted up or turned down, to lie flat upon the surface of the table; and in this position it can be fastened down by means of a simple clamp. This frame is intended to hold the leather which is placed beneath the frame; the interior opening of the iron frame is nearly of the same size and shape as the hole of the shoe. The sole is placed flat upon the table, in the proper position, which is determined by two gauge pins fixed into the table, and entering the holes made in the sole; then the iron frame being turned down upon the leather, will include the sole as it were with an iron hoop, or nailed border, all round the edge; and the frame being clamped down, the sole is confined, as if lying in the bottom of a cell of iron, of the same figure as itself, and with the nail points projecting upwards from the sole. In this frame the skin is applied, by laying the flaps of leather upon the edge of the sole, in contact with the inside of the iron frame, and bending it to follow the curve of the outline of the sole. As fall as any part of the length of the
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If rip is settled to its position, it is attached to the sole by striking it down with a mallet upon the points of the nails. The thin or feathered edge of the ifrip of leather is put inside, so that the edge of the sole, for about the breadth of half an inch, is of a double thickness; but within this, the extra thickness diminishes away to nothing, leaving only the thickness of the sole. The ends of the ifrip of leather which comprise the welt, where they join and complete the circuit of the sole, are cut sloping, so as to lap over each other, and make a joint, without any increase of thickness, or apparent division. When the sole is taken out of this frame, the welt and sole are beat down well together, to make a good joint; it is then carried to the cutting press, in which the edge or outline of the sole and welt are cut smooth, and to the fame fize; because, as the frame of the wetling machine must be rather less than the sole, in order that the frame may bear upon the edges of the sole all round, and thus hold it fast, the welt, which is moulded or bent round within the frame, will be a small quantity less all round than the sole. To guide the knife in cutting round the edge of the sole, it is confined between two iron patterns, which are made exactly to the size to which the edge is to be pared. They are attached to the sole by two gauge pins, fixed into one of the plates, and passing through the holes in the sole, project far enough on the opposite side for the other plate to be fastened on, in its required position, by two holes which receive the ends of the pins.

The cutting-press very much resembles a common lathe: a horizontal spindle is supported in a frame, confining of two standards, erected from a horizontal plate, to fulfil the spindle, which paffes through a collar in one of the standards, and projects some inches beyond it, having at the extremity a piece of wood flat on the surface, and of the fame shape as the sole. Against this flat surface the two iron plates, with the sole between, are placed, and they are forcibly pressed together by the action of a screw, fitted into a third iron fandard, erected from the fame horizontal plate, and pressing by means of a lever upon the iron plates exactly opposite the end of the spindle. This pressure causes the spindle to retreat a small quantity in the direction of its length, and then a flat circular plate, fixed upon the spindle, (in the fame situation as the pulley of a common lathe,) is made to press against a fimilar flat plate, which is frafted to the frame, and therefore cannot turn round. By the friction between these two surfaces, the spindle becomes immovable, and the press holds the sole firmly, whilft the workman, who is seated before the machine, cuts all round the edge with a drawing-knife, which is made sharp in the middle, and is worked with both hands by having a handle at each end. When he has with this tool pared down that part of the edge which is uppermost, he releases the screw of the press, and a spring then causes the spindle to advance so far as to relieve the flat circular plate, which is fixed upon the spindle, from its contact with the fixed plate. This leaves the spindle at liberty to be turned round, and the sole turns with it, so as to bring up a new part of the edge of the leather to a convenient situation to be pared or cut; and the screw is then turned to fallen the spindle as before decribed, and at the fame time to prefs the sole between the two patterns.

When the edge of the sole is thus cut, it is carried to a grindstone, and ground smooth: the ifone is turned with a quick motion, by means of a band and large wheel; the leather is afterwards polished by applying it to the edge of a wooden wheel, on which a little bees-wax is spread.

Application of the long Nails.—The sole, thus re-inforced by the welt, is returned to the punching machine, and being attached to another pattern, a range of holes is pierced all round the outer edge, through both, jilt within the former row of tapping nails; after which, by the nailing machine, these holes are filled with nails which project through the upper side of the welt, being longer than any of the former, and being also intended to penetrate through the upper-leather and inner soles, and thus fasten the shoe together. In this state the sole is ready to be put to the upper-leather.

The upper-leathers are prepared for applying to the sole, in the fame manner as the ordinary shoe, viz., by leaving the vamp, or piece which covers the upper part of the foot, to the two quarters which go round the heel, and also fewing these two quarters together behind the heel. The workmen do not hold the work upon their knees to few it, but four men work at a square table, the corners of which are cut off, and a small piece of wood projects from each angle: the two pieces of leather which are to be fewed together are laid upon one of these pieces of wood in the proper poifition to be fewed, and are held falt by an endless ftrap, which is laid over them; and the workman binds it falt down, by pressinf his foot in the ftrap, like a ftripp. This method of fewing, which is far fuperior to the common mode, might, from its simplicity, be used by all fhoe-makers, and would render their business less unhealthy; whereas at present they are fubject to many difeafe from fitting in the awkward and unnatural poifition which is neceffary to reach their work, when they hold it upon their knees.

Operation of lathing or revolving the Shoe together.—The upper-leathers are put upon a lathe, and held right thereupon whilst the sole is applied. This is done in

The Clamping Machine.—It is a small oval table, supported on a column, but capable of turning round upon the column, to enable the workman to work at any fide. In the centre of the table a lathe is fixed, with the sole upwards; it is supported at a height of about five inches from the table. The sole is made of cast-iron, in a folid piece, with the stem or part by which the lathe is supported; but the under part, upon which the upper-leathers are to be moulded, is made of wood, for the convenience of altering the figure when neceffary. The lathe is fixed upon the table by means of two leaves pins; and a strong pin, which projects from the lower part of the lathe, and paffes through the table, is bound falt by a wedge, which confines the lathe firmly upon the table, in the fame manner as if it was made in a piece therewith. The table has a number of pieces of braces attached to it by hinges, and arranged all round the lathe in fuch a manner, that they can be turned up against the lower part of the lathe, and then form clamps, which are exactly adapted to the figure of the lower part of the lathe, and will therefore clamp or bind the leather firm upon the lathe at the toe, heel, and every part thereof, except at the flat part of the sole. The braces clamps are of fuch dimenfions, that they will touch each other when turned upon each other, and thus form a complete cell or box, in which the lower part of the lathe will be contained, and the leather confined upon it; but the cell being made in several pieces, or clamps, they can be removed one by one, as found neceffary. The clamps are forced up to their fitution by means of an independent screw for each, which is tapped in an oblique direction through the edge of the table, and the point forces up the end of a small rod, which is jointed to the clamp near the part where it acts upon the leather; by this means the force of the screw acts to turn the clamp up upon its hinge, and at the fame time prefs it againfl the leather. When the preffure is released by displacing the end of the small rod from the point of the screw, the clamp will be suffered to fall back upon the table; and this being done
done to all the clamps, the last stands insolated in the middle of the table, from which it can be detached by withdrawing the wedge which closes it. The inner sole of the shoe is now put upon the sole of the last, being lightly fastened thereto by two short pins, one of which is driven through the gauge hole in the toe of the sole, and enters a hole made in the last; and the other pin is fitted in the heel part of the last, and enters the hole in the sole. The upper-leathers are now put upon the last in the true position. In this state, the last is taken to the clamping machine, and fastened to its place in the centre of the table; the clamps are then turned up, one by one, beginning at the heel, and the upper-leathers being pulled up all round by a pair of pinces, so as to make them fit tight upon the last, the clamps are screwed tight. In this state, the upper-leathers are made to take the form of the last, being firmly attached thereto, except at the joint part; at this part the leather stands up all round about three-quarters of an inch, which quantity is turned down flat upon the edge of the inner sole (previously fastened upon the sole of the last), and a small quantity of paste is put in to make it stick fast: four or five notches are cut out in the leather at the toe and at the heel, to make the part which is turned down be flat upon the sole, and without folds or overlappings, and to make a close contact, the leather is beaten down. Patches of leather are likewise pulled, and bucked flat upon the inner sole for leveling, to make up the sole to the same thickness in the centre as it acquired towards the edges all round by the turning-in of the upper-leathers. In this state, the nail which fastened the inner sole to the last is withdrawn, being now unnecessary, and the real sole is applied, an iron frame, or saddle, being employed to determine its proper position upon the last. This frame is made of thin iron, and its figure is similar, and of the same size as the row of nails which project through the sole, and by which the sole is to be riveted into its place: it is made in two halves, which are united by a joint or hinge at the heel part; and at the toe part are two holes, through which a pin can be put to hold the frame together. This pin, as well as the joint pin of the hinge at the heel, projects downwards sufficiently to enter into a hole made in each of the two clamps at the toe and heel, in such a position as to guide the frame, so that it will apply the sole exactly in the proper position.

The sole, when prepared as before described, by inferring all the long nails in the holes, so that the points project through the leather, is put into an iron box or mould, and a plate being laid upon it, is put into the fly-press, and by a single blow the sole is rendered congruous without, so as to adapt itself to the last. When it is taken out of the mould, the iron frame before-mentioned is put together round the row of nails, the size of the side of the frame being made exactly of the proper size to receive the projecting points of the nails, and retain them perpendicular to the leather, and prevent them from spreading out. The sole is then applied in its place by the two guide pins of the frame, and by striking upon the heads of the nails, their points penetrate through the turning-in of the upper-leather, and also through the inner sole. When they are well entered the iron frame is taken away, by withdrawing its pins, and opening its two halves on their joint, and the nails are driven down into their places. This causes them to project through the inner sole into the sole, and the points meeting the iron sole are turned back, and thus clenched into their places. To render the motion more certain, the sole of the last is made with a flight groove all round, where the points of the nails will fall, and the groove

observable points, the points are more readily turned together, and are all turned in the same way, so that they may not interfere.

The shoe is now put together, and the clamps being released and turned down, the sole it is taken off the last, for which purpose the heel of the last is made in a separate piece, and joined to the sole by a single hook or spring catch; but the last being released, the sole draws off the last with the greater ease, the heel part remaining within the shoe, and is taken out afterwards. The shoe is now carried to the evening last, where it is put upon a last exactly similar to that of the clamping machine, but fastened down upon a bench, and the sole is fixed without the groove, which caused the points of the nail to turn up. Upon the last the nails are beaten down, to meet all last, and make the sole fast with the sole: the heel is then put on by laying it in its place, and driving down the large nails which have been put through it by the moving up-hinge, in the same manner as for the sole.

The sole of the shoe is now fitted with a suitable toe, to level all the nail heads, and render the leather smooth; the shoes are then carried to the grindstone, by which they are polished, and finished up in every part, the soles blacked, and polished by the wheel with a composition of bees-wax and ivory black, which renders them glossy: the upper-leathers are then rubbed by a circular brush, which is turned by the lathe, and the shoes arerendered fit for sale, except those which require binding and lining, with a lining of thin leather, in which case they are finished in the same manner as common shoes.

Nail Machine.—This is equally deserving of notice with any other part of this ingenious mechanism. In our article Nail we have described the nail machine; but we consider this as a much better machine for cutting brads or nails without heads. The nails are cut from sheet-iron, the plates being first reduced into strips, of a breadth equal to the length of the intended nails, by a large pair of shears, acting in the same manner as those described in the article Canine; but are constructed in a different manner, by employing cast-iron for the frame and for the lever. The iron plate is presented to the machine by one man, whilst another works the handle, and at a single stroke cuts off the desired strip of iron; the first of iron is cut so that the section of the strip, or the form a piece which the iron acquires by rolling, will be across the length of the strip. From this it follows, that when the nails are formed by cutting off narrow pieces from the end of the strip, the grain of the iron will be the lengthwise of the nail.

The cutting of the nails is readily performed by the machine, which is turned by the foot of the worker, whilst he supplies the iron by his hands. The motion of the treads turns a crank and heavy fly-wheel, similar to the wheel of a lathe; from the same crank a rod proceeds to the longer end of a flat lever, the axis of which is supported by pivots in the upper part of the frame, so as to be above the wheel and crank. At a small distance from the centre of the lever, and at the opposite side of the axis to the long lever, a heel cutter is fixed, which acts as a fixed cutter supported by the frame; the fixed cutter has an edge on the upper sole, and the moving cutter, which is fixed to the lever, is made sharp on the lower sole. The revolution of the wheel and crank causes the lever to rise and fall, and the edges of the two cutters in the moving path as a whole together as possible, without touching. At the most elevated position of the moving cutter, its edge rides above the edge of
of the fixed cutter so far, that the thickness of the strip of plate can be admitted between them; the end of the strip is pushed back, so that a small portion of the end of it overhangs the edge of the fixed cutter; therefore the edge of the fixed cutter, when it descends, meets this overhanging piece, and prevailing down upon the edge of the fixed cutter, cuts it off, and the piece so separated forms a nail. When the moving cutter re-alcends, the iron is pushed forwards again to overhang the fixed cutter, and another nail is thus cut off. The nails are narrow at one end to form the point, but at the other end are about as broad as the thickness of the plate, so as to be of a square figure; but at the point they are, in one direction, as broad as at the head; this is the direction of the thickness of the plate, so that in reality the nail is the figure of a small wedge instead of a pyramid, the point being in fact a sharp edge. To effects this, the cut which the machine makes across the end of the strip of iron is not perpendicular to the length of the strip, but rather inclined thereto; and at every successive nail which is cut, the inclination of the cut is reversed, so that the head of one nail is cut from the same side as the point of the next, and so on alternately of the whole length of the strip of iron. The thickness of the nail is regulated by the quantity which the end of the strip is allowed to project over the edge of the fixed cutter, and the angle of inclination by two stops, against which the edge of the strip is always brought to bear, when the workman places it ready for the cut. To flop the end of the iron, a part projects from the lever beneath the edge of the moving cutter, and is curved to the arc of a circle described from the axis: this stop is as far removed behind the edge of the cutter as the thickness of the nail intended to be cut off by the defcent of the moving cutter. In working the machine, the workman keeps the wheel constantly revolving by the motion of the treadle; and holding the strip with his edge in contact with the two stops, so as to give it the proper inclination, he pushes it forwards, with a gradual pressure, against the moving cutter: then the instant the cutter is sufficiently raised to admit the strip, it will advance forwards, until the end of the strip touches the stop which is beneath the cutter; on the descent of the cutter, the nail is cut off, and the workman immediately turns the strip with the other side upwards, which has the effect of reversing the inclination of the cut; and pushing it forwards, another nail is cut as the former, and thus the operation continues with the utmost rapidity.

There are several sorts of machines in this manufactory, so that a great number of shoes are proceeding at the same time through the different stages of their fabrication; and the rapidity of the execution is such, that a given number of workmen will here make a far greater number of shoes than by the common method, and they are more durable, particularly for the strong shoes which are desirable for soldiers. Several of the machines were constructed by Mr. Maudslay, with his usual accuracy of execution.

Shoe-makers' Machine.—This is a simple contrivance, to enable those artizans to perform their work in a standing posture; by which means they will avoid the deformities incident to those who follow sedentary employments.

In the common method of working, the shoemaker is obliged to sit and slop in the most awkward posture imaginable, sometimes in order to hold the shoe and nail between his knee and thigh, whant he sews the sole to the upper leather; at other times he must hold the last between his knees; and to few the leathers together whilst he holds them upon his knees, he must lean very much forwards. In all these operations he sits as it were doubled up, so as to impede the action of his lungs, and ultimately produce many diseases. The machine is a kind of vice, to hold the shoe in any position whilst it is fewed.

The Society of Arts have thrown a laudable desire to recommend these machines to the trade; and to induce their general adoption, they have given several rewards to those who have produced machines. The first of these was Mr. Holden, then Mr. Parker, and next Mr. Stafes, whose machine, being more improved than the preceding, demands some description. A small bench, or table, is firmly supported on four legs, at about four feet from the ground; a circular cushion is affixed upon the bench, having a hollow or bason in the centre of it, with a hole from the bottom of the hollow, quite through the cushion, and also through the centre of the bench. This hole receives a strap, which is doubled, and the two ends fewed together. The nail is put into the double of the strap, and it is drawn down by a treadle, so as to hold the last firmly in the hollow of the cushion, which is stuffed soft withfinside; and as the hole through the cushion is too small for the shoe to pass down, the last can be set in any direction which is most convenient for the sewing; but by reviving the treadle, it can be removed in an infant, turned round, and fixed again to few another part. A foot can be applied in front of the machine, for the workman to rest himself occasionally: this foot is supported by only two legs, and a piece of wood, which projects horizontally from beneath the foot, and enters into a mortice, made in a part of the frame. Upon this the workman fits a shoe, as if upon a saddle; and as his work is held before him at a proper height, he fits in an upright posture, which is not attended with the same prejudicial effects as sloping to work upon the knee. The machine is provided with a small tray, or box, behind the cushion, to contain all the small articles which the work requires; also a drawer beneath it for tools, &c.; a whetstone fixed up at a convenient height; and an anvil, which sits into the hollow of the cushion, so as to lie firmly, to hammer the leather upon instead of a lapstone.

Shoe-makers are to make their shoes of sufficient leather, or forfeit 3s. 4d. (1 Jac. I. c. 22.) and journeymen shoe-makers embossing leather shall make satisfaction for damage, or be ordered by justices to be whipped, &c. Persons buying or receiving such leather, are to make reasonable recompense, to be levied by diftraits, &c., and search is to be made after the fame: also leaving their work undertaken, or neglecting it, to be sent to the house of correction for a month. 9 Geo. I. cap. 27. 13 Geo. II. c. 8. See Leather.

Shop, in the Mange. A horfe-shoe is a piece of flat iron, with two branches or wings, which being commonly forged according to the form of the hoof for which it is designed, is made round at the toe, and open at the heel.

A shoe for all feet, is one that is cut at the toe into two equal parts, which is joined by a rivetted nail, upon which they are moveable in such a manner, that the shoe is enlarged or contracted less or more at pleasure, in order to make it, fit all forts and fizes of feet.

To shoe a horfe after the form of a lunette, a patin, &c. see Lunette; Patin, &c. See also Shoeing of Horfes, &c.

Berenger observes, that the ancients did not shoe their horses, that is to say, they did not nail upon their hoofs any pieces of iron, or of other metal, in the form of the modern horse-shoe; but when they intended to defend them from any thing that might annoy them in travelling, they fastened upon their feet, by means of straps and ligatures, a sort of sandal, stocking, or what we call boots. Thefe
SHO

The were made of felts twisted together like a mat, or else of threads, and were notched this thread with plate of metal, and covered by the iron and other matter with silver and gold, as in the habits of Nero and Peppers.

It does not appear in what era, or in what country, the modern art of shoes was first used. The earliest proof which the above account sobre, is to be found in the shoe found to have belonged to the horse of Child, who lived near the year 491, and is preserved in Montagu's Antiquities of France. It perfectly resembles the shoe now in use.


Shoes of the Horse. As the crooked pieces of iron attached to these shoes on the horse or other beasts, by means of nails, there are various forms and shapes of iron, as common, and others which are adapted and accommodated to the particular purposes and circumstances of the horses. Different parts of animals, his wits, require different forms in their shoes. In speaking of the shoe which it occurs on its lower surface, it has been remarked by some, that there are certain proportions to be observed in its different parts. Its breadth should be considerably less than the breadth of the common shoe; it is totally unnecessary to cover any part of the fore, especially when care to preserve it natural hardens. The breadth of the shoe at the heels should be one-half of its breadth at the toe. Its thickness should decrease gradually from the toe, so as to be reduced one-half at the extremity of the heels. As to the distribution of the flamp-holes, every person acquainted with the subject knows, that in shoes for the forefeet, they should be at the toe and quarters, because the wall, or crust, of the forefeet is stronger at the toe than at the heels. The reverse of this is to be observed in the hind shoes, because the heels and quarters of the hindfeet are commonly stronger than the toe. It is impossible to lay down any general rule for filling of these holes in bad feet; it must be the business of the farrier to distribute them in such a manner, as to be able to fix the nails in those parts of the crust where the horn is found and firm. Farriers generally multiply their flamp-holes too much, which brings the nails too close together, occasions the horn to break in splinters, and at length destroys the crust.

The following number is recommended for good feet; viz.: for race-horse's fix, that is three on each side; for saddles-horses, four, on the outside and three within, the quarter on this side being weaker than on the other; the number for coach-horses of the middling size; for large coach-horses four on each side; and for cart-horses, five on the out and four on the in. It is also of principal importance to determine the weight of the horse, for it is matter of all importance, to fix some horse with shoes weighing each five pounds, making together a burden of twenty pounds of iron attached to the fore feet. It is obvious to common sense, this such an additional weight, fixed to the extremity of the leg, must be productive of some inconvenience or other; and, in fact, the muscles are thereby compelled to greater exertion; the ligaments are stretched, and the articulations continually fatigued; and, besides all these evil consequences, the horse by its weight forces out the nails, and entirely spoils the texture of the wall or crust, that it becomes often extremely difficult to fix the shoe to the hoof. Why then, it is asked, do not practitioners of the present day, who are daily witnesess of these facts, and indeed are the principal authors of them, apply themselves to the correction of their own errors? Their answer, it is feared, is obvious; because he who is unacquainted and delinquent of sound principles in his art, cannot turn to real profit the experience he has acquired, nor shall he in the path of knowledge, as he has formerly, be at a loss to determine to introduce, and put the horse to a proper use.

The weights which are prescribed, for the different kinds, are exactly as follows:

For the fore feet of cart horses [n],

<table>
<thead>
<tr>
<th>Weight</th>
<th>Description</th>
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<tbody>
<tr>
<td>1 1/2</td>
<td>For the harder parts of the kind</td>
</tr>
<tr>
<td>1 1/2</td>
<td>For the larger coach-horses</td>
</tr>
<tr>
<td>1 1/2</td>
<td>For the smaller coach-horses</td>
</tr>
<tr>
<td>1 1/4</td>
<td>For the smaller cart-horses</td>
</tr>
<tr>
<td>1 1/2</td>
<td>For the larger cart-horses</td>
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And by reducing the breadth and length of those shoes, their thickness may, it is supposed, be increased without making any addition to their weight.

Shoes of the horse, of iron, are fastened upon the feet of ox, or other cattle, in the field or read labour. Shoes of the feet, to which is given a piece of flat iron, with some fit at the side on the outward edge, to receive the nail: at the toe is a projection of some inches, which pulling up the cart, is bent over the bow, to keep the shoe in its proper place. This projection is flat, however, employed in the general practice of making the shoe, nor can it be of common use; see Shoving of Cows.

Shoe of Gold, in Commerce, 21 lb. is used at Venice in China. Gold is here considered as merchandise; it is held in regular import of a determined weight, which the English call fines of gold; the largest of their weight is 10 parts, and the gold is reckoned 93 touch that is 94 parts in 100, though it is really only 92 or 93. Formerly, 10 singles of silver were given for one tale of gold of the same degree of fineness; but of late, from 100 to 110 tales of silver of 94 touch have been given for 10 tales of gold of 92 or 93 touch; and sometimes from 110 to 120 tales, or even more, of Spanish dollars, reckoned at 92 touch, have been paid for 10 tales of gold. It must be observed, that when gold is exchanged for silver, its price is always valued by the tale weight; and it is held either above or below touch, as follows: if the gold be 96 touch, and sold at 5 under touch, subtract 5 from 96, and 91 remains: then 91 tales of silver are paid for 10 of gold; if gold be sold at 10 above touch, the merchandise being full 96, add 10 to 96; and 106 tales of silver are paid for 10 tales of gold.

We shall here observe, that there is but one kind of money made in China, called , which is not coined but cast, and which is only used for small payments; it is composed of six parts of copper and four parts of lead, it is round, marked on one side, and rather raised at the edge, with a square hole in the middle. These pieces are commonly earned, like beans, on a string or wire. A tale of five silver should be worth 1000 call; but on account of their convenience for common use, their price is somewhat much raised, that only 750 call are given for the tale. See Tae.

SHOE, Huf, in Farriery, Mining, Sc. See HORSE-HOOF.

SHOE, Huf, Head. See HORSE-HOE HEAD.

SHOE, Huf, Head. See Horse-shoe Head.

SHOE, OF THE ANKLE, in Sea Language, a small block of wood, convex on the back, and having a small hole fitted to contain the point of the anchor shrouds in the fore-side. It is used to prevent the rope or taut peev or wounding the plank, or upper till, bow, when the day, or during the day, for which purpose they say, and are used, the bow, between the flues of the anchor and the plank, as being proved to the latter by the weight of the former. Falconer.
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SHOE, To, an Anchor. See Shoeing the Anchor.

SHOE-Blocks, are two single blocks, cut in a solid piece transversely to each other. They are used for legs and falls of the bunt-line, but are seldom employed.

SHOE-Hoofing. See Housing.

SHOEBURY Ness, in Geography, a cape of England, on the south coast of the county of Essex, at the mouth of the Thames. Here king Alfred erected a fortress against the Danes. There are two villages near North and South Shoebury, both containing together about 200 inhabitants; 5 miles N.E. from the Nore. N. lat. 51° 32'. E. long. 0° 35'.

SHOEING of Horses, a term applied to the operation of softening the pieces of iron on the bottom parts of the hoofs, or that of fixing shoes to the feet. These, and some other animals destined to labour, are shod with iron, in order to defend and preserve their hoofs. The shoes of horses should differ according to the feet, as has been already seen. The common form of shoes, and the method of shoeing, are wholly condemned by some, as Mr. Clark, and a new method recommended, which appears founded on just principles, and to have been sanctioned by much experience. It is remarked, that in preparing the foot for the shoe, according to the common method, the frog, the sole, and the bars or binders, are pared so much that the blood frequently appears. The common shoe by its form (being thick on the inside of the rim, and thin upon the outside), must of consequence be made concave or hollow on that side which is placed immediately next the foot, in order to prevent its reeling upon the sole. The shoes are generally of an immoderate weight and length, and every means is used to prevent the frog from reeling upon the ground, by making the shoe-heel thick, broad, and strong, or raising cramps or caulkers on them. From this form of the shoe, and from this method of treating the hoof, the frog is raised to a considerable height above the ground, the heels are deprived of that fulness which was provided by nature to keep the crust extended at a proper width, and the foot is fixed as it were in a vice. And by the preasure from the weight of the body, and resistence from the outer edges of the shoe, the heels are forced together, and retain that shape impressed upon them, which it is impossible ever afterwards to remove; hence a contraction of the heels, and of course lameness. But farther, the heels, as has been observed, being forced together, the crust prys upon the processess of the coffin and extremities of the nut-bone: the frog is confused, and raised so far from the ground, that it cannot have that support upon it which it ought to have: the circulation of the blood is impeded, and a wafting of the frog, and frequently of the whole foot, ensues. Hence, it is contended, proceed all those difficulties of the feet known by the names of founder, hoof-bound, narrow-heels, thrushes, corns, high foles, &c.

And it has likewise been frequently observed, that there arises from this compreension of the internal parts of the foot, a swelling of the legs immediately above the hoof, attended with great pain and inflammation, with a discharge of thin, ichorous, fetid matter; from which symptoms, it is often concluded that the horse is in a bad habit of body (or what is termed a gase falling down), and must therefore undergo a course of medicine, &c. The bad effects of this practice are still more obvious upon the external parts of the hoof.

The crust towards the toe, being the only part of the hoof free from compreession, enjoys a free circulation of that fluid necessary for its nourishment, and grows broader and longer; from which extraordinary length of toe, the horse stumbles in his going, and cuts his legs. The smaller particles of sand infininate themselves between the shoe and the heels, which grind them away, and thereby produce lameness. All this is entirely owing to the great spring the heels of the horse must unavoidably have upon the heels of a shoe made in this form. This concave shoe in time wears thin at the toe, and, yielding to the preasure made upon it, is forced wider, and of consequence breaks off that part of the crust on the outside of the nails. Inflamations of this kind daily occur, infomuch that there hardly remains crust sufficient to fix a shoe upon. And further, it is generally thought, that the broader a shoe is, and the more it covers the sole and frog, a horse will travel the better. But, as it has been remarked, the broader a shoe is of this form, it must be made the more concave; and, of consequence, the contracting power upon the heels must be the greater. It is likewise to be observed, that, by using strong broad-ridged concave shoes in the summer season, when the weather is hot and the roads very dry and hard, if a horse is obliged to go fast, the shoes, by repeated strokes (or friction) against the ground, acquire a great degree of heat, which is communicated to the internal parts of the foot; and, together with the contraction upon the heels, occasioned by the form of the shoe, must certainly cause exquisite pain. This is frequently succeeded by a violent inflammation in the internal parts of the hoof, and is the cause of that difafe in the feet so fatal to the very best of our horses, commonly termed a founder. This is also the reason why horses, after a journey or a hard ride, are observed to shift their feet to frequently, and to lie down much. And if we attend further to the convex surface of this shoe, and the convexity of the pavement upon which horses walk, it will then be evident that it is impossible for them to keep their feet from slipping in this form of shoe, especially upon declivities of the streets. It is also a common practice, especially in this place, (Edinburgh,) to turn up the heels of the shoes, into what are called cramps or caulkers, by which means the weight of the horse is confined to a very narrow surface, viz. the inner round edge of the shoe-rim and the points or caulkers of each heel, which soon wear round and blunt; besides, they for the most part are made by far too thick and long. The consequence is, that it throws the horse forward upon the toes, and is apt to make him slip and stumble. To this cause we must likewise ascribe the frequent and sudden lamenesses horses are subject to in the legs, by twilling the ligaments of the joints, tendons, &c. It is not affirmed that caulkers are always hurtful, and ought to be laid aside; on the contrary, it is granted that they, or some such-like contrivance, are extremely necessary, and may be used with advantage upon flat shoes where the ground is slippery; but they should be made thinner and sharper than those commonly used, so as to sink into the ground, otherwise they will rather be hurtful than of any advantage.

It is suggested that the Chinese are said to account a small foot an ornament in their women; and for that purpose, when young, their feet are confined in small shoes. This no doubt produces the defired effect; but must necessarily be very prejudicial to them in walking, and apt to render them entirely lame. This practice, however, very much resembles our manner of shoeing horses; for, if we looked upon it as an advantage to them to have long feet, with narrow low heels, and supposing we observed no inconvenience to attend it, or bad consequence to follow it, we could not possibly use a more effectual means to bring it about than by following the method already described. It is supposed that in shoeing a horse, therefore, we should in this, as in every other case, study to follow nature: and certainly that shoe which is made of such a form as to rememble as nearly as possible
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While the natural tread and shape of the foot, must be preferable to any other. But, as it is extremely difficult to lay down fixed rules with respect to the proportions to be observed in treating the heels of different kinds of horses, it is equally difficult to lay down any and rules for determining the precise form to be given to the hoof. It will be obvious to every judicious practicer, from the various constrictions of their feet, from nature, and other causes that may occur, that a great deal must depend upon the discretion and judgment of the operator, in proportioning the shoe to the foot, by imitating the natural tread, to prevent the hoof from contracting a bad shape. In order, therefore, to give some general idea of what may be thought most necessary in this matter, it is endeavored to describe that form of shoe, and method of treating the heels of horses, which, from experience, has been found most beneficial. And in this it is to be remembered, that a horse's shoe ought by no means to rest upon the foal, otherwise it will occasion lameness; therefore it must rest entirely upon the crust; and, in order that we may imitate the natural tread of the foot, the shoe must be made flat; if the height of the sole does not forbid it; it must be of an equal thickness all around the outside of the rim; and on that part of it which is to be placed immediately next the foot, a narrow rim or margin is to be formed, not exceeding the breadth of the crust upon which it is to rest, with the nail-holes placed exactly in the middle, and from this narrow rim the shoe is to be made gradually thinner towards its inner edge. And that the breadth of the shoe is to be regulated by the size of the foot, and the work to which the horse is accustomed; but in general, it should be made rather broad at the toe, and narrow towards the extremity of each heel, in order that the frog may rest with freedom upon the ground. The necessity of this has been already shown. The shoe being thus formed and shaped like the foot, the surface of the crust is to be made smooth, and the shoe fixed on with eight or at most ten nails, the heads of which should be sunk into the holes, so as to be equal with the surface of the shoe. The frog, frog, and bars, as has been already observed, should never be pared, farther than taking off what is ragged from the frog, and any excrescences or inequalities from the sole. Mr. Ofmer has remarked, that the shoe should be made so as to land a little wider at the extremity of each heel, than the foot itself; otherwise, as the foot grows in length, the heel of the shoe in a short time gets within the heel of the horse; which pressures often breaks the crust, and produces a temporary lameness, perhaps a corn. But this method of shoeing horses has been followed long before Mr. Ofmer's treatise on that subject was published; and for these several years past it has been endeavored to introduce it into practice. But so much are farriers, grooms, &c., prejudiced in favor of the common method of shoeing and paring out the feet, that it is with difficulty they can even be prevailed upon to make a proper trial of it. They cannot be satisfied unless the frog be finely shaped, the sole pared, and the bars cut out, in order to make the heels appear wide. This practice gives them a show of wideness for the time; yet that, together with the concave form of the shoe, forwards the contraction of the heels, which, when confirmed, renders the animal lame for life.

It is contended, that in this flat form of shoe, its thickest part is upon the outside of the rim, which is most exposed to be worn; and being made gradually thinner towards its inner edge, it is therefore much lighter than the common concave shoe; yet it will last equally as long, and with more advantage to the horse; and as the frog or heel is allowed to rest upon the ground, the foot enjoys the same points of support as its natural state. It must therefore, it is supposed, be much easier for the horse in his way of going, and a means of making him fore-footed. It is likewise evident, that, from this the hoof cannot acquire any bad form; where, at the same time, it receives every advantage that possibly could be expected from shoes. In this respect it may very properly be said, that we make the shoe to the foot, and not the foot to the shoe; as is but too much the case in the common shoes, where the foot very much resembles that of a cat, fixed into a walk-at-hell. But it is to be observed, that the heels of young horses, before they are shod, for the most part are wide and open at the heels, and that the crust is sufficiently thick and strong to admit of the nail's being fixed very near the extremities of each. But, as has been formerly remarked, from the constant use of concave shoes, the crust of this part of the foot grows thinner and weaker, and when the nails are fixed too far back, especially upon the inside, the horse begins to walk; to avoid this, they are placed more towards the fore part of the hoof. Thus causes the heels of the horse to have the greater spring upon the heels of the shoe, which is so very detrimental to occasion lameness; whereas by using this flat form of shoe, all these inconveniences are avoided; and if the heels of young horses from the first time that they were shod, were continued to be conically treated according to the method here recommended, the heels would always retain their natural strength and shape. By following this flat method of shoeing, and manner of treating the heels, several horses now under this management, that were formerly tender-footed, and frequently lame, while shod with broad concave shoes, are now quite sound, and their hoofs in as good condition as when the first shoes were put upon them. It is thought that if farriers considered attentively the design of shoeing horses, and would take pains to make themselves acquainted with the anatomical structure of the foot, they would then be convinced, that this method of treating the heels, and this form of shoe, is preferable to that which is so generally practiced. But it has been alleged, that in this form of shoe, horses do not go so well as in that commonly used. This objection will easily be set aside, by attending to the following particulars. There are but few farriers that can or will endeavour to make the flat shoes, in which these objections operate. The reason, in forming it, does not so easily turn into the circular shape necessary, as in the common shoe; and perhaps this is the principal reason why they object to it, especially where they work much by the piece. And as many horses that are commonly shod with concave shoes, have their foals considerably higher than the crust, if the shoe is not properly formed, or if it is made too flat, it must unavoidably rest upon the sole, and occasion lameness. Further, that the practice of paring the sole and frog is also so prevalent, and thought so absolutely necessary, that it is indiscriminately practiced, even to excess, on all kinds of feet; and while this method continues to be followed, it cannot be expected that horses can go upon hard ground, on this open shoe, with that freedom they would do if their foals and frogs were allowed to remain in their full natural strength. Experience teaches us, that in very thin-hoofed horses, we feel an acute pain from every sharp-pointed bone we happen to tread upon. Horses are sensible of the same thing in their feet, when their foals, &c., were pared too thin. Hence they who are prejudiced against this method, without ever reflecting upon the thin state of the sole, &c., are apt to condemn it, and draw their conclusions more from outward appearances than from any reasoning or knowledge of the structure of the parts. From a due attention likewise to

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the structure of a horfe's foot in a natural state, it will be obvious, that paring away the foie, frog, &c. must be hurtful, and in reality is destroying that substance provided by nature for the defence of the internal parts of the foot; from which practice it must be more liable to accidents from hard bodies, such as sharp stones, nails, glass, &c. From this consideration we shall likewise find, that a narrow piece of iron, adapted to the shape and size of the foot, is the only thing necessary to protect the crust from breaking or wearing away; the sole, &c. requiring no defence if never pared. But there is one observation farther necessary to be made; which is, that the shoe should be made of good iron, well worked, or what smiths call hammer-hardened, that is, beaten all over lightly with a hammer when almost cold. It is well known, that heating of iron till it is red softens it greatly; and when the shoes thus softened are put upon horses' feet, they wear away like lead. But when the shoes are well hammered, the iron becomes more compact, firm, and hard; so that a well-hammered shoe, though made considerably lighter, yet will last as long as one that is made heavier; the advantage of which is obvious, as the horse will move his feet with more activity, and be in less danger of cutting his legs. The common concrete shoes are very faulty in this respect; for, in fitting or shaping them to the foot, they require to be frequently heated, in order to make them bend to the unequal surface which the hoof requires from the conical use of the shoes; they thereby become soft, and to attempt to harden them by beating or hammering when they are shaped to the foot would undo the whole. But flat shoes, by making them when heated a little narrower than the foot, will, by means of hammering, become wider, and acquire a degree of elasticity and firmness which it is necessary they should have, but impossible to be given to them by any other means whatever; so that any farrier from practice will soon be able to judge, from the quality of the iron, how much a shoe, in fitting it to the circumference of the hoof, will stretch by hammering when it is almost cold; this operation in fitting flat shoes will be the less difficult, especially when it is considered, that as there are no inequalities on the surface of the hoof (or, at least, ought not to be) which require to be bended thereto, shoes of this kind only require to be made smooth and flat; hence they will press equally upon the circumference or crust of the hoof, which is the natural tread of a horse. And a preference has lately been given by the best hands to this description of shoe, which he calls the "feated shoe," and which he has formed in a die, in the fame manner as money is struck in coinage. The upper surface of this shoe consists of two parts; an outer part, which is a perfect plane near the rim, corresponding with the breadth of the crust, and called the crat; and an inner part, sloping from the flat, and distinguished by the name of the bevel. The crat is obviously intended to support the crust in its whole extent, the bevel to lie off the sole; and this latter being more or less broad, according to the kind of work proposed to be done, will give the requisite strength to the shoe. As the whole of the crust bears on the crat, it is liable to be broken than when only a small part of it rests on the shoe. In consequence, likewise, of the crust resting on the flat crat, the weight of the body has a tendency to spread the foot wider in every direction, rather than to contract it, as has been observed to happen with the common shoe, and when afterwards filled with the felted one, it has become wider without the horfe having been taken from his usual work; and again, it is observed, that a foot being of a full size and proper form when first filled with the felted shoe, has retained the same size and form without the slightest alteration, as long as the felted shoe was used. By the crat or bevel in the shoe, a cavity is formed between it and the sole, sufficient to admit a pick, and to prevent preasure on this part, without the sole itself being hollowed, and consequently weakened. For if it be one of the functions of the horny sole to defend the sensitive sole, of which, from its situation and nature, no one can doubt, it must be evident that the more perfect it is left, the stronger it must necessarily be, and of course the more competent to perform its office. And though he cannot be fanguine enough to suppose that this shoe will prevent lamens in every cafe, there is nevertheless sufficient proof from experience to assert, that it will diminish its frequency. Some strong objections have however been made to this form of shoe by Mr. Coleman. If it should be found, where the shoe is applied, that the sole very frequently receives preasure, then we shall demonstrate that the practice is incompatible with the principle. If it be good practice for the sole to receive preasure, then the principle must be erroneous that attempts to make the shoe rest totally on the crust; and if the principle be well founded for the crust only to support the shoe, then, if the shoe be in contact with the crust, the practice must be imperfect. Except a model is taken to every horse's foot, it is impossible for the reeding-place of the shoe precisely to fit the crust; for the crust not only varies exceedingly in different horses, but in the same hoof at different parts. The flat surface, therefore, that is only broad enough for the toe, is frequently too broad for the quarters and heels. And in all the shoes he has ever seen of this description, the flat part of the shoe is made of the same breadth at the quarters as at the toe. It is farther to be observed, that this surface very generally exceeds the crust at every part. In the same proportion as the seat of the shoe exceeds the breadth of crust, exactly so much of a flat surface is opposed to an equal quantity of sole. The principle of this shoe is therefore defeated by the practice; for, instead of the seat resting on the crust, it projects over the edge of the sole. It is therefore a fact, that while great pains have been taken to make a flat seat on the shoe, in order to support the crust only, and the web concave, in order to remove preasure from every part of the sole, that the seat has nevertheless very rarely fitted the crust; and consequently the foles of all flat feet, at their connection with the crust, must receive more or less of preasure from the seat of the shoe. Where the sole is concave, this shoe will only rest on the Wulst, but a shoe that is flat on its whole internal surface would answer the same purpose; for the concave part of the sole opposite to the concavity of the web of the shoe would receive no preasure, even from a shoe wholly flat. He therefore recommends a shoe which has been found free from these and other objections, and which indeed bids fair to supercede the use of every other kind. But before this is noticed, it may be necessary to mention curiously the shoes proposed by Mr. St. Bel, and Mr. Taplin; but in fact the changes they have introduced are rather novelties than improvements. Mr. St. Bel has indeed committed a great error, that of promoting the arched form of the horfe's foot, and thus raising the frog out of the way of preasure, a practice highly injurious to the animal.

It is indeed observed, in respect to Mr. St. Bel's mode of shoeing, by Mr. Coleman, that he employed a shoe with a flat upper surface; but, from not attending to the very important operation of removing the sole under the heels of the shoe, to every kind of hoof, it frequently failed of success. But that the best form of the external surface of the shoe is a regular concavity, that is, the common shoe reversed. This shoe leaves the hoof of the same figure when stood, as before its application. And it is evident, that a concavity has more points of contact with pavement and other
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In shoeing, it is to be noted that there are two circumstances naturally to be attended to, viz., to cut the hoof and apply the shoe. Before the hoof is protected by iron, four parts require to be removed, and others preserved. This is even more important than the form of the shoe. But many have attended chiefly to the shoe, and not to its application or to the hoof; and this error has produced much mischief and more expense to the Veterinary College, than all the prejudices and calamities of grocers and farmers. The first thing to be attended to, is to take away a portion of the sole between the whole length of the bars and crulh with a drawing-knife; for the heels of the sole cannot receive pressure without corns. To avoid this the shoe should be made concave, so as not to be in contact with the shoe. If there be any one part of the practice being more important than the reef, it is this removal of the sole between the bars and crulh. When this is done, the horse will always be free from corns, whatever may be the form of the shoe. Besides this, the heels of the shoe should be made to rest on the junction of the bars with the crulh; whereas, if the bars are removed, the shoe is supported by the crulh only, and not by the solid bases of the crulh and bars united.

And it is added, that it is necessary that the sole be cut before any other part of the hoof be removed. If the heels have been first lowered by the butterers, then possibly there may not be sufficient sole left to enable a drawing-knife to be applied without reaching the sensitive sole; whereas, by cutting the sole in the first instance, we can determine on the propriety of lowering the heels and shortening the toe. The sole can then defend, without the motion being obstructed by the shoe; and any foreign bodies that may have got into this cavity are always forced out when the sole defends, without producing any mischief. When the shoe is applied, the cavity between the sole and shoe should be sufficiently large, at every part, to admit a large horse-pickcr, and particularly between the bars and crulh. If the sole is naturally concave, a shoe with a flat surface applied to the crulh, will not touch any part of the sole; and if the sole be flat, or even convex in the middle, or towards the toe, the quarters and heels of the sole will generally admit of being made concave with a drawing-knife, so as not to receive any pressure from a flat shoe. If a shoe with a flat upper surface does not leave ample space for a pickcr between the sole and shoe, then it is requisite to make either the shoe or the sole concave. When the sole appears in flakes, and thick in substance, it will be better to make the whole of the sole concave by a drawing-knife; and this operation should always be performed before the toe is shortened or the heels lowered. When we have made the sole hollow, then a shoe with a flat surface will rest only on the crulh: but if the shoe be flat, or convex, and thin towards the toe and middle of the hoof, so as to prevent the possibility of removing the sole at these parts, to form a concavity, then it is necessary to employ a shoe sufficiently concave to avoid pressure, and to admit a pickcr. In this case, however, the shoe at the heels and quarters, even in convex feet, will generally allow of removal with a drawing-knife, and then the quarters and heels of the shoe may be flat. It therefore follows, that where the sole can be made concave, a shoe with a flat surface may with safety be applied, but where parts of the sole, from diseased or bad shoeing, become flat, a shoe with a convex surface is required. An added tooth is always a staple, and as the horse perfects it from the tips, three of the crulh requires to be cut off at least twenty-eight days. In these cases we can remove this tooth, the horse will be proper to apply a shoe that is thickened at the quarters, and reduced to the navel and toe, and the horse will be less liable to sprain.

And it is stated that the bars and frog should never be removed. What is rugged and detached had better be cut off with a knife by the groom than left to the farmer, who will perhaps remove two of the four parts. Where the frog is not large and projecting, the heels may be lowered by a rafh, or the butterer, for in every case we are to endeavour to bring the frog into contact with the ground. The frog must have pressure, or be deterred. Nevertheless, when the frog has been diffused for a considerable period, and become soft, it must be accustomd to pressure by degrees. If the quarters are high, and much exceed the convexity of the frog, we should gradually lower the heels, and endeavour to bring the frog and heels of the shoe on the same parallel line. Where work is required of the horse, while the frog is not long enough, it may be gradually used to pressure, by lowering the hoof about the tenth of an inch every time of shoeing, until the frog be hard, and equally prominent with the heels; or if the horse is not wanted, great advantage would be derived from his standing without shoes on a hard pavement. But the feet of horses are so variously deformed by bad management, it will be requisite in shoeing to attend to each particular kind of hoof. If any form of shoe be indiscriminately applied for all kinds of feet, it must frequently fail of success: but by proper attention to the different hoofs, we can generally improve the whole foot, so as to employ the shoe recommended at the Veterinary College. And, after the hoof has been properly prepared, then it is requisite to apply a shoe, and to vary its length, breadth, and thickness at the heel, surfaces, &c., according to the hoof. If the heels of the fore-feet are two inches and a half, or more, in depth, the frog found and prominent, and the ground dry, then only the toe of the hoof requires to be shortened, and afterwards protected by a short shoe made of the usual thickens at the toe, but gradually thinner towards the heel. For a common fixed saddle-horse, it may be about three-eighths of an inch thick at the toe, and one-eighth at the heel. The intention is, to bring the frog completely into contact with the ground, to expand the heels, prevent corns, thrushes, and canker. If applied in May or June, when the ground is dry, it may be continued all the summer; and in warm climates, where this is the case, no other protection for the hoof is requisite. And he adds, that to long as the wear of the hoof is not greater than the supply afforded by nature from the coroet, so long may the short shoes be worn; but in wet weather this is not the case: he has known some light horses to wear them the whole year; but such instances are not common. Nevertheless, the short shoe can be employed on most horses with advantage in summer, when the heels are from two and a half to three inches in depth, and the frog equally prominent; but, unless the hoof has been properly performed, the heels and frog are generally too low for the short shoe. The toe of the horse requires to be shortened as much as possible; but if the frog touches the ground, no part of the heel should be cut; and, by pursuing this practice, the heels will frequently grow sufficiently high to receive the short shoe. After speaking of the application of the short shoe to running horses, it is stated, that during the wet months, we must protect the whole crust by a long shoe; and if the heels of the hoof are low, we employ the same shoe in summer. In winter, when the heels are too high,
high, it is better to lower them moderately with a rasp, than to wear them down with a short file, as the wet may cause more horn to be destroyed than is necessary to be removed; but it cannot be too often repeated, that the sole between the bars and crust should be taken out before the heels are cut. If the heels are first removed, then possibly the horn left will be insufficient to afford a proper degree of concavity between the bars and crust. Where very high-heeled shoes have been worn, the frog would be liable to injury, as well as the mufcles and tendons that bend the leg, from the sudden application of a shoe made thin at the heels. Indeed, whether the shoe or hoof be the caufe that elevates the frog, the attention is required to bring it gradually into contact with the ground. We therefore thin the heel of the shoe by degrees, that the frog may become accustomed to hard preſsure. The thickness of the laft shoe at the heel will always furnish a proper criterion for that to be next applied. If only a small portion of the hoof can be taken from the toe, the heel of the new shoe should be about one-tenth of an inch thinner than the shoe removed; and the growth of the crust will generally be equal to this diminution of iron. By reducing the heels of the shoe in the same proportion as the hoof grows, a thin-heeled shoe may, in a few months, be employed; and yet the horn being preserved at the heels, and cut at the toe, every time of feeding, the heels (shoe and hoof together) will be as high, and frequently higher, than when the former thick-heeled shoes were employed. The crust that depends at the heels we allow to remain; but subtraft an equal quantity of iron from the heels of the shoe, and as much horn as possible from the toe of the hoof. This system should be continued till the heels of the shoe are about one-third the thickness of the toe. In proportion as the crust from the coronet to the toe increafes, and the heels decrease in depth, the back finews and mufcles will be put on the stretch. And the converfe of this must be equally true, that as the heels are high and the toe short, the mufcles and finews are relieved. It therefore follows, that every atom of horn or iron taken from the toe of the crust, or shoe, tends to relax the parts behind, and that the removal of horn or iron from the heels produces the opposite effect. If thefe sim̂ple facts are kept in view, there can be no difficulty in ascertaining the quantity of iron that may be removed with safety from the heels of any hoof, without danger of mischief to the mufcles and tendons.

But in the shoeing of horses that are liable to cut, the following useful direĉtions have been given by Mr. Moorcroft. It is contended, that in order to prevent a horse from striking the foot or shoe against the opposite leg, by which it is often bruised or wounded, is an important point; inasmuch as this accident occurs very frequently, and it not only blemishes and disfigures the leg, but also endangers the safety of the rider. The parts frick in the hind-leg, are the infele of the fetlock-joint, and the coronet; in the fore-leg, the infele of the fetlock-joint, and immediately under the kneee; which latter is called the freely cut, from its happening only when a horse goes fall. Young horses, when first backed, generally cut their fore-legs, although naturally they may be good goers. This arises from their placing the foot on the ground too much under the middle of the breast, in order the better to support the burtien to which they are unacĉustomed; but by degrees they acquire the method of balancing the weight, with the foot in the same direĉtion it would naturally have were they without it. It may, therefore, he thinks, be laid down as a general rule with such horses, that, till they regain their natural method of going, the edge of the inner quarter of the shoe should follow exactly the outline of the crust, but should not be fet within the crust, nor should the crust itself be reduced in thickness; as both these practices tend to weaken the inner quarter, and to deform the hoof. And here it must be oberved, that the outer edge of the shoe should, in all cases of bound feet, follow exactly the outer edge of the crust, except just at the heel, where it should project a little beyond the line of the hoof. Also, that horsees with narrow caufes, having their legs placed near together, are apt to cut when they begin to tire; and with thele the practice just mentioned should always be employed. Horsees that turn their toes much outwards are, of all others, most subject to cut. But in reply to the aflertions of some, that this accident also happens to such horsees as turn the toes much inwards, he denies having met with a single instance of the kind. In horsees of the firft description, it has been long oberved, that the inner quarters of the hoof were lower than the outer, and that the fetlock-joints were nearer each other than in horsees whose feet pointed straight forwards. These two facts probably led to a conclusion, that if the inner quarters were raised to a level with the outer, and so much the more as they were made proportionally higher, that the fetlock-joints would be thrown farther apart, so as to admit of the foot palling by the supporting leg without striking the joint. Accordingly, for the two laft centuries, at leaft, it has been usual to make the inner quarter of the shoe higher than the outer; and not only has this been the general practice, but it has been regularly recommended by almost every writer from that time to the present. And notwithstanding this method has very frequently failed of success, yet repeated disappointment appears never to have led to the circumstance of quizzing the truth of the principle. Nay, indeed, the reliance placed upon it has been so strong, probably from the simplicitie of the reasoning on which it was founded, that in the cafes where it most particularly disappointed expectation, its failure was generally attributed to the practice not being carried sufficiently far; and accordingly the shoe has been still more raised on the inner quarter, and the edges of the crust and shoe have been filed away. When these expedients likewise failed, the laft resource has been, a circular piece of leather placed round the joint to receive the blow of the foot.

It is noticed, that about four years ago, a shoe, with the outer quarter thick and the inner one thin, was applied in a cafe which had baffled many attempts on the old plan. On the first trial the horse ceased to cut, nor has he ever done it since; which can only be attributed to his having confantly worn the fame kind of shoe. And other bad cafes, which have occurred occasionally since that period, have been treated in the fame way, and with the fame success, although for a long time it was at a loss how to explain them. If the action of cutting principally depends on the faulty position of the fetlock-joints, and of the feet with respect to each other, and it seems generally agreed that such is the fact, it should seem that a means which, by raising the outer quarters, much throw the fetlock-joints still nearer to each other, would necessarily increase the defect in question; but as the reverse of this actually takes place, it might induce a suspicion that there exists some other caufe of cutting which has been hitherto overlooked. For horsees which cut their hind-legs, the shoe, at the outer heel, should be from half an inch to an inch in thickness, according to the kind of horse, and to the degree in which he may cut. The web of the shoe should gradually become thinner till it reaches the toe, which should be of the ordinary thickness, and from which it should slope off, and end like a tip in the middle of the inner quarter. For horsees which cut only in a flight degree, a shoe of the fame thicknesses throughout, but reaching on the inner quarter only as far as the middle of the foot, will
will in most instances be found sufficient. This shoe, in point of effect, would be equally proper for the fore-foot, were it not that in such horses as are used for the saddle, the fore-feet, being more charged with weight than the hind feet, are more particularly liable to be injured, and a horse thus shod on the fore-feet ought not to be used; therefore, it is expedient to let the inner quarter of the shoe be, and reach to the heel; but the outer edge should be bevelled off, to allow hope towards. The same kind of shoe is equally well calculated to prevent the speedy cut, offering to bevel off more freely the part which chance, and not to put in any nails thereabouts. And here it may be proper to remark, that in bound feet, the heel of the shoe should reach as far on the heel as the end of the angle formed by the crush, and the lustre being fully untied; but it should not be carried quite so far as the end of the heel of the hoof. But in order to ascertain what would happen to a horse thus shod with different kinds of shoes, the following trials were made.

Experiment 1. A horse with a narrow chest, who had never cut, and having parallel shoes on his fore-feet, was trotted at about the rate of eight miles an hour, in a straight line, over ground sufficiently soft to retain chiefly the impressions of the shoes, but not to admit the feet to sink into it. These parallel shoes were drawn along the track, including between them the prints of the shoes. By these it was found, that there was regularly a distance of nine inches and a half between the outer edge of the near fore-shoe and that of the off fore-shoe.

2. Shoes thick in their inner quarter, and like a tip, reaching only half way on the outer quarter, were then used; and it appeared that the distance between the outer edges of the prints of the shoes, taken as before, was regularly reduced to eight inches and a half.

3. The same shoes were afterwards placed on the opposite foot, so that the thick heel was on the outer quarter; and the result, under circumstances exactly the same as in the foregoing experiments, was, that the distance between the outer edges of the prints of the shoes was regularly increased to eleven inches. To account for these results, it is necessary to attend closely to the different effects produced by the weight of the fore part of the body acting upon the two fore-feet, when raised on the inner or outer quarters, during the opposite states of rest and action. And first, with regard to shoes raised on the inner quarter: whill a horse fo shod is standing full, the fetlock-joints are certainly thrown farther apart than when any other kind of shoe is used. Hence it was concluded, that the limb which supported the body would have its fetlock-joint thrown so much outwards, as to keep it completely out of the way of the foot in motion. But it appears that the impressions made on the ground by such shoes are much nearer together, than those made by parallel shoes, and two inches nearer together than those made by shoes raised on the outer quarter. And this may be thus explained: when the horse is at rest, the weight is supported equally by the two fore-feet; but the infant one foot quite the ground, the weight is suddenly transferred to the other; and by the outer quarter being lower than the opposite one, the fore part of the horse has a tendency to fall over to the outside. To prevent this, the moving foot is suddenly brought close to the fetlock of the supporting foot, in order to relieve it by catching the weight; and the foot itself is placed on the ground too much under the middle of the breadth. The same circumstance occurs to both feet in their turn: and the horse, being thus in constant danger of falling to one side or to the other, is constrained to bring his feet near together to preserve his balance; and in doing this, it presses the foot against the opposite fetlock. And it is generally happens, that the more the two are turned outwards, the nearer the falkon points are brought together, and the more the horse is disposed to cut. However, this is true only to a certain extent; for if the faulty position of the lower part of the leg be carried and study beyond a given point, till of producing an incised degree of cutting, it will enable it remedies the defect altogether. The reason of this is the reverse of what takes place when the inner quarter is raised; that is to say, when the weight of the fore part of the body is only upon one leg, it bears too much upon the inner quarter, from its being lower than the outer quarter; and thus the horse has a tendency to fall over to the inside of the supporting leg. To prevent this, the moving foot is thrown a little farther from the supporting leg, in order to maintain the balance: and thus the foot makes the fetlock joint.

In cafes where the roads are covered with ice, it becomes necessary to have the heels of horses' shoes turned up, and frequently sharpened, in order to prevent them from slipping and falling; but this cannot be done without the frequent moving of the shoes, which breaks and destroys the crush of the hoof where the nails enter. To prevent this, it has been recommended to those who are willing to be at the expense, to have foil points screwed into the heels or quarters of each shoe, which might be taken out and put in occasionally. And the method of doing this properly, as laid down by Mr. Clark, is first to have the shoes fitted to the shape of the hoof, then to make a small round hole in the extremity of each heel, or in the quarters, about three-eights of an inch diameter, or more, in proportion to the breadth and size of the shoe; in each of these holes a screw is to be made. The foil points are likewise to have a screw on them, exactly fitted to that in the shoes. Care must be taken that the screw on the points is no longer, when they are screwed into the shoe, than the thickness of the latter. The foil points are to be made sharp: they may either be made square, triangular, or chisel-pointed, as may be most agreeable. The height of the point above the shoe should not exceed a quarter of an inch, for a faddle-horse; they may be made higher for a draught-horse. The foot handle, that is necessary to screw them in and out occasionally, is made in the shape of the capital letter T, and of a sufficient size and strength. At the bottom of the handle a socket or cavity must be made, properly adapted to the shape of the foil point, and so deep as to receive the whole head of the point that is above the shoe. In order to prevent the screw from breaking at the neck, it will be necessary to make it of a gradual taper. The same is likewise to be observed of the female screw that receives it; that is, the hole must be wider on the upper part of the shoe than the under part. The sharp points may be tempered or hardened, in order to prevent them from growing too soon blunt; but when they become blunt, they may be sharpened as at first. These points should be sharpened, when the horse is put into the stable; as the foals will do them more injury in a few minutes than a day's riding on ice. A draught-horse should have one on the point of each shoe, as that gives him a firmer footing in drawing on ice; but for a faddle-horse, when points are put there, they are apt to make him trip and stumble. And when the shoes are provided with these points, a horse will travel on ice with the greatest security and headways, much more so than on carriage-way or turnpike roads, as the weight of the horse presses them into the ice at every step. And in addition to the common shoe for horses that have found feet, there are also others.
others of various shapes, determined by the necessity of the cafe, as by the different derangements and diseases to which the horfe's foot is liable. See Shoe.

Shoeing of the Afs and Mules. With respect to what concerns the shoeing of other animals, Mr. Clark thinks that the mule, being an animal uncommon in this country, the afs of no great value, and the ox not generally employed in labour, it is needless to lay much on the subjéct. The shoe for the fore-feet of the mule is very similar to that which the farriers call the bar-foot. It is very wide and large, especially at the toe, where it sometimes projects four inches and upwards beyond the hoof. This excess is given it with a view to enlarge the base of the foot, which is in general exceedingly narrow in this animal. The shoe for the hind-feet is open at the heels, like the horfe's shoe; but it is lengthened at the toe, like the preceding one. And it is added, that the foot of the afs, having the fame shape as that of the mule, requires the fame kind of shoe, with this only difference, that the shoe of the fore-foot is not closed at the heels, and that its edges do not project so much beyond the hoof. The fame form of shoe is used for the hind-feet of this animal.

Shoeing of Oxen, the buisines of fixing shoes upon animals of this kind, and which is constantly necessary wherever they do any fort of field or road labour; but it is a practice which is yet far from being performed in a perfect manner. Mr. Clark remarks, that in many parts of France, where the ox is used for draught, it is sometimes necessary to employ eight shoes, one under each nail; or four, one under each external nail; and sometimes only two, one under the external nail of each fore-foot. In this country two pieces, or shoes, to each foot are generally, however, made alike of; being mofiily fixed on, especially in the northern districts, with three or four large-headed nails to each shoe. They are fitted on in a similar manner to those of the horfe. But from the shoes of these animals being, from the smallness of the pieces, so liable to break, it has been suggested to have them shod with whole shoes, in the manner of the horfe; but how far this is a practice that will answer, must depend upon future trials. It is probable, that in this way the foot will be too much confined to succeed in any very perfect manner. Where oxen are left without shoeing, they are continually liable to become lame, and to be incapable of going on with their work. As there is much trouble in the shoeing these animals, from its being necessary to call them each time, it has been found requisite to have recourse to contrivances for shoeing them standing. See Ox-shoeing Machine.

Shoemakers' Chips, in Agriculture, the refuse cuttings pared off in making shoes, which, when collected in sufficient quantity, are found useful as a manure. See Manure.

Shoenech, in Geography, a Moravian settlement in Pennsylvania, near Nazareth, begun in 1757.

Shoesharo, a town of Little Baharia; 60 miles S.W. of Acfu.

Shogle. See Chou.

Shoket, a town of Syria, in the pachalic of Damascus, on the Oronte; 22 miles S. of Antakia.

Sholavenden, a town of Hindooftan, in Madura; 14 miles W.N.W. of Madura.

Sholaveram, a town of Hindooftan, in the Mawar; 14 miles S. of Triptore.

Sholingur, a town of Hindooftan, in the Carnatic; 20 miles S. of Bomraotezolam.

Shocampetty, a town of Hindooftan, in Coimbatore; 5 miles S.S.W. of Caroor.

Shoolds, in Rural Economy, a provincial term applied to holls.

Shoolarumboo, in Geography, a town of Hindooftan, in the province of Dindigul; 17 miles N.N.W. of Dindigul.

Shooleramcotta, a town of Hindooftan, in the province of Dindigul; 7 miles N. of Dindigul.

Shoomtsha, one of the Kurile islands, the nearest to Kamtuchaka. The channel between the Lopatka and this island is 15 versts broad. The length of the island from N.E. to S.W. is 50, and the breadth 30 versts. The land is low, with moderate ridges of hills. The eastern coasts, about the middle of the island, form steep shores and rocky shelves, and are for some way into the sea fringed with rocks. Here is one, and it is said that a vein of silver has been formerly worked. In the centre of the island is a lake, five versts in circuit, which flows by a streamlet into the sea. In this are caught fine salmon, and several other kinds of fish. There are no flat-trees upon the island, but merely bushes of alder, willow, and an fuphale kind of poplar, or Siberian cedar, on which grow little cedar-nuts. The inhabitants are not genuine Kuriles, but of Kamtuchakan dale decent; of these 46 perons pay tribute. N. lat. 51° 25' to 53°. E. long. 156° 14'.

Shoor, a town of Hindooftan, in Lahore; 15 miles S.E. of Koohab.

Shoot, in Agriculture, the young branch of any fort of plant, which is afforded in one feedon. It also signifies a young animal of the cattle kind, in some districts.

Shoot, in the Sea Language. They lay the ballast shoots, when it runs over from one side to another.

Shoote, among neat cattle, an affectation of the bowell kind, with which calves are often attacked a few days after calving. The usual symptoms are, first, a colic or pain that is more or less violent, and is frequently very feverous and dangerous, especially when it is contagious. This colic is terminated, and the calf relieved, by a discharge taking place from the bowells; though this sometimes proves fatal before the shoote appears. Secondly, a loathing and refucing of food, even previous to the discharge; which decreases and increases according to the duration and violence of the disorder. Where the disafe prevails, the best medicine which can be administered is that of eggs and flour properly blended with oil, melted butter, and anised, linseed, or similar mucilaginous vegetable matters; and milk simply mulled with eggs may be often given with much advantage.

Shooter's Hill, in Geography, a hill in the county of Kent, between London and Dartford.

Shooting. See Gunner and Projectile.

Shooting of Bombs. See Bomb.

Shooting with Air. See Wind-gun.

Shooting, Malicious, in Law. See Mahim.

Shooting of Salt. It is to be observed, that the figures arising from the shooting of dissolv'd salts are not constantly the fame, but vary according to different circumstances, such as when they happen to shoot more or less hastily, or in different proportions of liquor. See Salt.

Shooting Point, in Geography, a cape of Scotland, on the south coast of the county of Fife, and east side of Largo bay.

Shoots, Hot. See Hot.

Shoot, Water. See Water.

Shop-lifter, a person who, on pretence of buying goods or otherwife, takes an opportunity to steal them; and if the goods amount to the value of five shillings, though
though so person be in the shop, he is guilty of felony without benefit of clergy, by 1 W. III. c. 22.

SHORAB, in G. (sp.), a town of Perak, in the province of Perak; 8 miles W. of Merlimau.

SHORAY, a town of Hindustan, in the circuit of Chas-river; 21 miles N. of Kumilla.

SHORE, Jane, in Biograph., the concubine of king Edward IV., was the wife of Mr. Matthew Shore, a goldsmith in Lombard-street, London. Historians represent her as extremely beautiful, cheerful, and generous. The king, it is said, was so captivated with her temper than her person; he never made use of her influence over him to the prejudice of any one; her importunities were always in favour of the unfortunate. After the death of Edward, she attached herself to the lord Hastings; and when Richard III. cut off that nobleman as an obstacle to his ambitious schemes, Jane Shore was arrested as an accomplice, on the accusation of witchcraft. For this she was doomed to a public penance, and to the loss of her property. She was alive, but probably in a very wretched state, under the reign of Henry VIII., when she was seen by Sir Thomas More, poor and old, and without the smallpox trace of her former beauty. Mr. Rowe, in his tragedy of Jane Shore, has adopted the popular story, related in the ballad, of her perishing with hunger in a place where Shore-ditch now stands. But Stow assures us, that this place had its name long before her time.

SHORE, John, a famous performer on the trumpet. Matthias Shore, the father of John, and Colley Cibber's wife, was sergeant-trumpeter, in which office he was succeeded, first by his brother William Shore, and afterwards by his son John. His daughter, Mrs. Cibber, had been a scholar of Purcell in singing and playing on the harpsichord; in the exercise of that talent at home, her con- quest over the heart of Colley Cibber first began. Purcell, from his connexion with the family, and his admiration of John's performance on the trumpet, took every opportunity in his power to employ him in the accompaniment of his songs and other theatrical compositions; and this accounts for the frequent use he made of that martial and field instrument, even when the subject of the poetry was pacific. John Shore lived till the year 1753, when he was succeeded as sergeant-trumpeter, by that admirable performer the late Mr. Valentine Shaw, whose exquisite tone and fine shake must be still remembered by many persons living, who have heard him at Vauxhall, and in Mr. Handel's oratorios.

SHORE, among Builders, &c. See SHOAN.

SHORE, or Common Shore, a corruption of sewer. See Sewers.

SHORE, in Agriculture, a sort of artificial drain or course, formed in low flat lands for the purpose of freeing and relieving them from the collected surface-water. The want of shores is now most common in waste and unreclaimed lands; but it occasionally occurs in those of other kinds, as wet meadows, to the great injury and prejudice of the prevailing crops, and the future productiveness of the land, as the letting surface-water can get off in no other way. There are very great extents of even appropriated lands, in some cases, that are greatly damaged and inconvenience by water lodging and stagnating in the furrows of the ridges and the ditches, for want of having sufficient proper shores, or public drains, for drawing it off; and of public proper laws and regulations for enforcing the re-opening and the clearing, from time to time, of those which have been formed in former periods; as well as for the preferring of the whole always in a suitably open state.

It is extremely probable, that a large proportion of the low flat lands of the country, which are now in slide, what dry conditions were, in their natural state, liable to at times be covered with water. This appears to have been the case, from the compact glory of moorland of the field, and the flat covering of black vegetable earth which is silted over the surface of them, where the work of drainage has not been performed upon them. And, from many of such low flat lands being now lying in a tolerably dry state, from large tracts of that of the marsh kind, which is now barely out of the reach of water, which, if wetted by till their drains and ditches to the brim, as well as from the humid fogs and mists of the low lying districts,—it would seem, it is laid, to be equally probable, that much industry and exertion have at former periods been employed, to free the lands of this sort in the country from the slates in which water and time had placed them.

The feudal system is supposed to have been particularly favourable to undertakings of this useful kind, and that since its decline, the courts of the manorial description, which succeeded and survived it, have contributed to enforce its beneficial regulations. But that they have now for the most part lost their power, existence, and authority, or where they are still continued and retained, what relates to the buxoms of public drains and water-courses, in their maintenance, is too oft neglected and overthrown. Hence it is noticed by a late writer, that, "relater to this important department of rural economy and internal policy, the country may be said to have been moving, and in a general view of it, still continues to move, in a retrograde direction."

In a great number of situations, vast injury and inconvenience are at present sustained from the want of the shores, drains, ditches, and other outlets for drawing off the water being kept properly open and free for its discharge into the adjoining rivers, brooks, or seas.

Some sufficient power and authority for the regulation of all matters of this nature should certainly exist in every district of the kingdom; which is not now the case, at least to any full and effectual extent, as many most important and advantageous would necessarily result from it, in the management and improvement of lands, as well as in the increase of the produce of it.

It has been suggested, that a great deal may be effected in this way, by the having recourse to the appointment of justices for the conducting of the business of shores and water-courses, wherever there are the slightest remains of the existence of manorial courts. And that, even where there is nothing of this sort to be met with, it would not fail to have a good effect, in many cases, where the lands are considerable, to have fences in the name, chosen from among the neighbouring tenantry in an annual or other manner, for the purpose of directing the proper regulation of the public shores, drains, water-courses, and other modes of conveying away the superabundant water from the land.

SHORE, S. A., is a general name for the sea-coast of any country. A bold shore is a coast which is steep and abrupt, so as to admit the closest approach of shipping without exposing them to the danger of being stranded. The shores of the sea are divided, by coast Marstigh, into three portions, according to which, all his descriptions, in his account of the botan of the sea, are given. The first part of the shore is that tract of land to which the sea first reaches in stornes and high tides, but which it never covers; the second part of the shore is that which is covered in high tides and storms, but is dry at other times; and the third is the district from this, which is always covered with water.

The
The first part is only a continuation of the continent, and suffers no alteration from the neighbourhood of the sea, except that it is rendered fit for the growth of some plants, and wholly unfit for that of others, by the saline fumes and impregnations: and it is fearlessly to be conceived by any but those who have observed it, how far inland the effects of the sea reach, so as to make the earth proper for plants, which will not grow without this influence, there being several plants frequently found on high hills and dry places, at three, four, and more miles from the sea, which yet would not grow, unless in the neighbourhood of it, nor will ever be found elsewhere.

The second part or portion of the shores is much more affected by the sea than the former, being frequently washed and beaten by it. Its productions are rendered faint by the water, and it is covered with sand, or with the fragments of shells in form of sand, and in some places with a tartaceous matter deposited from the water, and the colour of this whole extent of ground is usually dusky and dull, especially where there are rocks and flanes, and these are covered with a flamy matter.

The third part of the shores is more affected by the sea than either of the others, and is covered with an uniform crust of the true nature of the bottom of the sea, except that plants and animals have their residence in it, and the decayed parts of these alter it a little.

Shore of Muchtol, in Geography, a cape of Scotland, on the E. coast of the county of Kincardine, so called from a village near the coast; 3 miles N. of Stonehaven.

Shoreditch, St. Leonard, a parish in the hundred of Osflnpton, and county of Middlesex, England, is situated in the northern suburbs of London, and forms one of the twenty-three out-parishes of Middlesex and Surrey, which are mentioned in the bills of mortality. This parish is of great extent, and is divided into four liberties, called the liberties of Churchend, Hoxton, Honywell, and Moorfields. The church, a modern edifice, was opened for divine service in August, 1740, having been erected in place of a very old church, which Ellis, author of the "History and Antiquities of Shoreditch," states to have been of Saxan origin. The afcent to the church is by a double flight of steps leading under a portico, supported by four Doric columns. The body is plain in its architecture, but is well lighted by spacious windows. The fleape, which rises to a very considerable height, has rather a handfme appearance. In the old church were a variety of monuments and brasses in memory of persons of distinguished rank; among whom were the countets of Wellmorland (daughter to Edward, duke of Buckingham), who died in 1553; Eleanor, countess of Rutland, who died in 1551; and two sons of the said countets of Rutland; but none of those in the new church possess any interest. This parish abounds with alms-houses, established either by public city companies or by private individuals. In Holywell was anciently a priory for nuns of the Benedictine order, which was founded early in the twelfth century, and possessed a revenue of 293l. per annum at the time of the dissolution. According to the parliamentary returns of 1811, this parish contained 5658 houses and 43,930 inhabitants. The History and Antiquities of the Parish of St. Leonard-Shoreditch, by Henry Ellis, quarto, 1797.

Shoreham, New, a borough and market-town in the half hundred of Fihergate, rape of Bramer, and county of Suffex, England, is situated upon the coast of the English Channel, at the distance of about 6 miles W. from Brighthelmstone, and 55 miles S. by W. from London. This town is indebted for its origin to the decay of Old Shoreham, which is now a very trifling village, and appears to have been a place of considerable importance in ancient times. New Shoreham is a borough by prescription, and has sent members to parliament since the year 1295, the 23d year of the reign of Edward I. In 1771 it became conspicuous in the annals of electioneering, by the development of a remarkable scene of corruption practised in the election of members for the parliament then assembled. The returning officer having returned a candidate with only 37 votes, in prejudice to another who had 87, of which he had rejected 76, without assigning any satisfactory reason for so doing, was called upon to account for his conduct at the bar of the house of commons; when he defended himself, by stating that those whom he had quired formed part of a society, called the Christian club, the offensive object of which was only a.malk to cover its real one, the setting the borough to.ale to the highest bidder. In consequence of these aflerions, the house resolved itself into a committee to inquire into the truth; and being fully satisfied on that head, after a patient investigation, it was resolved to incapacitate the members of the club from voting at elections in future.

The church of New Shoreham is a curious and interesting specimen of ancient Norman architecture. At present only the east end is fitted up and appropriated to divine service, as the nave, or part westward of the tower, has been entirely destroyed. It consists of a nave, transept, tower, and choir; and by its style of architecture, appears to have been built near the end of the twelfth century. See a beautiful engraving of it in Cooke's "Southern Coast of England."

New Shoreham is governed by two constables, annually elected, who are the returning officers. The market-day is Saturday, weekly; and there is a fair on the 25th of July. It was formerly a town of more relative note than at present, and had a priory of Carmelites or White Friars, founded by Sir John Mowbray, knt.; as also an hospital dedicated to St. James. It is chiefly remarkable, however, for being built upon the spot where Ella, the Saxon, landed, with supplies from Germany in aid of his countrymen, Hengist and Horda. According to the parliamentary returns of 1811, the parish contains 165 houses, and 770 inhabitants. History of the Boroughs of Great Britain, and the Cinque Ports, 3 vols. 8vo. 1792. Beauties of England and Wales, vol. xiv. by F. Shoberl, 1813.

Shoreham, a township of America, in the state of Vermont, and county of Addison, on the E. side of lake Champlain; containing 2033 inhabitants.

Shorehaven, a sea-port on the south coast of the island of Stromfoe, with a good harbour, called Tros. N. lat. 61° 40'. E. long. 11° 7'.

Shorl, in Mineralogy. See Shorl.

Shorl and Morling, in our Old Writers, words used to distinguish fells of heep; forling being the fells after the fleaves are shorn off the heep's back; and morling the fells head off after they die or are killed. In some parts of England they understand by a forling, a heep whole
SHORN VELVET. See Velvet.

SHORTH, THOMAS, in biography, a physician of the early part of the last century, and the author of many works relating to chemistry, meteorology, and medicine. Few particulars are recorded of his life, which seems to have been spent more in the pursuit of science, than in the exercise of his profession. He was a member of the Royal Society. The following are the principal works which he left.


SHORTH, JAMES, an eminent optical, was born at Edinburgh in the year 1710. At the age of ten he left his parents, and being left in a state of indigence, he was admitted into Heriot's Hospital, where he soon showed a fine mechanical genius, by constructing for himself a number of curious articles with common knives, or such other instruments as he could procure. At the age of twelve he was removed from the hospital to the High-school, where he showed a considerable taste for classical learning, and he soon became at the head of his forms. He was intended for the church, but after attending a course of theological lectures, he gave up all thoughts of a profession, which he found little suited to his talents, and from this period he devoted his whole time to mathematical and mechanical pursuits. He was pupil to the celebrated Maclaurin, who perceiving the bent of his genius, encouraged him to prosecute those particular studies for which he seemed best qualified by nature. Under the eye of his preceptor he began, in 1732, to construct Gregorian telescopes; and, as the preceptor observed, by attending to the figure of his specula, he was enabled to give them larger apertures, and to carry them to a greater perfection, than had ever been done before him.

In 1736 Mr. Shorth was invited to London by queen Caroline, to instruct William, duke of Cumberland, in the mathematics; and on his appointment to this office, he was elected a member of the Royal Society, and patronized by the earls of Macclesfield and Morton. In the year 1739 he accompanied the former to the O'key islands, where he was employed in making a survey of that part of Scotland. On his return to London he established himself as an optical, and in 1743, he was commissioned by lord Thomas Spencer to make a reflector of twelve-feet focus, for which he received 600 guineas. He afterwards made several other telescopes of the same focal distance, with improvements and higher magnifiers; and in 1752 he completed one for the king of Spain, for which, with the whole apparatus, he received 1250l. This was the noblest instrument of the kind that had ever been contrived, and has probably not been surpassed, made by the grand telescopes manufactured by Dr. Herchel.

Mr. Shorth was commissioned to visit the place of his nativity once every two or three years during his residence in London, and in the year 1760 he paid his last visit to Scotland. He died in June 1760, after a very short illness, when he was in the 80th year of his age. His eminence as an artist is universally admitted, and he is spoken of by those who knew him from his youth upwards, as a man of virtue and very amiable manners.

SHORT ACCOUNTS. See Account.

SHORT CROCKS, in Agriculture, are a sort of crocks, which are formed of best pieces of wood of the oak or elm kind, and so contrived as to be fixed on the handle, such that the ends or crooks turning up, for to bear the loads on them. They are in use in the counties of Devon and Cornwall, in the latter of which they have both short and long crooks, as they term them, which are made use of for carrying sawdust, hay, faggot, bale wood, flake, and flagstones. They are a relic of the old mode of carrying loads in hilly districts. Single-horse cart loads would probably answer the purpose in a far better way. See Cart.

SHORT GRAFTS, in Gardening, a term applied to the pieces or grafts which are kept in a continually mown, short, close state, as on lawns, and in pleasure-grounds, or other situations about country residences. The portions of mown or short grafts about seats and houses of the above sort in the modern improved modes of laying out pleasure-grounds, are mostly much more confined in their limits than was formerly the case; as they are not only troublesome, but very expensive in keeping in that proper order and neatness which is necessary for the purpose of ornamental effect, and the utility of walking upon them as occasion may require; and because a much better and more natural effect is found capable of being produced without them; while at the same time the lands can be rendered useful in supporting animals, and of course no loss be sustained.

Where pieces of short grafts are, however, formed, and to be kept in order, it will be necessary to roll, mow, and sweep up the grafts litter in a clean neat manner from them once or oftener in the course of the week during the spring season, and frequently at other times. The refuse litter, thus procured, may be employed for different garden purposes, where it cannot be converted to better uses. See Lawns and Pleasure-Ground.

It is mostly in too dirty a state to be applied as food for any sort of cattle flock.

SHORT-GRAFT SYLPHS, that sort of tool of this kind which is employed in mowing short grafts. Sylphs for this use should be rather short, and laid in the shaft with the edges low, in order that the grafts may be cut in a close neat manner, without leaving any scythe ridges or bulks, as they are usually termed. The scythe or sythe, in performing this sort of mowing, are commonly made narrow, in the intention, that the grafts may be well and levelly cut out of the bulks or parts under the scythe, and by such means have a more neat and even appearance. See Scythe.

SHORT SMILLS, in Agriculture, a sort of oat, which is famed on account of its remarkable flouriness. It is much grown in the county of Essex, and is a thick, full, weighty kind, which succeeds well on most lands of the more dry kind. See Oats.

SHORT SAILS, in a Man of War, are the same with fighting sails, being the fore-sail, main-sail, and fore-top-sail, which are all that are used in fight, lest the sail should be fired and spoiled: besides the trouble of managing them when a wind gives chase to another.

A chaise is a disposition to fight, they say the chaise flung into her short sail, i.e. puts out her colours in the poop, her flag at the main-tops, and her streamers or pennants at the yard's arms; at which time, her short-sail, peeks her nizen, and rides her main-yard.
SHORTFORD, q. d. fore-clf, an ancient cullom in the city of Exeter, when the lord of the fees cannot be answered rent due to him out of his tenement, and no dilrefes can be levied for the fame. The lord is then to come to the tenement, and there take a phone, or some other dead thing, off the tenement, and bring it before the mayor and bailiff, and thus he must do seven quarter-days successively, and if on the seventh quarter-day the lord is not satisfied his rent and arcars, then the tenement shall be adjudged to the lord to hold the fame a year and a day; and forthwith proclamation is to be made in the court, that if any man claims any title to the said tenement, he must appear within the year and day next following, and satisfy the lord of the said rent and arcars; but if no appearance be made, and the rent not paid, the lord comes again to the court, and prays that, according to the custom, the said tenement be adjudged to him in his demesne as of fee, which is done accordingly, so that the lord hath from henceforth the said tenement, with the appurtenances, to him and his heirs.

SHORT-JOINTED, in the Manage. A horfe is faid to be short-jointed, that has a short pattern; when this joint, or the pattern, is too short, the horfe is subfected to have his fore-legs from the knee to the cornet all in a straight line. Commonly short-jointed horfes do not manage so well as the long-jointed; but out of the manage, the short-jointed are the fittest for labour or fatigue, efpecially those of the farm breed.

SHORT-SIGHTEDNESS, Myopia, a defect in the conformation of the eye, wherein the cry Stalline, &c. being too convex, the rays reflected from different objects are refracted too much, and made to converge too far, fo as not to unite before they reach the retina, by which means vision is rendered dim and confused. See Myops.

A learned author thinks it probable, that out of fo great a number of short-sighted persons as are daily to be met with, few are born fo, for it generally grows upon young people at the age of twenty or twenty-five, and therefore might possibly be prevented by using their eyes, while young, to all farts of conformations, that is, by often looking through glafes of all farts of figures, and by reading, writing, or working with fpectacles of feveral degrees of convexity; for whatever be the powers by which the eye conforms itself to effent vision, they may possibly grow weak, or lose their extent one way or other, for want of variety of exercife. It feems an opinion without foundation, to think that fuch an exercife of the eyes can anywife injure them, provided due care be taken to avoid looking at objects that are too bright.

Short-sightedness may come by accident; of this we have a remarkable instance, mentioned by Dr. Briggs in his Ophtalmographia, of a perfon upwards of seventy years old, who had used fpectacles for ten years, and yet by catching cold, he suddenly became fo short-sighted, that he could not diftinguish objects three feet off, and after the cold and defluxion were cured, he continued to read the smallest print without fpectacles for many years.

Dr. Smith mentions a young gentleman, who became short-sighted immediately after coming out of a cold bath, in which he did not totally immerfe himfelf, and has ever since used a concave glafs for many years.

It is commonly thought that short-sighted persons wears off in old age, on account of the eye becoming flatter; but the learned doctor queftions whether this be matter of fact, or hypothesis only.

It is remarkable, that short-sighted persons commonly write a small hand, and love a small print, becaufe they can fee more of it at a view. That it is cultumary with them to look at the perfon they converse with, because they cannot well fee the motion of his eyes and features, and are therefore attentive to his words only. That they fee more distinctly, and somewhat farther off, by a strong light than by a weak one; because a strong light caufes a contraction of the pupil, and consequently of the pencils, both here and at the retina, which lefens their mixture, and consequently the apparent confundion; and, therefore, to fee more distinctly, they almost close their eye-lids, for which reafon they were anciently called myopes.

Dr. Jurin observes, that perfons who are much and long accustomed to view objects at small distances, as fludents in general, watch-makers, gravers, painters in miniature, &c. fee better at small distances, and not fo well at great distances, as the reft of mankind. The reafon is, that in the eye, as well as in other parts, the muscles, by conjent exercife, are enabled to contract themselves with more ftrength, and by difufe are brought to lefs ftrength. Hence, in the perfon before-mentioned, the greater muscular ring of the uvea contracts more easily and strongly, and the cornea more readily obeys the contraction of the ring, whence they fee better at small distances. And the cornea, by being thus often and long bent into a greater convexity, does by degrees lose fomething of its elafcity, fo as not to return to its natural elafcity when the muscular ring ceafes to act upon it. This is one caufe of their not feeing fo well at great distances; also the ligamentum ciliarum, being feldom employed to leffen the convexity of the capsule, by degrees becomes lefs capable of performing that office; and the capsule being feldom drawn out, and put into tension, mult befeome fomething of its diſtleſſe quality, fo as lefs easily to comply with the action of the ligament. And this is another caufe of their not feeing fo well at great distances. Jurin, Elafy on dift. and infid. Vifion.

The ordinary remedy for short-sightednefs is a concave lens, held before the eye, which making the rays diverge, or at leaft diminishing much of their convergency, makes amends for the too great convexity of the cry Stalline.

Dr. Hook fuggets another remedy. Finding that many short-sighted perfon are but little helped by concaves, he recommends a convex glafs, placed between the object and the eye, by means of which the object may be made to appear at any distance from the eye: and consequently, all objects may be thereby made to appear at any distance from the eye, so that the short-sighted eye fhall contemplate the picture of the object in the fame manner as if the object itself were in the place. It is true, the image will appear inverted, but we have expedients to remedy this too; for, in reading, there needs nothing but to hold the book upside down. To write, the belt way, in this cafe, will be, for the perfon to learn to do it upside down. For diftant objects, the doctor afferts, from his own experience, that with a little practice in contemplating inverted objects, one gets as good an idea of them as if feen in their natural posture.

SHOSTACK, in Commerce, a money of account in Poland and Hungary. In Hungary, a hoflack is 2 imperial grofchen, or 6 creutzers; an imperial grofche, or kayfer grofche, is 2 polutarus, 3 creutzers, or 12 pfenings; a polutar is 6 pfenings, and a creutzar 4 pfenings. A Hungarian grofche is worth 2 creutzers in Upper Hungary, but 27 creutzers in Lower Hungary: thus, 5 grofchen in Upper Hungary, or 6 grofchen in Lower Hungary, = 1 kayfer grofche. A rixdollar of account is worth 12 imperial florin, 1½ Hungarian florin, 15 hoflacks, 30 imperial grofchen, or 90 creutzers. An imperial florin is 10 hoflacks, or 20 imperial grofchen, and a Hungarian florin, 8½ flol-
SHOT. 1/3 or 1/4 lira; or 1/3 or 1/4 imperial groschen; thus, 7 shillings of the crown of the Empire of the Austrian States.

In Poland, the form of 30 groschen or groszt, each of which is divided into 18 pfennigs, contains 24 shillings, or 2 florins, or 24 pfennings. A shilling is worth 12 groschen, or 16 pfennigs; a Groschen, 2 pfennings; a pfennig, 3 pfennings. Kelly's Cambit.

SHOT, Indian, or Burdekin. See CANNA.

SHOT, in the Military Art, includes all sorts of ball or bullets for firearms, from the cannon to the pistol. See BULLET, CANNON, &c.

That for cannon are of iron; those for muskets and pistols are of lead.

SHOT, for ordnance, especially in the sea service, are of several sorts: as,

SHOT, Round, balls or globes of iron fitted to the bore of the piece.

SHOT, Bar, is formed of two bullets, or rather half bullets, joined together by an iron bar, serving to cut down mails, lails, &c.

SHOT, Cape, Chain, Grape, Langlet, Random, Star, and Tournament, see the respective articles. See also FIRE-ARMS.

SHOT, for fowling, is otherwise called ball, by reason of its figure and size.

The method of making it is as follows: the lead being melted, stirred, and skimmed, a quantity of powdered yellow powder is thrown in it, as much as will lie on a fowling, to twelve or fifteen pounds of lead; the whole being well stirred, the ornament will be.

To judge whether there be ornament enough in, a little of the lead is dropped into a glass of water, and if the drops prove round, and without tails, there is ornament enough, and the degree of heat is as it should be.

This done, a copper plate, hollow in the middle, and three inches in diameter, bored through with thirty or forty small holes, according to the size of the shot, is placed on an iron frame, over a tub of water, four inches above the water; the hollow part is to be very thin; on this plate are laid burning coals, to keep the melted lead in fusion. The lead is now poured gently, with a ladle, on the middle of the plate, and it will make its way through the holes in the bottom of the plate into the water in round drops.

Great care is taken to keep the lead on the plate in its proper degree of heat: if too cold, it will float the holes; and if too hot, the drops will crack and fly.

The shot, thus made, are dried over a gentle fire, always stirring them that they do not melt; this done, the greater are separated from the smaller by passing them through sieves for that purpose.

SHOT, From, See Fresh Shot.

SHOT, Hip, See Hip Shot.

SHOT, Water. See Water Shot.

SHOT, of a Cable, on Shipboard, is the splicing of two cables together, that a ship may ride safe in deep waters and in great roads, for a ship will ride easier by one shot of a cable, than by three short cables out a-head.

SHOT-FLAGON, a sort of flagon somewhat bigger than ordinary, which, in some counties, particularly Derbyshire, it is the custom for the host to serve his guests with, after they have drank above a shilling.

SHOTS, in Agriculture, a term provincially applied to young flour-bwne.

SHOTT, in Geography, a town of Egypt; 3 miles S. of Siut.

SHOTT, a large valley or plain of Africa, in the country of Sahara, on the borders of Algiers; 5 miles in length, and about 12 in breadth. To work near by itself is the feature, or the banks of some like river, but the coasting here is somewhat varied, and scarce the borders of a rather of large plain, as accidents in the season of the year, is either covered with salt, or overflowed with water. Several parts of the Shot contain a light very bad, which, after sudden rains, or the overflowing of the adjacent rivers, are changed into many quicksands, and occasion no small danger to the unwary traveller. La Croix was badly informed, in affirming that all the rivers of this kingdom run from south to north; since, besides several others in a contrary direction, we have no fewer than five, and these very considerable streams, which empty themselves from the northward into the Shot; seven miles S.W. of Conflantia.

SHOTTON, Exh. See HERMAG.

SHOTTON, Blood. See Blood-Shotten.

SHOTSWOOD, in Geography, a town of America, in New Jersey, on the Ramapo, 4 miles E. of Brunswick.

SHOVEL, Sir Cloudesley, in Biography, a British naval hero, was born about the year 1652, of parents in rather humble circumstances, but who had expectations from a relation, whose name was Cloudesley, they thought fit to bellow that name on their son, as a probable means of recommending him to his relation's notice. Nevertheless, being perhaps disappointed in their plans, they put out their son apprentice to a shoe-maker, to which business he applied some years, when he betook himself to the sea, under the protection of Sir John Narborough, with whom he went out in no higher capacity than that of cabin-boy. He soon, by talents and steady application to the art of navigation, became an able seaman, and obtained preferment, through the favour of Sir Christopher Myngs. After the close of what is called, in history, the second Dutch war, Shovel went out with Sir John Narborough, who was deputed to check the piratical state of Tripoli. In the spring of 1674 Sir John arrived before Tripoli, and being ordered to try negotiation rather than force, he sent Shovel with a message to the Dey, deferring preparation for the evils already suffocated, and security for the time to come. The Dey, defying his youth, treated him with disrespect, and refused to back with an honorable answer. Mr. Shovel, on his return, proved that he had not been an obsequurious spectator on shore; and the admiral, pleased with his remarks, sent him again with a second message. He was treated with more rudeness than before, which bore with apparent submission, and made use of it as an excuse for remaining longer on shore; and on his return he assured the admiral, that it was very practicable to burn all the ships in the harbour. Sir John immediately appointed him to the enterprise, which he executed with the most complete success. The account which the admiral sent home respecting the conduct of this young man was so honourable to his talents and courage, that in the course of a few months he had the command of the Sapphire, a fifth-rate, given him; and soon after was raised still higher in the service, by being appointed to the James Galley, a fourth-rate, in which he continued to the death of king Charles II., by whom he had been raised.

By James II. captain Shovel was preferred to the command of the Dover, a fourth-rate, in which he was at the time of the revolution. This event was fortunate for the captain Shovel, as well as very agreeable to his way of thinking; for being in almost entire engagement during the reign of William, he became confidante, and made his way in the service as quick as it was possible to be effected. He was in the battle of Battle-Bay, in the Edger, a third-rate, and
SHO

Agriculture, visiting the

Gibraltar, performing bombardment, arriving at Portsmouth, the Holland, as a remarkable event. He performed all the duties of the admiral, and delivered to him the commission with his own hands.

In the following year, Sir Cloudesley Shovel attended the king to Holland; and in 1692, he was declared admiral of the red, and again accompanied his majesty to Holland; and on his return, he joined admiral Rooke with the grand fleet, and had a large share in the danger and glory of the celebrated battle of La Hogue. When it was thought requisite that the fleet should be put under command of joint admirals in the succeeding year, he was one; and, says the judicious and cautious Campbell, "if there had been nothing more than this joint commission, we might well enough account for the misfortunes which happened in our affairs at sea, during the year 1693." The joint admirals were of different parties; but as they were all good seamen, and probably meant well to their country, though they did not agree in the manner of serving it, it is most likely that, upon mature consideration of the posture things were then in, the order they had received from court, and the condition of the fleet, which was not either half manned or half victualled, the admirals might agree that a cautious execution of the instructions which they had received was a method safe for the nation, and more so for themselves, than any other they could take." On this occasion, Sir Cloudesley Shovel was at first an object of popular odium; but when the affair came to be strictly investigated in parliament, he gave so clear and satisfactory an account of the matter, that it satisfied the people that the commanders were not to blame; and that if there was treachery, it must have originated in persons in office at home. The character of Sir Cloudesley remaining unimpeached, we find him again at sea, in 1694, under Lord Berkley, in the expedition to Camaret-bay, in which he distinguished himself by his dextrous embarkation of the land forces, when they failed on that unfortunate expedition; as also when, on their return to England, it was deemed necessary to send the fleet again upon the coast of France, to attack Dieppe, and other places. From this time till 1702, Shovel was not engaged in any expedition of moment, when he was sent to Vigo, after the capture of that place by Sir George Rooke, to bring home the spoils of the Spanish and French fleet. He arrived on the 16th of October, and carried off whatever could possibly be brought home, burnt the rest, and arrived safely in the Downs on the 7th of November; which was considered as so remarkable a service by the court, that, though he was no favourite at court, it was resolved to employ him in affairs of the greatest consequence; and he so effectually crushed the power of the French at sea, that they did not afterwards dare to meet the British fleet; and on account of the great share which he had in the victory obtained the 13th of August, 1704, he was appointed rear-admiral of the fleet of England in the January following. He performed many other acts, which were useful to his country, and important to the cause in which it was then engaged. His last act was the defence of the coasts of Italy, of which, when he had taken due care, he left a sufficient force at Gibraltar for the purpose, and left with ten ships of the line, five frigates, four fire-ships, a troop, and a yacht, for England. On the 2nd of October, 1707, he came to foundings, and in the following morning he had ninety fathom water. About noon he lay by, but at six in the evening he made sail again, and float away under course, believing that he saw the light on St. Agnes, one of the islands of Scilly. Soon after this several of his ships made signal of distress, as he himself did. It was with difficulty that Sir George Byng, in the Royal Anne, saved himself, having one of the rocks under her main chains. Several others ran the most imminent risks; but the admiral's ship, and some more, perished with all aboard. How this accident happened has never been properly accounted for. The body of Sir Cloudesley Shovel was thrown afloat the next day upon the island of Scilly, where, falling into the hands of some fishermen, he was filleted and buried. Among their plunder was an emerald ring of great value, which, being thrown about, made a great noife all over the island, and led to the discovery of the body. This was now taken up, and conveyed to London, where it was interred with great solemnity in Westminster Abbey. To his memory an expensive monument of white marble was erected, by direction of her majesty, on which was the following inscription: "Sir Cloudesley Shovel, knight, rear-admiral of Great Britain, admiral and commander-in-chief of the fleet; the just rewards of long and faithful services, he was deftently beloved of his country, and esteemed, though dreaded, by the enemy, who had often experienced his conduct and courage. Being shipwrecked on the coasts of Scilly, in his voyage from Toulon, on the 22d of October 1707, at night, in the 57th year of his age. His fate was lamented by all, but especially the sea-faring part of the nation, to whom he was a very worthy example. His body was flung on the shore, and buried with others in the sands; but being soon after taken up, was placed under this monument, which his royal mistress has caused to be erected, to commemorate steady loyalty and extraordinary virtues." See Stockdale's edition of Campbell's Lives of the Admirals.

SHOVEL, in Agriculture, a well-known implement, consisting of a long handle, and a broad blade, with raised edges.

SHOVEL, Cafting, a tool somewhat of the wooden shovel kind, which is sometimes employed in cleaning or dressing corn. It is very useful in this mode, where the wind is truffled for managing the buffalo.

SHOVEL, Driving, a form of tool of this nature, frequently employed for the purpose of clearing out the lofe crumbly earthy materials from the bottom parts of drains. It is formed with a crooked handle, the edges of the shovel being turned up on the sides, in order to prevent the materials which are scraped up from falling off. In consequence of the crookedness of the handle, the workman is prevented from floating so much as would otherwise be the case, in performing the work. There are different constructions of this implement made use of, in managing buffets of this fort.

A scoop is likewise sometimes made ufe of, both with and without this implement, for the purpose of scooping up and clearing out all the crumbs, loofe mould, and other similar materials, from the bottom parts of drains, before they are laid or filled with spray, bruft-wood, or any other subfance, in order that they may be quite clear and free of any fort of obftruction. The tool is formed in a crooked scoop-like manner at the head, and of different shapes, sizes, and breadth, according to the nature of the drains and openings in which it is to be employed; being, in working, drawn or pulled along the bottoms of the cuts or drains.

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The handle has also occasionally a hooked form, in order to ease the workman in using it.

**SHOVEL**. Parrying, that fork of tool of this kind, which is employed in some places for parrying off the sword or surd from the surface of ground, in order to burn it. The shovel which is used in Devonshire for this purpose has a hollow heart-shaped form in the wheel part, with a long handle, which makes it a very powerful implement. The plate of the mouth part is from nine to ten inches in width, where the handle is inserted, which is made with a considerable curve upwards; the blade is about twelve inches in length, terminating with a bread angular point, which, with its fides, are constantly kept very sharp and keen for cutting; on the left hand, or leafside of the tool, a sharp wing, comb, or couter, rises up in an oblique manner, to cut and divide the fice part from the whole ground. Thus, however, in consequence of the toughness of the surface, and the impediments presented by the roots of furze, flags, heather, and other similar matter, is not unfrequently dispelled with, the fice being rent or torn off by the workman from the side of the whole ground, whilst it is cut up and separated from the earth below. When a foot or fifteen inches of the fice rises upon the handle of the shovel, it is separated from the uncle part of the surface by a sudden effort or exertion with the tool, and by a turn of it is whelmed or laid over the mould side upwards. Where the state and circumstances of the surface will permit, as by not being too much loaded and encumbered with the above goes of plants, the effort of separating the cut from the uncle fward may in all cafes be much assisted, by having the fice, which is next to be pared, cut or nicked in such lengths as may be most convenient to the workmen. And in some particular places and situations of land, the regular nicking of the fice to be pared from the ground is indeed found indispensably necessary, as where the ground is of such a money quality as to render the operation impracticable without it. In all such instances it is, however, probably much better, as being more convenient and expeditious, to have the shovel formed with a cutting wing, by which the whole may be done at once, without any sort of delay in the bullwells. This sort of shovel may be seen at fig. 9, in the plate of paring ploughs.

**SHOVELS**, an useful tool for some small purposes. It is that fport which is often employed in ferating small roots or plants, as those of the cultivated faffron, and some others of a fimilar nature.

**SHOVELER**, in Ornithology. See Bread-beaked Duck.

**SHOVELING**, in Agriculture, a term used in Ireland to signify the throwing the mould of furrows, in cleaning them out, over the ridge.

**SHOULDER**. Humers, in Anatomy. See Extremities.


**SHOULDER**, Luxation of. See Luxation.

**SHOULDER-Blade**, in Anatomy, a bone of the shoulder, of a triangular form, covering the hind part of the ribs, called by anatomists the scapula and omolata. See Extremities.

**SHOULDER-Beak**, See Extremities.

**SHOULDER**, in the Mane, is the joint of a horse's fore-quarters, that joins the end of the shoulder-blade with the extremity of the fore-thigh.

**SHOULDER of a Branch**, is that part of it which begins at the lower part of the arch of the banquet, over-against the middle of the fonceau or chaperon, and forms another arch under the banquet. The shoulder of a branch casts a greater or less curve. Hence, according as it is to bulge or flow, or weaken the branch. See Branch, Branchlet.

**SHOULDER Pierced Houts**, called in France, pierres, such as have their fides poudry, thin, and hard without cut in it. A horse charged with shoulder-pierce that has thick, flabby, and heavy shoulder.

**SHOULDER of a Branch in Fortification**, is where the face and the back meet.

**SHOULDER-Drop**, in Agriculture, a sort of order drawn, connected with a flider on each side of the cut or opening, so that these sort of fides may be laid over it, and form an opening or drain for the water below. See Drain.

**SHOULDER**, in Black Making, a part only made upon the surface of blocks, posts, &c. by reducing one part to a less substance.

**SHOULDER-Block**, a large single block, lust nearly square at the lower end, or side of the block, and cut feping in the direction of the theave. Should-blocks are used on the lower yard-arms, to lead in the top-sail-fore-top, and on the top-sail-fores, to lead in the top-gallant-fores; and by means of the shoulder they are kept upright, and prevent the sails jamming between the block and the yard, they are also used at the lower outer end of the boomkin, to lead in the fore-stacks.

**SHOULDER-OF-MUTTON Sell**, a triangular sell, similar to the late sell, but attached to a mall instead of a yard.

**SHOULDERING**, in Fortification. See Epaulment.

**SHOULDERING-Piece**, in Building. See BracKet.

**SHOULDER-KNOTS**, See Epaullettes.

**SHOULDER-PITCH**, in Farriery, is a disease in a horse, when the pitch or point of the shoulder is displaced, which makes the horse halt downright.

**SHOULDER-PLAINT**, or SHOULDER-TORN, is a hurt which befalls a horse by some dangerous slip, by which the shoulder is parted from the breast.

**SHOULDER-WRENCH** is a strain in the shoulder.

**SHOUT, CLAMOR**, in Antiquity, was frequently used on ecclesiastical, civil, and military occasions, as a sign of approbation, and sometimes of indignation. Thus as Cicer, in an assemblage of the people, was expounding the arrogation of L. Antony, who had had the impudence to cause himself to be inscribed the patron of the Romans, the people, on hearing this, raised a shout to show their indignation.

In the ancient military discipline shouts were used, 1. upon occasion of the general's making a speech, or harangue, to the army from his tribunal: this they did in token of their approving what had been proposed. 2. Before an engagement, in order to encourage and spirit their own men, and fill the enemy with dread.

This is a practice of great antiquity, besides which, it wants not the authority of reason to support it, for as mankind are endowed with two senses, hearing and seeing, by which fear is raised in the mind, it may be proper to make use of the ear as well as the eye for that purpose.

Shouts were also raised in the ancient theatre, when what was acted pleased the spectators. See Acclamation.

It was usual for those present at the burning of the dead to raise a great shout, and call the dead person by his name before they let fire to the pile. See Burial.
SHOWEL, in Agriculture, a term applied to a blind for a cow's eyes.

SHOWER, a cloud resolved into rain, and discharged on a certain tract of ground.

In Natural History we meet with abundance of instances of extraordinary and preternatural flowers; as flower of blood, mentioned by Gallendus and others; a brimstone flower, mentioned by Pliny; flower of frogs, mentioned by Wormius; flower of milk-fed, in Sicily, mentioned in the Ephemer. German; flowers of ashes, frequent in the Archipelago; a flower of osier, in Wiltshire; a flower of whittlings, mentioned in Philosoph. Trans. There are the natural reasons of many of which may be seen under Rain.

SHOWOR, in Geography, a town of Hindooftan, in Myore, where, in 1790, a bloody battle was fought between the British and Tippoo, and in which the latter was defeated; 15 miles S. of Satimungulam.

SHOWS, or SHAWS, in Agriculture, a term applied to the haulm or tops of potatoes. See POTATO and SOLANUM.

SHRAHEEN, in Geography, a mountain of Ireland, in the county of Mayo; 11 miles N.E. of Cafflebar.

SHRAVEY LAND, in Agriculture, a term used in some districts, as those of Suffolk, and some others, to signify that of a strong, gravelly, or flinty nature. The fears or holes on the sides of steep hills, where the turf or sward has flipped away, and laid bare the foil on the South Down, are sometimes called thraives. See Soil.

SHREW, or SHREW-MOUSE, in Zoology, the common name of the creature called by authors Mus araneus, and Sorex araneus of Linnaeus. It is an animal of a mixed brown and reddish tawny colour; the belly is white; its tail is about one inch and a half long, and covered with short hairs; its body is about two inches and a half in length; and its eyes black and very small; they are indeed little larger than those of the mole, and do not exceed the size of the head of the smallest pin; it is no wonder, therefore, that the creature is almost blind; the nose long and slender; the ears short and rounded; the teeth are very small, and differ in their shape and situation from those of all other creatures in the world; and seem as if nature had in one creature made a sort of mixture of the teeth of the mouse and the fnaek kind.

It has two long fore-teeth, as all the mouse kind have; but these are not tingle, as in mice, but have two or three other small and sharp teeth growing out of them: these, to an accurate observer, might either be wholly unseen, or taken for dimint teeth; and the anterior long teeth are not separated from the root by any gap or space, as in the mouse kind, but make one continued feries with the others. The upper jaw in this creature is longer than the under, and the teeth are sharp and ferrated, fome with two, fome with three points, and these fo small, that they might caufily not be feen, but that the tips of them are reddish. Their whole number is twenty-eight.

It is very common in many parts of the world, and is met with in almost all our dry grounds, in old walls and holes in the earth; near hay-ricks, dung-hills, and necessfly houfes; it lives on corn, infects, and any filth; the cats will kill it, but never attempt to eat it. It brings four or five young at a time.

Its whole body has a fetid and offensive smell. The ancients erroneously believed it was injurious to the cattle. There seems to be an annual mortality of these animals in the month of August, numbers being then found dead in the paths.

It is distinguished at first fight from the common mouse, in that it is smaller; its nose longer, and like a hog's; it has five toes on the hinder as well as the fore-feet; its eyes are extremely small; its ears very fhort; its claws are long and whithit, and its feet fhort. Ray and Pennant.

SHREW-MOUSE, Water, Sorex fodiens of Pallas, is much larger than the common shrew; its length from nose to tail being 32 inches; its tail two inches; the upper part of the body and the head are of a black colour; the throat, breast, and belly, of a light ash-colour; and beneath the tail there is a triangular dusky spot.

This animal inhabits Europe and Siberia; was left in England till the year 1766, when it was discovered in the Shropshire forest, it burrows near the water, and is said to swim under water; it is called in some places the blind mouse, on account of the smallneds of its eyes; and its chirrups like a grafsopper. Pennant.

SHREWSBURY, in Geography, an ancient borough and market-town in the hundred of the same name, and county of Salop, or Shropshire, England, is situated on two hills, peninfulated by the river Severn, at the distance of 112 miles from Bath, and 162 miles from London. It is the chief town, or capital, of the county, and, from its historical importance, is particularly deserving of an extended description, even in a work like the present. According to the parliamentary returns of 1811, it is divided into the fix parishes of St. Giles and Holy Crofs, St. Chad, St. Mary, St. Julian, St. Alkmund, and Meole-Brace, which united, contain 3292 houses, and 16,066 inhabitants. It must be remarked, however, that some of these parishes extend a fhort way into the country. The liberties of Shrewsbury comprifte fix other parishes, four townhips, and two chappelies.

Origin and Hiftorical Events.—Although no doubt can be entertained of the high antiquity of Shrewsbury, it being frequently mentioned by our earlieft historians, there is no authentic record of its origin. Probable conjecture, however, has affigned that event to the fifth century, when the Britons were forced by the Saxons to abandon all the country to the eftward of the river Severn. It is fuppofed that, after the deftruction of the Roman Uriconium, the fortifications of which enabled the po leurs for a time to check the progress of their enemies, that they eftablifhed themselves on the fite of Shrewsbury, on account of the natural security afforded by its lofty and peninfular position. At that period this spot was called the Pengwere hill, whence the town received the appellation of Pengwere, to which Powis was fubfently added, when it had become the capital of Powifland, and the feat of its princes, whole palace occupied the fame ground with the old church of St. Chad. Here the Britons maintained themselves for feveral centuries, notwithstanding the repeated efforts of the Mercur Saxons to defpoif them; but at length the arms of the warlike Offa proved too powerful for further resistance, and they were compelled to retire to Mathrafael, among the mountains of Montgomeryshire, where they preferred their ancient dignity and independence, till finally fubdued by Edward I. of England.

The Saxons, having obtained poifile of this ancient capital, changed its name from Pengwere to Scrobblebyrig, or Scrobblebyri, which words have nearly the fame signification, viz. "the head of the alder groves." Instead of levelling it with the ground, as was their custom when they feized upon any Britifh town, they seem to have proteeted it with care, and probably even increafed its opulence and extenfion. In the reign of Alfred it was numbered among the principal cities in his dominions: and in that of Edward the Elder.
In 1096, King Ethelred kept Christmas in Shrewsbury; but in about ten years thereafter, the inhabitants having declared against that prince, in favour of his rival Canute the Dane, his son, prince Edmund, afterwards King Edmund Ironside, attacked and took the town after a short siege. On this occasion Shrewsbury seems to have fallen greatly, as in the reign of Edward the Confessor, its lieutenants amounted to 252 in number. Poltrew to the Conquest, it was bequeathed upon Roger de Montgomery, who was created earl of Shrewsbury, Arundel, and Chepstow; and appears from Domaird book to have then paid 15s. in tax to the king and sheriff. Earl Roger, on acquiring possession of this city, (for in it was ryled in his time,) fixed his residence in it, and founded both a castle and an abbey. He did not, however, long possess them undisturbed; for in 1266, Owen Gwynedd, prince of Wales, assaulted it with his formidable force, that the conqueror deemed it advisable to repel the invasion in person. He accordingly marched hither from York, raised the siege, and overthrew the Welsh with prodigious slaughter. Shrewsbury was again besieged in the reign of Henry I., in consequence of its then possession, Robert, son to earl Roger, having united his forces to those of the rebellious barons; and it was probably only saved from the horrors of an assault by the submission of the earl, who was banished to Normandy, and had all his immense estates forfeited to the crown.

Shrewsbury being esteemed the most important town and fortress on the marches of Wales, continued, during several centuries, to be one of the principal places of rendezvous for the English armies, and hence was often visited by its monarchs. Numerous conflicts took place in its immediate vicinity, and its inhabitants frequently suffered the evils incident to sieges. During the wars between Stephen and the empress Maud for the succession to the crown, William Fitz-Alan, a powerful baron, then governor of Shrewsbury castle, supported the claims of the latter. Stephen, however, early obtained possession of it, and ungenerously put to death many of the brave knights by whom it was defended. Fitz-Alan fled to the continent, where he remained an exile till the accession of Henry II., who restored him to all his honours and privileges. In the reign of King John, the royal council assembled here to consider of important affairs; and among the measures adopted was the checking the incursions of the Welsh; when the prince of Poitou came, and frankly offered terms of accommodation; but to the disgrace of the English lords, instead of receiving him with respect, they threw him into prison. Soon afterwards, however, he was released, and a treaty with the Welsh was concluded, for the performance of which twenty-nine children were delivered as hostages, all of whom were most inhumanly hanged by King John, in consequence of some infringement of its terms by the prince of Wales. But this barbarous massacre did not long remain unpunished; for in 1215, the Welsh having dispersed all the armies of the lords marcher, suddenly appeared before Shrewsbury, which submitted without resistance. How long the Welsh held their conquest, or how they lost it, is uncertain; but in 1221 Shrewsbury had again passed into the possession of the English. In the seventeenth year of Henry III. it was plundered and burnt by the earl of Pembroke and other furious barons, who had joined their arms to those of prince Llewellyn. The rebel Simon de Montfort, earl of Leicester, likewise feigned upon this town; but it soon reverted to the king; and in 1267, Henry assembled a large army here, with the design of crushing the Welsh power, but the interference of the pope prevented the execution of his views. Edward I., who, during his father’s life-time, had been invested with the government of Shrewsbury, made it, in 1277, the principal seat of his court, and removed thither the court of exchequer and king’s bench, in order that he might the more easily accomplish his favourite project, the subjugation of Wales.

During the rebellion which immediately preceded the accessions of Edward II. to the throne, he gave to his forces, the king was received at Shrewsbury with great military parade, and a tournament was held here, attended by the marcher lords and principal persons of the council. Afterwards, when Edward was deserted by his enemies and courtiers, he sailed for Gascony, and his patron, Roger Mortimer, earl of Arundel, who had been banished to his allegiance, was seized by the inhabitants, and put to death; for which service Mortimer, in the name of the king, granted to the burgesses of Shrewsbury, whom he calls "the good men of Salop," all the goods and chattels found upon the earl. Richard II. held a parliament here in the 14th year of his reign, on which occasion he gave a sumptuous feast to the members in the abbey of St. Peter and St. Paul. The next event of importance which occurred at this town was the famous battle of Shrewsbury, in which Henry V., then prince of Wales, first distinguished himself in the field, and the impious Hotspur fell, after performing, in conjunction with the rival Douglas, the most brilliant acts of prowess.

Throughout the whole of that eventful period, marked by the contentions of the rival houses of York and Lancaster, the inhabitants of Shrewsbury steadily adhered to the interests of the former. The learned author of the "Account of the ancient and present State of Shrewsbury," contends that it was here, and not at Salisbury, as commonly supposed, that Henry Stafford, duke of Buckingham, was executed by order of Richard III., who was chiefly indebted to him for his usurped crown. When Henry VII. landed in Wales, he marched directly towards Shrewsbury, where he was received with raptures of joy by all except the "head bailey," who for a time refused him admittance. Here he was first proclaimed king of England, and here he collected and organized the greater part of those forces with which he achieved the signal and decisive victory of Bosworth Field. In conformance of these circumstances, Shrewsbury was greatly favoured by that monarch, and was frequently visited by royal persons of his reign.

From this period till the reign of Charles I. no event of historical importance happened here. When the parliamentary war broke out, however, the town came into the hands of the king, and was cordially welcomed by the inhabitants, though they had been strongly prejudiced against him by the commissioners for the parliament. The greater part of the army with which he first took the field was composed of persons resident in this town and the adjoining counties. After the king left Shrewsbury, it was garrisoned in his cause; but the bad health of the governor having prevented him from enforcing the discipline of the garrison with sufficient vigour, they became negligent and debauched. The parliamentary officers, colonels Mitton and Bowyer, being informed of the state of the garrison, made several attempts to surprise the town, and at length succeeded in their object, in February 1645. By this event the parliament gained the important advantage of cutting off the king’s communication with North Wales, and a formidable association, which was on the point of being formed between the loyal inhabitants of the counties of Salop, Worcester, Chester, and Flint, was destroyed in the bud.

In Cromwell’s life-time, and also immediately after his death, two attempts were made to gain possession of Shrewsbury in favour of Charles II.; but both of them were frustrated. The last circumstance which history records worthy of notice, occurred
SHREWSBURY.

occurred in August 1687, when James II. held his court here. On this occasion, the "sentiments of loyal attachment, for which Shrewsbury has ever been conspicuous, burst forth with chivalrous enthusiasm."

**General Appearance of the Town.**—Shrewsbury, from its lofty and picturesque situation, presents, at every approach, a pleasing variety of views; and the noble sweep of the river, which seems to embrace it, heightens at every turn the charms of the scene.**"** Except on the north and west sides, where the streets approach close to its banks, a narrow margin of meadows, or of garden ground, interposes between the houses and the river. The exterior circle of the town is lined with an unbroken range of well-built houses, most of which command beautiful views over the adjacent country. On its western side is a public field, called the Quarry, which occupies about twenty acres of ground, and is adorned with avenues of trees. At one extremity of this field are the remains of a rural amphitheatre, where the Augustine friars of the adjoining convent were probably wont to exhibit those ancient sacred dramas called mysteries, or Whitfun plays; which were certainly acted here in the reign of queen Elizabeth.

Such is the exterior aspect of Shrewsbury; but it is to be regretted that its interior appearance is far from corresponding with the external aspect. The streets are ill arranged, and some of them narrow and steep, and often differently paved. The houses are extremely mixed in their architectural character, exhibiting a strange contrast of ancient and modern buildings. This circumstance is in part to be attributed to the happy freedom which Shrewsbury has enjoyed, from those general confonnations which have occasioned the devastation of other towns within the last two centuries.

**Civil Government and Corporation.**—Shrewsbury is a corporation, both by charter and prescription. The first charter was granted by Henry I.; but other princes have since altered and extended the privileges it conferred. By the charter now in force, granted by king Charles I., the corporation consists of a mayor, recorder, steward, town-clerk, 24 aldermen, 48 burgesses, or common councilmen, two chamberlains, a sword-bearer, journeymen at mace, &c. Four general quarter-seisions are held in the course of the year, and the mayor and some of the aldermen, who are magistrates, hold a court every Tuesday. The chartered companies, besides the general corporations, are sixteen in number, of which those of the drapers and mercers are the most considerable.

Shrewsbury sent members to parliament from their earliest establishment. They are chosen by the inhabitants burgesses, who have been legally ascertained to the parish rates. The mayor is the returning officer. The markets are on Wednesday and Saturday, weekly; and there are eight annual fairs.

**Public Buildings and Institutions.**—The public structures of Shrewsbury are, the castle, the town-hall, the churches, the charitable institutions, the town and county gaol and Bridewell, the market-house and cross, the theatre, and the bridges.

The Castle stands on a narrow neck of land, about five hundred yards in breadth, which is formed by the windings of the Severn. It was founded by Roger de Montgomery, as before mentioned, and became the chief seat of his baronial powers. As all the transactions of interest connected with this edifice have been noticed under the head Historical Events, &c., it is unnecessary to repeat them. This structure has evidently undergone so many alterations, and is so greatly dilapidated, that it is difficult to form any probable idea of its ancient state. The buildings of it now remaining consist of the keep, the walls of the inner court, and the great arch of the interior gate-way. The keep, which is converted into a handsome dwelling-house, consists of two round towers of equal size, embattled and pierced, and connected by a square building, about one hundred feet long, and nearly of the same height. The inner court is now a garden, "on a circular plat in which, the newly elected knights of the Shire have been greeted by the sheriff, from perhaps the first foundation of our invaluable constitution." The arch of the gateway is clearly part of the original castle. It is eighteen feet high, massive, and semi-circular, and appears to have supported a tower, from which hung the portcullis. On the opposite side of the court is a small pollern, probably built in the time of Charles I.; and on its south side is a lofty mound, the summit of which is surrounded by a ruined wall, at one part of which rises a small watch-tower, now a beautiful summer room, much referred to on account of the fine views which it commands. This castle was defended by ramparts of stone thrown across the peninsula, from the castle to the river, on each side. One of them was formed by Robert de Belleme, and the other by order of Oliver Cromwell. Ramparts and walls with towers likewise defended the town on its northern and eastern sides, but few traces of these remain. The principal gates were three in number, and called the Castle, or North-gate, the East or Abbey-gate, and the Welsh-gate, the latter of which stood on the Welsh bridge.

The *Town-ball* is a modern structure, finished in 1786. It was designed by Mr. Haycock, a native of the town, and exhibits a handsome front. Here are held all meetings of the corporation, and grand juries, likewise the courts of justice for the town and county. The grand jury room is decorated with portraits of George I. and II., and of admiral Benbow; and another room is appropriated to the reception of a valuable collection of books.

The *established churches* are St. Giles's, St. Chad's, St. Mary's, St. Alkmund, and St. Julian's. St. Giles's is a small plain building, and appears, from some remains of masque square piers, and a semi-circular arch, to have been partly built in the Norman era, and probably on a larger scale than it is at present. Most of the other piers are round, and support pointed arches. St. Chad's church is of modern erection, having been built between 1790 and 1792, in lieu of the old collegiate church, which fell down in the first mentioned year, in consequence of its repair having been too long neglected. It is, "upon the whole, a splendid, and, in many respects, an elegantly ornamented structure." In this church the mayor and corporation are accustomed to sit on festival and other public days. Here are but few monuments, and none of note; but in the church-yard is a chapel, in which many of the tombs and inscriptions rescued from the ruins of the old church are deposited: the principal of them, however, were removed to the respective parish-churches of the families to which they belonged. St. Mary's church was likewise collegiate, and had the privileges of a royal chapel, of which advantages it was deprived in the reign of King Edward VI. It is a venerable pile, in the form of a cross, and comprises a nave, side-aisles, transept, choir, and chapels, with a tower at the west end. Its architecture embraces almost every style prevalent from the Norman conquest to the reign of Henry VIII. The nave is divided from the side-aisles by semi-circular arches; but those separating it from the choir are lofty and pointed. The ceiling here is of oak, and rises in an extremely flat arch, divided by its principal beams into square panels, including circles richly adorned with quatrefoils and foliage; the ribs and bosses being carved into double rosettes, with devices and knots at their termination.
The chancel, chair, &c. display chiefly the pointed style. At the extremity of the former is a spacious window, in the later pointed style, which is nearly filled with stained glass, brought from the ruins of old St. Chad's church. The principal piece represents Jeoff in a deep sleep. The spire of this church rises 275 feet above the summit of the tower, upon which it rests. The monuments are numerous, and some of them curious: but we shall only notice one inscription, which is remarkable, from the circumstance of its commemorating a person named Cadman, who was killed in defending from the summit of the spire, by arape of lightning from thence to the opposite side of the river from that on which the church stands. The parish-church of St. Alkmund's, like the two last mentioned, was formerly collegiate, but its college was dissolved as early as the reign of King Stephen. The old church was taken down about the year 1793, and the present building raised in its stead, which is a clumsy imitation of our ancient architecture. St. Julian's church, which closes the list, is a plain substantial edifice, rebuilt in 1750, on account of the ruined condition of the former edifice.

In addition to the above-established churches, there are in Shrewsbury several dissenting places of worship, viz. a Roman Catholic chapel, a Presbyterian meeting-house, also one for Methodists, and another for Quakers.

The Charitable Institutions belonging to Shrewsbury are, a small hospital, formerly dedicated to St. Giles, another called Millington's hospital, several almshouses, an infirmary, a house of industry, and the free and charity-schools. The infirmary is among the earliest provincial institutions of the kind in England, having been opened in 1747. It is supported by voluntary subscriptions, and by benefactions. The house is a plain but respectable building of brick, with a stone portico in front. The house of industry was originally a founding hospital, connected with that in London, and was only converted to its present purposes in 1784. It is governed by directors chosen from among the inhabitants of Shrewsbury, and maintains, on an average, about 275 poor, including children, partly by a rate levied on the fix parishes, and partly by the produce of the labour of the paupers. The free grammar-school was founded and endowed by King Edward VI. at the request of Henry Edwards and Richard Whitaker, and was afterwards augmented by Queen Elizabeth, at the instance of Thomas Aiton. The school-house is a large and lofty structure, forming two sides of a square court. The government of this school is vested in the bishop of Lichfield, and the corporation, who appoint two schoolmasters, one of whom is superior to the other. Several of them have been men of great talents and erudition, and have cherished the seeds of knowledge in many individuals afterwards distinguished in society. Among the latter, were Sir Philip Sydney; lord Brook, lord chief justice; lord chief justice Price; Dr. Bowers, bishop of Chichester; Dr. John Thomas, bishop of Salisbury; and the learned Dr. John Taylor. The learned Dr. Butler is the present head master. The other public schools in this town are Bowdler's charity-school, founded in 1724, by Mr. Thomas Bowdler, alderman, for the education and clothing of poor children of St. Julian's parish; Allart's charity-school, founded in 1798, under a bequest by Mr. John Allart, one of the chamberlains of the corporation; and a subscription charity-school, instituted in 1708, for instructing poor children of the town at large.

The Town and County Gaol and Bridewell, which now form one building, stands near the castle, where the sheriffs probably had his gaol in former times. Its situation is at once beautiful and fabulous, and though it cannot boast much elegance of exterior appearance, it is spacious and airy, and posses the every convenience requisite for its domestic purposes. In front is a free-tone arched gateway, containing a bust of Howard, by Bacon.

The Market-house is one of the largest and most magnificent buildings of its kind in England. It is of the age of Queen Elizabeth, whose arms, sculptured in high relief, decorate the portal, on each side of which is an open arcade, consisting of three large circular arches, supported by columns. The north and south ends of the building are likewise ornamented with large open arches, over one of which stands a statue of Richard, Duke of York, removed hither from the Wells bridge in 1791. Adjoining this building is a conduit, which supplies a great part of the town with water. The Market-craft is a strong structure of brick and stone, having a reversion over it. The old cross was destroyed in 1705. The Theatre, according to Phillips, the old historian of the town, is part of the palace formerly belonging to one of the latter princes of Powis, but though evidently an ancient structure, it seems improbable that its date should be so remote as such a fact would necessarily imply. It is fitted up in the interior in an appropriate manner.

The Bridges over the Severn at this town are called the Welsh bridge, and the English, or East, bridge. Both of them are new structures, erected in place of older ones, which had gone to decay, and were, from their narrowness, unsuitable to the traffic of commercial advancement Shrewsbury and the county at large now enjoy. The Welsh bridge consists of five elegant arches, about 206 feet in aggregate length, 30 feet high, and 30 broad. Adjoining to it is a quay, faced with stone, and accommodated with warehouses. The English bridge extends 400 feet in length, and consists of seven semi-circular arches, built of fine freestone. The central arch is 60 feet span and 40 high from the lowest water mark; and the two on each side 35 feet wide and 20 high. The breadth between the balufrades is 25 feet; and the ornaments are at once light and graceful.

Monastic Institutions.—The principal monastic establishment in Shrewsbury was the abbey of St. Peter and St. Paul, which flourished in the suburb that still bears its name. It was founded, or, as some will have it, refounded and endowed by Roger de Montgomery, and a nobleman named Warine, who filled it with monks of the Benedictine order. These having subsequently obtained possession of the relics of St. Winefrid, their abbey became the constant resort of various classes of people from all parts of the kingdom, who, according to their circumstances, offered donations on the shrine of the saint. This society, at its dissolution, consisted of an abbess, fourteen monks, and three novices, whose annual revenues, according to Dugdale, amounted to 532l. 4s. 10d. but Speed rates them as high as 656l. 4s. 3d. The remains of the abbey are very inconsiderable, the ground which it occupied being in great part converted into a garden. There is, however, a very curious little structure, which has puzzled the learned in antiquities as to its use: by some it is regarded as a pulpit for preaching. Its plan is an octagon, six feet in diameter, but considerably higher. Over it is an obtuse dome of stone, supported by six narrow pointed arches. The roof within is vaulted on eight ribs, which spring from the side walls, and form a belfry at their crossing in the centre, bearing a representation of the crucifixion. The arches on the south side are without ornament, but three of them on the north side are filled with stone panels, adorned with different figures of angels and saints. The abbey church was built in the form of a cross, and was a spacious and magnificent edifice; but at present is in a state of dilapidation, except the western aisle, which is now used as a parish-church, instead of St. Giles'. The other religious
gious houses here were, a convent of Augustinian friars, founded about the year 1256; a second of Franciscan or Grey friars, the date of which is unknown; and a third of Dominicans, founded by lady Genevile in the reign of Henry III. The queen of Edward IV. twice lay in at this monastery. Beside these, there were chapels dedicated respectively to St. Michael, St. Nicholas, St. Catherine, St. Blaïfe, and St. Mary Magdalen.

Shrewsbury contains several ancient private structures, which would claim notice, did the limits of our article permit of a commenurate extension. One of them, still called the Council-House, was formerly the residence of the court of the marches of Wales, on their annual visits to this town. For some account of this court, see Ludlow.

The eminent notices of Shrewsbury, besides Dr. Thomas and Dr. Taylor, before-mentioned, were Thomas Churchyard, a poet of some note, admiral Benbow, and the Rev. Hugh Farmer, author of several learned and critical works.

The objects in the vicinity of Shrewsbury, most worthy of notice, are the Shelton oak, which is remarkable from a tradition, that Owen Glyndwr ascended it to reconnoitre, previous to the battle of Shrewsbury, and for its great size; Battlefield, where the battle was fought; and Haughmond Abbey, which stands about four miles to the eastward of Shrewsbury. It is situated on a rising ground, which commands beautiful and extensive views, and owed its foundation and endowment to William Fitz-Alan, in the year 1100. The inhabitants were canons regular of St. Augustine, who enjoyed at the dissolution a yearly revenue, rated by Dugdale at 250l. 13s. 7d. and by Speed at 294l. 12s. 9d. Of the abbey-church, scarcely a vestige remains, but considerable portions of the other buildings are yet standing. Phillips' History and Antiquities of Shrewsbury, 4to. Some Account of the ancient and present State of Shrewsbury, 12mo. 1808, an interesting and judicious topographical work. Beauties of England and Wales, vol. xiii. by J. Nightingale and R. Ryland.

Shrewsbury, a town of America, in the state of New Jersey, and county of Monmouth, on the sea board, having Middletown on the N., Freehold W., and Dover S.W. It is divided from Middletown by North river, which is navigable for a few miles. The compact part of the town is pleasant, and contains an Episcopal and Presbyterian church, and a meeting-house for Friends. The number of inhabitants is 3773. This place is frequented by genteele company from Philadelphia and New York, for health and pleasure; 79 miles E.N.E. of Philadelphia. — Allo, a township of America, in Rutland county, Vermont, between Clarendon on the W. and Saltash on the E., containing 990 inhabitants. — Allo, a township of York county, Pennsylvania, containing 1702 inhabitants. — Allo, a township in Worcester county, Massachusetts, incorporated in 1727, and containing 1210 inhabitants; 6 miles E. of Worcester. — Allo, a town of Pennsylvania, in Codorus creek; 10 miles S. of York.

Shrewsbury, a river of New Jersey, which runs into the Atlantic, N. lat. 40° 22'. W. long. 74° 2'.

SHRIEK, in Ornithology, an English name for several species of the Lanius; which fee.

SHULLA, in Geography, a town of Africa, in Lunda-mar; 48 miles E.S.E. of Benown.

SHRIMP, in Natural History, is the Cancer Crangon of Linnaeus; which fee.

This shell-fish inhabits the sandy shores of Britain in vast quantities, and is reckoned the most delicious of the genus. Some writers have classed it under the genus of Squilla.

The white shrimp, or cancer squilla, is the prawn. (See Cancer Squilla). It inhabits the coast of Kent. By 30 Geo. II. c. 21, white shrimps in the river Thames and Medway are only to be taken from Bartholomew day to Good Friday; and red shrimps in the river Medway only from April 25 to July 1.

SHRINE, formed from ferinum, a defh, or cabinet, a cafe to hold the relics of some saint.

SHRINT, in Ornithology. See Missel-Bird.

SHUFF, a sort of banker or money-broker in the East Indies. See RUPEE.

SHRONDO, in Geography, a town of Africa, in the kingdom of Dentila, in which are considerable gold mines.

SHROPSHIRE, one of the midland counties of England, is situated between 52 and 53 degrees N. latitude, and 2 and 3 degrees W. longitude, from London. It is bounded on the S. by the counties of Worcester and Hereford; on the E. by Staffordshire; on the N. by Cheshire, a detached part of Flintshire, and Denbighshire; and on the W. by the same county, and those of Radnor and Montgomery. According to archdeacon Plymley's "General View of the Agriculture of Shropshire," it extends about 44 miles in length, 28 in breadth, and 134 in circumference, comprising an area of 900,000 acres, or about a 45th part of England and Wales united. It is a flat soil, and is separated into two almost equal divisions by the river Severn. The parliamentary returns of 1811, state the number of houses it contains at 35,875, and its population at 194,298 persons, of whom 95,842 were males, and 98,456 females.

Historical Events.—When the Romans invaded this island in the reign of the emperor Claudian, this county was inhabited by two British tribes, called the Ordovices and Cornavi, whose respective territories were bounded by the Severn. The Ordovices, who appear to have been a more warlike and enterprising people, joined with the Silures, under the renowned Caractacus, to defend their country. Among the hills of Shropshire, that great chieftain for a time successfully strove against the overwhelming tide of Roman conquest; and here, several antiquaries contend, was fought the unfortunate conflict which terminated his military career, and led to his captivity. After that event, Shropshire formed part of the province called Flavia Caesaris, and seems to have been held in undisputed tranquillity so long as the Romans remained in Britain; but when they withdrew their forces to the continent, it again became the theatre of war between the Britons and the Saxons. For some centuries it condescended part of the kingdom of Powiand, of which Pengwern, now Shrewsbury, was the capital (see Shrewsbury); but in the reign of the great Offa it fell under the dominion of the Saxons, when the British princes retired to Mathrafael, in Montgomeryshire. To secure his conquests, Offa formed an immense rampart of earth, extending about 100 miles in length along the confines of Wales; but the utility of this work, for the purposes of defence, seems to have been very inconsiderable, as we find the Welsh constantly making inroads into the Mercian territories.

In the ninth century, when the Danes invaded this island, Shropshire shared in the calamities which their ferocity brought upon the kingdom, but in a much lefs degree than most other counties. During the reign of Edward the Con¬fessor, Gruffydd, prince of North Wales, became the terror of the English by his incursions into this county. Harold undertook an expedition against him, in which he was so successful, that the Welsh were glad to purchase peace by
the massacre of their chief. After the conquest, nearly the whole of Shropshire was bestowed on Roger de Montgomery, a relation of the conqueror's; but the invasions of the Welsh frequently disturbed him in the enjoyment of his splendid acquisitions. In 1067 they laid siege to Shrewsbury, the feast of his 30th power, with so formidable a force, that the king found it necessary to march against them in person, when they were defeated with great slaughter. This discouragement, however, only served to increase the warlike spirit of the Welsh; and William finding himself failed in his repeated attempts to reduce those high-spirited foes to submission by open combat, adopted a more politic mode of warfare. He filled grants to certain of his favorites of all the lands they should be able to conquer from the Welsh; and endeavored to divide and weaken the Welsh border chieftains themselves, by promising a confirmation of all the rights and privileges to such of them as would simply acknowledge the sovereignty of the English crown. 

Hence appears to have originated the seignories and jurisdictions of the lord marchers, whose power was even more arbitrary and despotic than that of the monarch himself. They constructed and restored castles at their pleasure, and garrisoned them with soldiers of their own. They likewise built towns, and exercised the most absolute authority, both civil and military, within their respective territories. In later times, however, this power was considerably controlled by a chief court of the marches of North Wales, which was generally held at Ludlow, but sometimes also at Shrewsbury and other towns; and was still more limited after the union of Wales with England, from which period no lord marcher could exercise any prerogative not confirmed to him by charter, without a special licence from the crown. During the various revolts which occurred subsequent to the death of Edward I., and also during the contentions for the crown between the houses of York and Lancaster, Shropshire was occasionally the scene of military contests, of which the most celebrated was the battle of Shrewsbury. When the civil war broke out in the 15th century, this county was peculiarly distinguished for its loyalty; but except the taking of the county-town by the parliamentary forces, no transgression of peculiar interest happened within its limits throughout that unfortunate era.

General Aspect, Soil, and Climate.—Shropshire possesses within its boundaries almost every variety of natural charm; the bold and lofty mountain; the woody and secluded valley; the fertile and widely cultivated plain; the majestic river, and the sequestered lake. The soil is no less various. In the hundred of Oswestry, a deep loam and gravelly soil prevail; and in those of North Bromfield and East Bramyley, a light or sandy loam. Pimhill hundred contains a mixture of boggy land, and of sandy soil, with a greater proportion of found wheat land. In the other hundreds, clays of different consistence form the most general soil; but there are numerous patches and extensive tracts both of deep and sandy loam, gravel, &c. The climate of coarse partakes of the character of its surface and soil. On the eastern side of the county, where the land is warm and flat, likewise frequently consumes a fortnight sooner than near the middle of the county, where the vales are extensive, but the surface less light, and the bottom often clayey, and hay and grain are both gathered earlier there than on the western side, where the vales are narrow, and the high lands frequent and extensive, although the soil is not in general so light. The easterly winds prevail in winter, and those from the west in autumn; but the easterly winds are most regular; those from the west blowing for a series of months (five

or six perhaps) strong and frequent, and the same wind, a similar period lasts often and his fullest. The land may be said of the wet and dry features in the county, but the periods of both appear to be much shorter.

Rivers and Lakes. — Shropshire abounds with rivers as much as any county in England. The principal among them is the Severn, which enters the county in the Vale of Muckley, and runs an irregular serpentine channel to Shrewsbury, where it at last encircles. At this town it turns towards the north, but soon again sweeps to the southward, passing by Wem, Mawceley, Madeley, and Bridgworth, to Bewdley, where it enters Worcestershire. Its course with a Shropshire is estimated at nearly seventy miles in length, throughout the whole of which space it is navigable for barges, tows, wheelers, and boats, and is abundantly supplied with fish of various denominations. The contributive streams to this great river, belonging to the county, are the Camel, the Vyrnwy, the Morda-Brook, the Perry, the Meole-Brook, the Rea, the Teme, the Bell-Brook, the Cund-Brook, the Wolt, the Marbrook, and the Bore-Brook, all of them considerable waters. Those of most importance, which do not join the Severn, are the Merles, which falls into the Dee, the Teme, the Shelbrook, the Elly-Brook, the Weever, the Chut, the Towy, which discharges itself into the Teme, in Herefordshire, and the Corve; but besides these, there are nearly a hundred streams of minor extent, which our limits will not permit us to mention. The lakes here are numerous, but none of them are very extensive. That of Ellesmere, which is the largest, covers about 115 acres of ground.

Minerals.—Shropshire is well supplied with minerals. The mines of lead ore, on the western side of the county, are extremely productive, and their product is reckoned to be of excellent quality. Copper and calamine are likewise found here in great quantities, but neither of them has hitherto been mined with any degree of success. Coal of a superior kind is wrought on the eastern side of the county, particularly in the parishes of Wellington, Lilleshall, Wrockwardine, Wombridge, Stichley, Dawley, Little Wenlock, Madeley, Barrow, Benthall, and Broughley. It is likewise found in the hundred of Stottesden, and to the southward of the Clee hills; also on the north and north-west confines of the county. Ironstone, as is usually the case, accompanies the coal flints, as well as lime-flints, which is quarried in various places, but particularly at Lilleshall, Porth-y-Wain, and Llanymynach, and in the parishes of Cardington and Alberbury. This county further contains abundance of building-stone, and slates for covering roofs. At Pitchford, about seven miles S.E. from Shrewsbury, is a red sandstone, approaching the surface in many places, which exudes a mineral pitch. From this rock is extracted an oil, known by the name of Betton's British oil. Mr. Arthur Akin is preparing an interesting publication on the mineralogical stratification of this county.

State of Property, &c.—The extent of estates in this county is very various. While the possessions of a few noblemen and gentlemen include from 10,000 to 25,000 acres each, there is an infinite number of freeholders and yeomen's estates of all inferior sizes. The number of freeholders entitled to vote amount to above 5000, and the total extent of the county, either inclusive or exclusive of 900 acres. They cannot hold tenure, but of cooler custom than in most of the neighbouring counties. The lords of some customary manors have enfranchised the copyholders, upon receiving an equivalent in money; but the customs of the greater number are still preferred and acted upon. In the manors of Ford, Cudoror, Wem, and Lop-
pington, the lands descend to the youngest son; and in the manors of Cardigan and Stretton, (where the eldest son succeeds,) in default of sons, the daughters are co-heiresses.

Agriculture.—The extent of farms is nearly as various as that of estates; but in general they are of a large size, and are, in some instances, held on leases for life; in others, for seven, ten, or twenty-one years; and, in many cases, from year to year only. The crops commonly cultivated are wheat, barley, oats, peas, turnips, and potatoes; hops, hemp, flax, and cabbages, are only reaped in small quantities. The growth of hay and the improvement of pasture lands are rather neglected branches of Shropshire agriculture; but on the borders of the Severn, and in the vicinity of several of the larger streams, there are many excellent tracts of meadow land, which produce grass in great luxuriance, without the aid of any other manure than what is deposited by the floods. The grasses most common in the county are the sweet-scented vernal grass, Timothy grass, meadow fox-tail, and some species of the agrostis; but the latter flower too late to be of much use for cultivation. Several varieties of the pea and fultica are likewise common.

Woods and Plantations.—Notwithstanding large yearly falls of timber, there still remain in Shropshire some fine woods of oak, and a vast number of good hedge-row trees, chiefly ash and oak. Birches, both as trees and as fences, are common in the south-west district. There are beeches, in this county, many large tracts of coppice-wood, and several extensive modern plantations; but the former suffer much by the demand for charcoal, which the numerous iron works in this and the adjoining counties occasion.

Of wooded lands, Shropshire is comparatively free. Almost all the lands in cultivation are inclosed; and the commons are every day decreasing, so that few of any great extent remain, except that of Morf, near Bridgenorth, which measures five miles in length, and nearly three in breadth; and the great lands between Church-Stretton and Bishops-Castle, and from Clun to the borders of Radnorshire, which are solely occupied as sheep-walks, and perhaps could not be better employed. There are several large moors, and many smaller ones, in Shropshire. The chief district of moor-land is that in the vicinity of the village of Kinnerley.

Roads and Canals.—The turnpike-roads of this county are excellent; but the parish roads are in general bad, and the repair of them much neglected, from the want of proper surveyors. Canals, though late of introduction into Shropshire, are now frequent. The chief cuts are the Shropshire canal, which commences at Donnington wood, and terminates at Coal Port on the Severn, running through an extensive alluvial of coal and iron works; the Ketley canal, which joins that of the Shropshire; the Shrewsbury canal; and the Ellesmere Navigation, which forms in itself a system of canals, extending through that large and fertile tract of country which lies between the Severn on the south and the Mersey on the north, and between the confines of North Wales on the west and the borders of Staffordshire on the east, a space of 50 miles in length, and upwards of 20 in breadth, exclusive of the valleys which open into North Wales. Its grand object is to unite the Severn, the Dee, and the Mersey, and by that means open a communication between the districts above mentioned and the ports of Liverpool and Bristol.

Manufactures and Commerce.—Among the manufactures of Shropshire, those of Ketley and other places in the iron district are the most considerable. Garden-pots, and other earthen vellums, are made at Broseley, which is likewise noted for the manufacture of excellent tobacco-pipes. At Caughley, in the same neighbourhood, is a china manufacture of great excellence, and at Coal Port is another of the same kind; besides one of that species of earthenware called the Queen's or Wedgewood ware. Shropshire also contains several mills for dyeing woollen cloths, and some cotton and linen manufactories. These various products of course form a considerable share in the commercial means of Shropshire, but its principal traffic is probably the staple trade of Shrewsbury, in flannels and Welsh wools, which are bought in large quantities at the markets of Pool and Oswestry, and are not only sent to every part of the kingdom, but are exported to different quarters of the world, particularly to the West Indies and to South America.

Civil and Ecclesiastical Divisions and Government.—Shropshire, like every other county in England, is governed by a lord lieutenant and two Justices of the Peace, or the sub_extended.

Parliamentary Representation and Chief Towns.—Shropshire sends twelve members to parliament, two knights of the shire, and two baronets for each of the boroughs of Shrewsbury, Ludlow, Bridgenorth, Wenlock, and Bishop's-Castle. The principal landed proprietors who have an influence in the representation are the Earl of Powis, the Lord Bradford and Berwick, the Hills, the Corbet, and Colonel Forester. The market-towns in the county are, Church-Stretton, Cleobury-Mortimer, Ellesmere, Hales-Owen, Madeley, Newport, Wem, Great-Wenlock, Oswestry, Whitchurch, and Wellington.

Antiquities.—Shropshire contains a great many objects of antiquarian interest. The chief Roman stations within its limits were Uriconium, now Wroxeter, Medulum, near Drayton, and Rutnumere, near Wem. Antiquaries differ respecting the precise position of the two last, but with regard to the former, there is little doubt but it was a chief city of the Cornovii, founded and fortified by the Romans. Watling-street enters the county on the east, between Crackle-wood and Welson, and passes through it in a bending line to Luntwood, in Herefordshire, on the southern borders. Of the Saxon period no certain remains exist; but of the Norman era, and of subsequent times, there are many; as the castles of Shrewsbury, Ludlow, Bridgenorth, Clun, and Red Castle, and the abbeys of Shrewsbury, Haughtmond, Buildwas, Wenlock, and Hales-Owen, several priories, and a great number of curious churches. The most remarkable encampments are those of Bury Ditches and the Walls, and at Purflew, Basford Gate, and Hawkstone. A General View of the Agriculture of Shropshire, by Joseph Pymley, M.A. Archdeacon of Salop, 8vo. 1803. Beauties of England and Wales, vol. xiii. by J. Nightingale and Ralph Rylance, 8vo. 1811.

SHROUD, from the Saxon Florid, a biller, or cover, is used to denote the drefs of the dead. This is required by statute to be made of sheep's wool only. See Burial.

If any one, in taking up a dead body, reals the hrend, the property of which remains in the executor, or the person who was at the charge of the funeral, it is felony.

SHROUDS, in Sea Language. See Shrouds.

SHROVE-
SHROVE-TIDE, the time immediately before Lent; thus called by our ancestors, because employed in ferreous, that is, in conferring their fines to the priest, in order to a more devout keeping of the ensuing Lent fast.

SHROWDING of Trees, the cutting or lopping off the top branches: this is only practised to trees that are not fit for timber, but designed for fuel, or some other present use.

Such trees the husbandmen find much preferable to coppice, as they need no fence to secure them; because they stand in no danger from the breakings and rubbings of cattle, which too have the benefit of grazing under them.

As for the time of shrowing, it is not to be practised till the trees have stood three or four years; and then it must be done either at the beginning of the spring, or the end of autumn.

Those of the harder sort are not to be lopped above once in ten or twelve years, and that at any time in the winter. The pithy and soft woods are bell shrowded in the spring. The flumps left should always be cut aloft, and smooth, in order to call the water off, and prevent its sinking in, and rotting the tree.

SHROWDS, or Stunns, in Sea Language, are great ropes in a ship, which go up on both fides of all masts, except the bowspirit.

The throns are always divided into pairs, i.e., one piece of rope is doubled, and the two parts fastened together at a small distance from the middle, so as to leave a fort of node or collar to fix upon the mast-head.

They are fastened below by chains to the ship's fides, and aloft, over the head of the mast; their pennants, fore-tackles, and twisters, being first put under them: and they are served there, to prevent their galling the mast. The top-mast throns are fastened to the puttocks, by plates of iron, and by what they call dead-men's eyes, and laniers also, as the others are. See Pattocks.

The throns, as well as the fails, are denominated from the mast to which they belong. Thus they are the main, fore, and mizen throns, the main-topmast, fore-topmast, or mizen-topmast throns, and main-top-gallant, fore-top-gallant, or mizen-top-gallant throns.

The number of throns by which a mast is fulllained, as well as the fize of the rope of which they are formed, is always in proportion to the fize of the mast, and the weight of the fail it is intended to carry. The two fore-mast throns, on the larboard and starboard fide of the ship, are always fitted first upon the mast-head; and then the second on the larboard, and the second on the starboard, and so on till the whole number is fixed.

The intention of this arrangement is to brace the masts with greater facility, when the fails are close-hauled, which could not be performed without great difficulty, if the fore-mast throns were latt fitted on the mast-head, because the angle which they would make with the mast would then be greatly increas'd. Falconnier.

Rowboat throns are those which support the howspirit. Bumkin throns are those which support the bumkin. Futtock throns are those which connect the efforts of the top-mast throns with the lower throns. Bentneck throns are additional throns to support the masts in heavy gales. Preventor throns are similar to Bentneck throns, and are used in bad weather to ease the lower rigging.

The terms are, fage the throns; that is, slacken them. Sotake the throns; that is, set them fatter.

SHROWD Trucks. See Trucks.

SHROWD Stoppers. See Stoppers.

SHRUBS, in Botany and Vegetable Physiologoy, are commonly understood to be plants with a perishable woody stem, of a more humble or slender form of growth than trees. Linnaeus once attempted to define the limits between trees and shrubs, by the former having leaf-buds, the latter none; but this distinction was soon found to be of no avail. Trees of hot countries have generally no buds, while many very humble shrubs of cold ones are furnished with this protection. This is so obvious, in Willows for example, that Linnaeus probably only meant to apply the rule generally. Thus the whole genus of Salix having buds, and being mostly arboreous, every species of that genus, however diminutive, must be deemed a tree. Accordingly, S. babara, hardly an inch high, is termed in the Flora Lapponica, the leaf of all trees. But the shrubby genus Lonicera has full more elaborate buds than Salix.

Shrub, in Gardening, a low woody plant of branching growth and ornamental appearance; it is sometimes, however, of a large growth and stature. Shrubs are commonly divided into the evergreen and deciduous kinds; and they may be subdivided still farther into the exotic or tender and the hardy sorts, as well as into such as are rarely seen or met with, and such as are well known and in common cultivation. In the former as well as latter of these great divisions, the plants may likewise be separated and arranged according to their size, forms, modes of growth, colours, and other particulars: in the last of which, it has been observed, there is every shade between the rufus, which is among the least, and the Bermudian juniper, which is nearly the largest;—from the holly, which is slightingly tinged with red, to the box, which is of a golden yellow,—in shape, from the cypress, which grows in the form of a spire, to the daphne tartan aura, which forms a globular tuft upon the surface of the ground;—from the hedges, which falls itself to the wall, to the adromeda and vince, which recline themselves upon the surface.

In the latter, the plants are said to be diversified in each of these particulars, being capable of division, as they may be cultivated principally for the beauty of their flowers, as the rhododendron, erica, and many others:—for the smell, as the sweet briar, abinchthoids, chriodendron, jasminum, and some others;—for both these qualities, as the rose, Cape jasmine, and a few more:—or as being grown, in a great measure, for the beauty of the leaves, as the acuba, variegated holly, elder, and some others;—for the purpose and appearance of the fruit, as the meyphus pyracea and the orange;—for the beauty of the whole plant, as the arctelia, and several others;—and, lastly, the great proportion for all these properties together, as the myrtle, laurus, tinus, laurel, and some others. Some of these, however, belong to the former of the above general divisions or classes.

Shrubs are of very great importance in forming all sorts of collections in gardens, and other places; and in ornamental pleasure-ground works they constitute a class of materials of the most interesting kind, which cannot be done without.

In such situations and works they are arranged, varied, and placed out, in many different ways, so as to produce the most pleasing effect and variety in the particular intentions with which they are planted or set out. See Shrubs.

It has been observed by Mr. Loudon, in his work on Ornamental Gardening, that the evergreen class of shrubs are deficient in moss situations, as well as trees of the same sort; but that they deserve to be very generally planted, equally on account of their uncommon beauty in the
the winter season, as for their contrast with the yellow and russet tints of the deciduous kind, and trees of the same nature, in the autumnal and spring seasons. They ought, generally, according to him, to be the prevailing sorts planted near the houses and buildings of country-folks, not only for the reasons suggested above, but because they are capable of concealing some part or parts of the edifices, disguising their real extents, and thus blending them at all seasons with the surrounding scenery. There is also another circumstance in their favor, which is the superiority of their foliage and shade.

It is thought, also, that the cyphus is too seldom planted in such situations, as it has the capability and power of giving a rich classical appearance and effect to them; as is seen in some cafes, as at Foxley and Yoxal Lodge.

And the holly, it is suggested, should be planted still more than any other shrub, in particular cafes; as no other is capable of affording and producing such an excellent and diversified effect in woody scenery, as is exemplified in some forest situations.

The ivy is capable, it is said, of answering three important uses, and of course deferring of more frequent growth. There are the varying of the leaves of single trees, and small groups of them, the giving of effect to old decaying trees, and the rendering of ugly trees interesting, as well as other familiar rural purposes; the producing of variety in different sorts of buildings; and the giving of ornament and utility to works of the country kind.

In the first of these intentions, in different cafes, where the number of trees of the same kind are considerable, and very much alike, which are in the fore-ground, one or several of them may be varied and diversified by the ivy shrub, in probably as happy a manner, and with as good an effect, as in any other way, and better than by the use of any fort of deciduous climbing plant. Single trees can always be rendered interestingly different by the same means, as well as old and ugly trees of different sorts.

In the second use, where cottages, ruins, irregularly formed buildings, old hovels, and other familiar structures, are to be varied, partially concealed, and rendered different in their external appearance, but which cannot be cheaply done in other ways, they may be highly and richly diversified and decorated by the simple planting of the ivy shrub, and directing it so as to cover in different places or parts. The expense of such works would also be less, in many instances, it is remarked, if the external appearance of them were contrived so as to admit this plant; which would not only vary and alter them generally; but might occasionally be substituted for, and supply the place of, particular parts, as is exemplified in many instances.

The last of these intentions is that of planting the ivy shrub against walls of the stone kind, dike, and sunk fences between fields, and other similar purposes, in the view of rendering them more ornamental and durable. The chequering of them in this way, on their sides, with shades of green, and little ribs or columns, and richly mantling their tops, have, it is said, much effect in producing variety, and at the same time in rendering them more lasting. Mortured and unmortured walls are likewise preferred and secured by it. This creeping shrubby plant may consequently be of extensive utility in various ways; as, besides affording beauty, shelter, and durability, it may be beneficial in thickening hedges in the vicinity of the sea-coal, when joined with the elder. It should, in all cafes, be carefully planted, either by jets or young seedlings, which last is by much the readiest mode of raising and providing it. Nothing more is wanting, as it succeeds well in moist foils, situations, and exposures. Where tall plants are wanted for particular uses, they must be provided with good roots.

In the deciduous kind of shrubs, the modes of varying and planting are very different, according to their nature, habits, size, and other qualities and circumstances. For the most part, however, the larger sorts are put more out of the way, in order that the smaller and more curious kinds may be more fully exposed to view. The peculiar properties in some of this description of shrubs also direct the modes and manners of planting them, as that of the time of flowering, and several others. They are varied and planted differently, likewise, for a great variety of other different reasons.

In planting the laburnum, as there are two sorts, which differ greatly in their spray or small twigs and foliage, that with the smaller and more delicate branches and flowers should confinately be chooset for putting out with other shrubs; the other, which is of much larger growth, is well suited for rough gravelly soils, rocky banks, and the rocky margins of water, where, in the two latter situations, the plants may sometimes be seen in great perfection.

Shrubs of these different kinds are raised and produced in many different ways, as may be seen under their different particular proper heads.

Some sorts of shrubs, particularly in the early state of their growth, stand in need of not merely a foil and situation, but a mode of cultivation which is adapted to their different natures and habits. And though most shrubs require to have the earth or soil about them either frequently stirred, or kept clean and free from all plants of the weed kind, there are some that succeed best when the surface of the ground is overrun with low plants of the mops kind.

In all cafes, shrubs are to be preferred in a neat and perfect order, by the removal of the decayed and withered parts, and the proper cutting in of particular shoots and branches where necessary, especially in some of the deciduous kinds. In the evergreen clafs, the knife or shears, however, are very seldom to be applied, except for the removal of the destroyed parts, which are constantly to be carefully taken away.

SHRUB, Fruit, that fort of low shrubby plant which bears fruit of some kind or other. Shrubs of this kind are mostly very useful, and not few in number. The forts are various, as the gooseberry, the currant, the raspberry, and some others, cultivated in garden situations; and the barberry or harberry, and a few other kinds, in thofe of the shrubbery. Shrubs of this description, in most cafes, require carefull attention in cutting, managing, and keeping the ground in proper order, by due cultivation, and the proper ufe of suitable manure. See SMALL FRUITS, and Standard Fruit Trees.

In planting them, those of the garden fort are most properly planted, either by jets or young seedlings, in the view of rendering them more ornamental, and not in the usual mode, on the sides or borders of the different cultivated compartments of the garden ground. Those which produce ornament, as well as fruit, are to be placed out in variety with other shrubs, in the more open parts of shrubberies, or alone in particular cafes.

SHRUBS, Stealing of: See LARCENY.

Wilfully spoiling or destroying them is a species of that malicious mischief, which subjected the offender to pecuniary penalties for the first two offences, and for the third, if he be committed in the day-time, and even be the first at night, to the guilt of felony, and transportation for seven years. 6 Geo. III. cap. 36. and 48.

SHRUBBERY, in Gardening, a tract, portion, or space of ground, which is planted with shrubs, trees, and flower plants,
plants, for the purpose of ornament. The term is, however, perhaps the most properly applied to narrow belts and strips of ground, planted with shrubs and flowers, which are sometimes the principal ornaments of small feuds, and other similar constructions and conveniences. They are contrived in different forms and modes, for the purpose of giving the desired effect; and the notion of such schemes of planting shrubs and flowers, is considered by Mr. Loudon as good and proper, as when executed according to the principles of nature and good taste, they must produce effects of the interesting as well as the pleasing kind; but that from the reverie having been so frequently the café, their tawdry insipidity has been justly reprobated by some; as Mr. Knight, in the following line, &c.

"Curle on the shrubbery's infipid scene."

It is suppos'd that shrubberies are, in general, made and contrived with the intention of procuring walks, which may either conduct or direct to some particular place or scene, such as the kitchen garden, the farm, a wood, or any other similar object; or they may lead and extend merely through the shrubberies, for their own sakes, and such views of external objects as can be produced from them, or are deserving of attention. In designing and forming shrubberies, therefore, keeping the above in view, three points will, it is thought, require to be particularly attended to: first, the arrangement, distribution, and grouping of the shrubs, which ought to be that of general nature; in the second, the intermixing of the glades and pastures, which, in most cases, is an essentially requisite consideration; and in the third or last, the judicious introduction of the views of the more distant scenery, which is generally definable, unless in such parts as, by way of utility or contrariety, are preferred in a state of umbritrility.

The two latter requisites are, it is said, naturally connected with picturesque improvements, the general principles of which are blended and intermixed with this branch of ornamental gardening.

The directions which this able designer of rural works of this nature has given for the forming of shrubberies with proper taste, in different cases, situations, and circumstances, are, that when such groups of shrubs and flower plants are small and placed upon lawns, they should always be of very irregular shapes; but that, when upon gravel, their forms must depend upon circumstances. In cafes where they are in a part in which art is avowed and ought to prevail, then the more artificial the forms are, so much the better; but that if merely a group for separating, dividing, or varying a road, walk, or natural path at a distance from artificial scenes, then the shape should be as irregular as in those upon lawns. Whether such shrubbery groups are made in a regular or irregular manner, they almost in every cafe require to be cultivated or wrought over for some years afterwards. This, in the mode of digging and working them which has been usually had recourse to, produces, it is said, a harsh and disagreeable boundary line; which, in addition to the means of proper arrangement, suitable grouping, and the natural connection of surface, may be improved principally, it is suppos'd, by the destruction of such lines of separation in as complete a manner, as high a degree, and as extensively as possible. Nothing, it is thought, can be more readily or more easily accomplished, as it is only requisite to keep the earth on the margins or borders of such groups of the same level as the surfaces of the lawns or pastures, and to suffer both to unite and blend harmoniously together, or with each other. And as all groups of this shrubbery kind are only dug or wrought over during a certain period of time, as until the shrubs become so large as to render further culture unnecessary; the paths should be allowed to gradually encroach and spread itself across the shrubs and flower plants, until at last it wholly covers the surface. After this, the shrubbery group becomes rough and picturesque; the flower plants, full to increase the growth among the shrubs, will, it is suppos'd, be productive of exactly what is seen to happen in natural groves; with this elegant difference, that in place of settle, thistles, and low coarse weeds, which, however, it is remarked, are as good to the passer by as the flower plants, there will be the narcissus, tulipings, lilies, and others, which are quite in character with the rest of the pleasure-ground, and thrive well among the paths. It is figg'd, that in placing the shrubs in such groups, the great art consists in putting them in irregularly; but though the outline of the ground to be cultivated must, even under the best taste, be somewhat formal, yet the shrubs can always be planted as irregularly as if no outline or form of group existed. This is, however, said to be a plan of manner of distribution, which has never been put in practice; as whether the frame of the ground may be which is to be dug and planted, the shrubs are distributed in a regular manner over every part of it; even where digging is no longer attended to, till some of the shrubs are thinned out, but the whole left a formal unconnected clump of vegetation; in appearance, it is observed, as different from the irregular group-thickets of nature, as a green hillock is from a rocky precipice. It is fatigued, however, that the groups of this nature, or rather those masses of formal shapes which are placed in particular situations, such as oval in the fronts of small villas, or basket-work patches upon the lawns in the fronts of residences of the mansion kind, should always have determinate outlines; as being devoted, in a great measure, to tender flower plants and flowering shrubs, they will require to be constantly in a cultivated state. Their outlines or boundaries may, it is suppos'd, be properly formed, according to circumstances, either of elegant masonry, wood, baskel-work, or of plants of the flower kind, such as thist, the daisy, and some others, and not unfrequently, when surrounded by gravel, by a broad margin of turf. In regard to the general forms of such shrubbery planted masses, it is said that they may be oval, circular, pentagonal, or fanciful, according to pleasure; and that their surfaces may either be kept level with the lawns or other parts, or be gradually raised from the margins to their centres. It is however noticed, that when raised in this way, the sides should always be made to present a concave slope, and not that of a convex one, as is most commonly the case, and which has a very bad effect in different instances, as in the public squares of the metropolis, &c. Basket-work shrubbery groups have not unfrequently, it is remarked, a very pretty effect when covered with mosses. Other groups which are unconnected among themselves, and which have shapes that are rather unsuitable to the nature of the situations in which they are formed, are likewise productive of variety. In all cafes, some sort of agreeable effect ought to be afforded in as striking a manner as possible.

It is conclusively remarked, that though the connection of surface in such shrubbery groups is always of importance, neither those of the irregular or regular shapes ought ever to be placed in any situation, except where they have a proper relation and union with what surrounds them.

In the larger and more extensive works of the shrubbery kind, the same rules and principles will be requisite to be had recourse to, but with a greater attention to the production of variety and effect. These are to be accomplished by such
such means as have been already suggested, and by giving them a more natural conformity, as well as by the introduction of greater diversity in the shrubs, trees, and other sorts of plants that are made use of in the formation of them. It is indeed observed, that one of the most effectual means of rendering rural scenes still more interesting than they commonly are, is by introducing a more extensive variety of shrubs than is usually employed, a vast number of which are capable of answering the purpose. They are not, however, to be planted in such situations in the common indiscriminate manner, but with much regard to the effect which they are to produce. In short, it is concluded, that it is in the shrubbery, or those places of pleasure-grounds which contain flower plants, shrubs, and trees,—which occupy considerable space,—exhibit views of the country or of other parts of the ground, that ornamental gardening and picturesque improvement blend themselves together in producing those happy effects which so much interest the feelings and fancy.

SHRUBBY-Hoak-Weed, in Agriculture, a plant of the flabby weedy kind, which is often troublesome and injurious in woods and plantations. See Hieracium, and Weeds.

SHRULE, in Geography, a river of the county of Tyrone, Ireland, which joins the Moyle near New Town Stewart. There are also several parishes of this name in Ireland, but none called from a town now existing, except Shrule in the county of Mayo, on the borders of the county of Galway; 106 miles N. by W. from Dublin.

SHTUKA, a powerful tribe or kabyle in the province of Sufe, in the southern division of the empire of Morocco, inhabited by Shelluka, amounting in number to 380,000.

SHARIF, a small low island in the Red Sea, near the coast of Africa. N. lat. 24° 22'.

SHUBENACADIE, a river of Nova Scotia, which rises within a mile of the town of Dartmouth, on the E. side of Halifax harbour, and discharges itself into Cobaquid bay, receiving in its course the Slewinick and Guys rivers. The large lake of the same name lies on the E. side of the land that leads from Halifax to Windsor, and about 7 miles from it, and 121 from Halifax.

SHUCK, in Agriculture, provincially a flouk, or twelve sheaves of corn set up together in the harvest field.

SHUD, in Rural Economy, a word sometimes provincially used to signify flaked.

SHUG, in Agriculture, a term used to imply the flaking of any thing, as hay, &c.

SHUGGINGS, a word signifying that which is flaked or scattered, as grain at harvest, &c.

SHUHUSHU, in Geography, a village of the pachalic of Bagdad, one day's sail from Korra, and situated on the bank of the Euphrates. It is as large as Samarat (which see), but much more flourishing; for the Euphrates, which is navigable, even in the driest season, for boats of considerable burthen as far up as this place (where the effects of the tide are also felt), enables the inhabitants to carry on a trifling traffic with Bassora. Shuushu is a great mart for horese, and is famed for the riches of the cloves raised in its vicinity.

SHUK, in Agriculture, a term sometimes provincially applied to a hulk or shell.

SHUKERA, in Geography, a town of Thibet; 42 miles S. of Gangote.

SHULA, or SHULI, in Mythology. See Sula.

SHUMAN, in Geography, a town of Grand Bucharia; 30 miles W. of Vahngierd.

SHUMBERG, a town of Illria; 5 miles N. N. E. of Pedena.

SHUME, or ASSUME, a violent hot wind of Africa, or, as they are called, Oncas, which, in the intermediate journeys between several parts of the Defart or Sahara, occasions great inconvenience and difficulties to travellers. It sometimes wholly exshales the water carried in skins by the camels for the use of the passengers and drivers: on which occasions the Arabs and people of Soudan affirm, that 900 dollars have been given for a draught of water, and that 10 or 20 are customarily given, when a partial exhalation has occurred. In 1805, a caravan proceeding from Tombuctoo to Tafilet was disappointed in not finding water at one of the usual watering-places, when, as it is said, all the perfons belonging to it, 2,000 in number, besides 1,800 camels, perished by thirst. The intense heat of the sun, aided by the vehement and parching wind that drives the loofe sand along the boundles plains, gives to the Defart the appearance of a sea, the drifting sands resembiling exactly the waves of the sea, and hence aptly denominated by the Arabs "el Bahar billa maâ," a sea without water. During the prevalence of this wind, it is impossible to live in the upper rooms of the houses; so that the inhabitants retire to subterraneous apartments, cellars, or warehouses on the ground-floor, eating only fruits, as the water-melon or prickly pear, as the animal food at this time is loathsome whilst hot, and has scarcely time to cool before it becomes tainted. The walls of the bed-chambers, being of stone, are moistened by throwing upon them buckets of water, in order to render the rooms habitable towards the night; and so great is their heat, that in doing this, the effect is similar to that which is produced by cating water on hot iron. Mr. Jackson says that he has felt the thume 20 leagues out at sea. When in N. lat. 30°, W. long. 11° 30', a quantity of sand fell on the deck. He adds, that he never found any extreme inconvenience from the thume N. of the province of Sufe, although at Mogodor it is sometimes felt, but not so severely, during three days.

The Akkaabahs, or accumulated caravans, which cross the great defart of Sahara, and consist of several hundred loaded camels, accompanied by the Arabs who let them to the merchants for transporting their merchandise to Fez, Morocco, &c. are sometimes obliged suddenly to strike their tents, and proceed on their journey, when the thume rises and drives the loofe sand along the plains, which attaches to them and forms a fixed object in its course, and soon buries it. We shall here add, that the guides of these accumulated caravans, being enabled by the two pointers to ascertain the polor star, steer their course with considerabe precision, and that they often prefer travelling in the night to enduring the suffocating heat of the fcorching meridiano heat. When the Akkaabah reaches Akka, the first station on this side of the Defart, and situated on its confines, in Lower Sufe, which is a part of Biledulgerid, the camels and guides are discharged, and others are there hired to proceed to Fez, Morocco, Taroudant, Tafilet, and other places. The Akkaabahs perform the traverse of the Defart, including their jouruements at El-wahs, or Oafes, in about 150 days. Proceeding from the city of Fez, they go at the rate of 34 miles an hour, and travel seven hours a day; they reach Wedinnoom, Tatta, or Akka, in 18 days, where they remain a month, as a great accumulated Akkaabah proceeds from the latter place. In going from Akka to Tagallia, they employ 16 days, journeying here 15 days more to replenish their camels; they then proceed to the Oafes and well of Taouden, which they reach in seven days, and after lying there 15 days, they proceed to Tombuctoo, which they reach the fifth day, making a journey of 54 days actual travelling, and of 75 days repose; being altogether, from Fez...
Rennell in favour of his opinion in the 'Geographical Memoir on the Persian Empire,' has examined with critical skill and great candour the objections of Dr. Vincent, and the principles on which they are founded; and the result is, that he inclines to favour the opinion of major Rennell, in support of which he cites the authority of Strabo, who says, that the Persian capital was entirely built of brick, there not being a stone in the province; whereas the quarries of Shutter are very celebrated, and almost the whole of the town is built of stone, but there is no such thing in the environs of Shus, which was anciently formed of brick, as appears from our author's description of the pyramids that still remain. However the question concerning the site of the city of Shus be determined, it is now a gloomy wilderness, infested by lions, hyenas, and other beasts of prey.

SHUSJIMIAN, a town of Persia, in Khurasan; 6 miles N. of Maru.

SHUSTER, a province or district of the Persian empire, constituting one division of Kuzzistan, or Chufistan, the other being formed by the territories of the Sheik, the latter extend from the banks of the Taw to the confines of the Karoon and Abzal, and from the shore of the Persian gulf to a range of hills which skirt the valley of Ram Hormuz to the south. The most fertile spots in this district are those in the environs of Darsk, the capital of the Abzal prince, and on the banks of the Hafar and Shat-ul-Arab. Here dates and rice are produced; and hence the Sheikh Mahomed derives his principal revenues. The wheat and barley that are grown are scarcely sufficient for the supply of the inhabitants. The rice harvest is in August and September, and that of other grains in April and May. The northern and western parts of the country afford tolerable pasturage; and here the wandering tribes, which compose the principal part of the population, pitch their tents. Both banks of the Karoon, from its junction with the Abzal, eight furlongs below Shuster, to the ruins of Shus.
SABA, are uninhabited, and consequently almost wholly uncultivated, and covered with brash-wood, the resort of hons, wild bears, and other animals. Moraines are common. The Chab country is watered by three rivers, viz. 11th, the Karoon, suppos'd by some geographers to be the ancient Choafpes, but Kinneir disputes their identity; it rises 22 furlongs S.W. of Ipahan, and after receiving many tributary streams in the mountains of Lauritian, flows through the city of Shutter to the village of Bandekeel, eight furlongs to the S. of that city, where it meets the Abzal: puruing thence a fotherly course, as far as Sabla, N. lat. 30° 32', and 30 miles E. of Baffora, it divides itself into two branches, one of which discharges itself into the sea at Goban, and the other, assuming the name of Hafar, separates, after a course of 14 miles, into two branches, one of which paves through an artificial canal, three miles in length, into the Shat-ul-Arab, and the other enters the sea by the name of the Baniheir. 2dly. The Tad, which see; and the 3d is the Jerahi, or ancient Pafhtigiris, which descends from the mountains behind Behaban, in the province of Fars, and passing within a few miles of the walls of that city, runs through the vale of Ram Hormuz to old Dorak, in the territory of the Chab Sheikh. Here it is difpersed in various directions for the purpose of agriculture; and the water afterwards is 10d, or occasions the salt moraines in the vicinity of modern Dorak. The principal towns in the district of Chab Sheikh are, Dorak or Pelahi, Ahwaz, Indanic, Mathoor, Goban, and Jerahi, whence the river, fo called, derives its name. The revenues of the Chab Sheikh amount to five lacs of piastras, or about 50,000 l. sterling a-year; and he can bring into the field 5000 horse, and 20,000 foot.

The territories attached to the government of Shutter constitute the fairest portion of Sullana. It derives its fertility from four noble rivers, and from a multitude of smaller streams. This wealthy province, which, according to Strabo, yielded to the husbandman 100 or even 200 fold, and was rich in its productions of cotton, fugar, rice, and grain, is now, for the greatest part, a forfaken waife. The only indications to the contrary occur between Bandekeel, Daphshoul, the vicinity of Haueeza, and the vale of Ram Hormuz. From the Abzal to the Tigris, and the river Gyndes, on the western side, and from the banks of the Karoon to thofe of the Shat-ul-Arab, all is dreary and defolate; and on the E. side of Shutter a lonely wild, upwards of 60 miles in length, extends from that city to the entrance of the valley of Ram Hormuz. Although the inhabitants of the towns and villages groan under the arbitrary fway of the governor of Shutter, his authority is hardly acknowledged by the wandering tribes, both Pefian and Araban, of Kuzitiam. Of the four great rivers which embellish and fertilize the district of Shutter, Karoon deferves the firft mention. Next in magnitude is the Abzal, which has two fources, one in the Shutter Koh, near Boorojord, and the other in the mountains of Lauritian: thefe form a junction N. of Daphshoul, and after passing under the walls of that city, empty themfelves, after a winding course, into the Karoon, at Bandekeel. The third river is the Kerah, or Haueeza river, called by the Turks the Karafa, which is formed by the junction of many streams in the province of Ardelan, in Kuriditan: it runs through the plains of Kermanhow, meeting the Kazawur and the Ga-

mafs. The Karafa, increafed in magnitude by tributary streams, flows with a furious course towards Kuzitiam, and supplied with an acception of water, it paifes on the W. of the ruins of Shus to the city of Haueeza, and enters the Shat-ul-Arab, about twenty miles below Korna. The fourth river is that suppos'd by Mr. Kinneir to be the ancient Gyndes, which proceeds from an unknown fource in the mountains of Lauritian, and joins the Tigris between Koot and Korna.

Shutter, the capital of Kuzitiam, and the residence of a Begolbeg, is situated in N. lat 32°. E. long. 48° 50', at the foot of the mountains of Bucakiari, on an eminence commanding the rapid course of the Karoon, acros which is a bridge of one arch, upwards of eighty feet high, from the summit of which the Persians often throw themselves into the water, without the flight of a fishy. On the western side it is defended by the river, and on the other side by the old stone wall, now fallen into decay. The houses are good, being principally built of stone, but the streets are narrow and dirty. The population, confifting of Persians and Arabians, exceeds 15,000 souls; and it has a confiderable manufacture of woollen stuffs, which are exported to Baffora, in return for the Indian commodities brought from thence. This city is generally believed to be the ancient Sufa; but some approved geographers entertain a different opinion. (See SHUS.) Shus, in the old Pefian language, means pleasing, or delightful, and Shutter ill more delightful; and the name is said to be given to this city by Sapor, the fon of Artaxerxes Babegan, by whom it was founded, and caufed to be built under the inspection of his prifoner, the Roman emperor Valerian. It was once, without question, a place of vall extant, and no inconfiderable magnitude. The castle, dyke, and bridge, are moft worthy of notice. The castle occupies a small hill at the western extremity of the town, commanding a fine view of the river, mountains, and adjoining country. This fortrefs is, on two fides, defended by a ditch, now almost choked up with fand, and on the other two fides by a branch of the Karoon. It has one gate-way, formerly entered by a draw-bridge. The hill is almost entirely excavated, and formed into furdahs and fubterraneous aqueducts, through which the water still continues to flow. Near the castle is the dyke, or "bund," built by Sapor across the Karoon, with a view of turning a large proportion of the water into a channel more favourable for agriculture, than that which nature had affigned it. This dyke is constructed of cut stone, bound together by clamps of iron, about 20 feet broad, and 400 yards long, with two small arches in the middle. It has lately been rebuilt by Mahomet Ali Meera, governor of Kermanhow, and its beneficial effects are already experienced. The artificial canal, occafioned by the conftuction of this dyke, fiumebogues, after a long winding course, into the Daphshoul, half a mile from Bandekeel. Near the canal is a bridge, built of hewn stone, conftituting of 32 arches, 28 of which are yet entire. The city of Shutter is fo remarkable for its fulbility, as to be the continual refort of invalids from the surrounding territories. In summer the heats are exceafive from nine in the morning to the fame hour at night, when the air is refreathed by a gentle breeze from the N.W. During the day the inhabitants take refuge in fubterraneous chambers, and pafs the night on the flat roofs of their houses. The winters are mild, and the fprings temperate and delightful. Shutter affords excellent fprings, Kinneir's Geog. Mem. of the Pefian Empire.

SHUT in Land. See LAND.

SHUTESBURY, in Geography, a township of America, in Hampshire county, Maffachusetts, on the E. side of Connecticut river: 90 miles W. by N. from Boston, containing 930 inhabitants.

SHUTTING, in Anchor-Making, denotes joining or welding one piece of iron to another.
SHUTTLE, in Manufactures, an instrument used by the weavers, which, with a thread it contains, either of woollen, silk, flax, or other matter, serves to form the woofs of stuffs, cloths, linens, ribbands, &c. by throwing the shuttle alternately from left to right, and from right to left, across between the threads of the warp, which are stretched out lengthways on the loom.

In the middle of the shuttle is a kind of cavity, called the eye or chamber of the shuttle; in which is included the thread, which is a part of the thread defined for the woof; and this is wound on a little tube of paper, rush, or other matter.

The ribband-weaver's shuttle is very different from that of most other weavers, though it serves for the same purpose: it is of box, six or seven inches long, one broad, and as much deep; it has iron at both ends, which terminate in points, and here is a little crooked, the one towards the right, and the other towards the left, representing the figure of an S horizontally placed.

SHUTTLE, in Inland Navigation, a term expressing a small flue, paddle, &c.

SHUTTLEWORTH, Obadiah, in Biography, organist of St. Michael's church, Cornwall, was elected, on the resignation of Harte, for St. Donne's Back-church, who was succeeded by Burney in 1749. Shuttleworth, soon after his election at St. Michael's, was appointed one of the organists of the Temple church. He was the son of Shuttleworth of Spitalfields, the father of a remarkable musical family, and had acquired a small fortune by teaching the harpsichord, and transcribing the compositions of Corelli, before they were printed in England. He had three sons and a daughter, all good musicians; and had frequent concerts at his house for the amusement of his friends, in which the sons played the violin and tenor, the daughter the harpsichord, and the old gentleman the viol da gamba. His son Obadiah, particularly, was so admired a performer on the violin, as to be ranked among the first masters of his time. He led the band at the Swan concert, from its first institution to the time of his death, about the year 1735, when he was succeeded by Feoffing. His brothers were excellent performers on the violin, and employed in all the city concerts. But Obadiah is almost a single instance of the same musician being equally admired for his performance on two different instruments. He was such a favourite player on the Temple organ, that great crowds went thither to hear him of a Sunday evening, when, after service, he frequently played near an hour, giving a movement to each of the solo groups previous to his final fugue on the full organ.

SHWAN-PAN, the name of a Chinese instrument, composed of a number of wires, with beads upon them, which they move backwards and forwards, and which serves to affix them in their computations. See ABACUS.

SHWAYEDONG, in Geography, a small but neat town of the Burma empire, on the Irrawaddy, containing about 100 houses, ranged in a regular street; each dwelling has a small garden, fenced with a bamboo railing. In two Masonries and a few small temples did not encourage the particular notice of Col. Symmes and his companions; but the tall and wide-spreading tree that overawed them were objects of pleasing contemplation. Symmes's Embassy to Ava, vol. ii. p. 174.

SHY, in Agriculture, a provincial term, signifying high-milled or head-dry, is the manner of wild oats, &c.

SHYAMULA, in Metaphy, a name of Parvati, the comfort of the Hindu deity Siva. It means with a blue body; and is, with many other names of similar derivation, given to that goddess, and to Vishnu, Krishna, and Rama, who are described and represented of blue. Among these names are Swayam, Shyamala, &c.

SI, in Geography, a town of China, of the third rank, in Hoo-nan; 50 miles N.W. of Kowang.

SI, or STA, a town of China, of the second rank, in Ch'ang-fi. N. lat. 36° 40'. Long. 110° 31'.

SI, in Music, a name in fuguing, given by the French to the sharp 7th of the key of C, to preclude the embarrassment of the mutations in foliation. (See Heurachord, and Mutation.) A similar expedient had been often attempted by various authors; but none had been so generally adopted as this, which however was long solely confined to France; nor is it yet general all over Europe. And we think that the manner in which the French syllabize not only vocal but instrumental music, is subject to very material objections; it only provides for one key. If the new syllable fi had been used for the sharp 7th of every key, as well as that of ut or C natural, and la for every key-note or tonique in minor keys, it would have exempted the princeps in fuguing from much perplexity. There is no certain name for any note, except in the key of C, ut, re, mi, fa, sol, la, fi, ut; and whether B is flat, natural, or sharp, it is equally denominated fi, as C, whether natural, flat, or sharp, is always called ut. When D is the key note, it is named re; when it is the 3d of the key of Bb, or 4th of A, it still retains the name of re.

Malcolm, in the year 1721, was the first who openly censured the hexachords; which Dr. Pepusch, in 1731, defended with some warmth, by giving the bell and clear explanation of their use and importance, not only in fuguing but composing, in regulating the answers to fugues. Fouehl, Padre Martini, Salis, and the most respectable Italian and German theorists, still adhere to the foliation which has produced so many great composers and singers during the two last centuries. We have given our opinion fully on the subject in the article SEHRA, a Roman maister, who proposed a new method of naming the intervals in cultivating the voice. See SEHRA.

The original introduction of this syllable is attributed by Merennes and other writers to one Le Maire, a French musician, who laboured for thirty years to bring it into practice; but he was no sooner dead than all the musicians of his country made use of it. However, it has been the more general opinion, that the syllable fi was introduced into the scale by Eriicus Putenius of Dort, who lived about the year 1580. M. Bourdelot ascribes the introduction of this syllable into the scale to a Cordelier, about the year 1675; and he adds, on the testimony of the abbé de la Louette, that it was invented, or a second time brought into practice, by one Metru, a famous fuguing-maister at Paris, about the year 1676; and Bonet inclines to think, that the honour of the invention might be due to the Cordelier, but that the merit of reviving it is to be ascribed to Metru. Bourdelot attributes, that though the use of the syllable fi is much approved
proved of by the French musicians, yet in Italy they disdain to make use of it, as being the invention of a Frenchman.


The French are not yet agreed to whom they are obliged for the syllable fi; some say it was Nevers, some Le Maire, and other claimants are mentioned by Roucoux; but not being quite satisfied with its utility, we shall befall no pains in verifying the claims of an imperfect invention.

St Action, in Law, the conclusion of a plea to the action, when the defendant demands judgment, if the plaintiff ought to have his action, &c.

SIABE', in Geography, a town of Peria, in the province of Segeltan, or Seifan.

SIABISCH, a river of Russia, which runs into the Abakan, near Bankalov, in the government of Kolyvan.

SIADY, a town of Samogitia, feated on a lake; 33 miles N.N.W. of Miedniki.

SIAINE, a river of France, which runs into the Mediterranean, N. lat. 43° 31'. E. long. 7°.

SIAGONAGRA, a name given by some medical writers to the gout in the jaws.

SIAKA, in Geography, a town of Japan, in the island of Ximo; 12 miles W. of Taifero.

SIAKOH, a mountain of Peria, in the province of Irak; 50 miles E.N.E. of Kom.

SIAL, a small island near the coast of Egypt, which forms a harbour in the Red sea. N. lat. 24° 30'. E. long. 35° 2'.

SIALACOORY, a town of Hindooftan, in Cochin; 30 miles N.E. of Cranganore.

SIALISMUS, formed from σαλεως, salivae, a word used by the ancients to express a discharge of salivae, brought on by the holding hot things in the mouth; and by us for a salivation by mercury.

SIALO, in Geography, a town on the E. coast of the island of Sibu. N. lat. 9° 53'. E. long. 123° 30'.

SIALOCHI, a term used by the ancients to express such person as had a plentiful discharge of salivae, by whatever means. Hippocrates uses it for a person having a quinsey, who discharges a very large quantity of salivae. Others express by it person, whose mouths naturally abound with a bitter salivae; and others, such persons as, having a very large tongue, spit into people's faces while talking with them.

SIALOGOGUES, in Medicine, from σαλεως, salivae, and αγαθος, I exsile, comprehend all such medicines as increase the flow of salivae.

The substances which operate upon the salivary glands, so as to excite them to pour out their fluid in increased quantities, are of two kinds; namely, those which may be called external, and which, when applied within the mouth, stimulate the excretories of salivae and mucus, opening thereby their acrid qualities; and those which are administered internally, and operate through the medium of the circulation.

It seems to be a falutary provision of nature, that when any acrid matter is applied to the sensible parts of the tongue and internal surface of the mouth, a quantity of salivae and mucus should be poured out to wash it off, or to defend those parts from its irritating effects. Whence, by the continued application of acrid substances, a considerable evacuation of the vessels of those parts is produced. By emptying the salivary glands and mucous follicles, they produce an afflux of fluids from all the neighbouring vessels to a considerable extent. Whence it will be readily understood, that these malacitactors may relieve rheumatic congections, not only in the neighbouring parts, as in the case of tooth-ache, but also congections or inflammatory dispositions in any part of the head, supplied by the branches of the external carotid.

Many substances are resort to for this purpose, and chiefly the warm and acrid vegetables; indeed every substance that proves sharp and heating to the tongue, or internal surface of the mouth, will answer the end. The angelica is a mild and agreeable salagogue; the impregnatoria more acrid; and the pyrethrum more acrid still, and therefore more commonly employed. Other substances might be enumerated, but it may be enough to add, that a bit of fresh horse-radish root, held in the mouth, and chewed a little there, is as effectual as any.

The only medicine which we possess, that is capable of exciting a flow of salivae when taken internally, is mercury. In its crude and simple state of quicksilver, however, it is perfectly inert, and exerts no influence whatever upon the living body, until it is oxidated, or combined with other materials. Its operation then, as Dr. Cullen has ably demonstrated, is not, as was formerly suppos'd, by any chemical action on the fluids of the body, by which they are attenuated, and thus made to pass off more readily through the excretory ducts; but by a general inflamatory effect on the vascular system, and especially upon the various excretories of it. When blood is drawn from a person under the full influence of mercury, it exhibits no appearance of any diminution of confidence; but, on the contrary, it is always found in the same condition as in inflammatory diseases.

It will not be necessary to enter into detail in this place respecting the mode of administering mercury as a salagogue, since that has already been done under the head of Lues Venerea, for which disease principally it is so exhibited. In this disease, indeed, as well as in other diseases of the liver, in hydrocephalus, and some other maladies, it is not administered with a view to the evacuation from the salivary glands; its operation as a salagogue is rather looked upon as the object of its full influence on the constitution, than as the means of its remedial power. See Cullen, Materia Medica, part ii. chap. 17.

During the prevalence of a chemical theory, to which the discovery of the importance of oxygen in the animal economy gave rise, and when it was suppos'd that the nitric acid had been found to be a substitute for mercury in the cure of syphilis, it was even maintained that this acid acted in a similar manner upon the salivary glands, and was, in fact, a powerful salagogue. Further experience, however, while it disproved the antinoueral power of this acid, disproved also its virtues as a salagogue, except indeed it might influence the excretory ducts of the glands externally, that is by its acrid qualities in the act of being swallowed.

SIALUSSIEB, in Geography, a town of the Arabian Trak, on the Euphrates; 8 miles E. of Sura.

SIAM, a country of Asia, the name of which is of uncertain origin; but probably derived from the Portuguese, in whose orthography Siam and Siaô are the same; so that Sian, or Siang, might be preferable, as Loubere has suggested, to Siam; and the Portuguese writers in Latin call the natives "Sioues," The Siamese style themselves "Ta," or freemen, and their country "Meuang Ta," or the kingdom of freemen. The Portuguese might possibly derive the name Siam from intercoure with the Peguene. "Shan," however, is the oriental term. Before the recent extension and encroachments of the Burman empire, the rich and flourishing monarchy of Siam was regarded as the chief state of exterior India; but some of its limits are not now easily ascertained. On the west of the Malayan peninsula some few pollinations may remain to the south of Taimeir; and on the easterly side of that Cherefonee, Ligor may
Siam.

In 1771, the capital of Siam was Bangkok, which was later renamed Ayutthaya and then Bangkok again.

Our principal sources of information with regard to Siam are the publications of L. Loubere, who acted as ambassador from Louis XIV to the king of Siam, and those of the French missionaries, of which, that from the paper of the bishop of Toulouse by Tuiras, in 1771, is the most important.

According to Loubere's account, the first king of the Siamese was crowned in the year 1500 of his epoch, or about 575 years after the Christian era. Since the Portuguese discovery, their wars with Pegu, and occasional forays of the thre, constitute the principal topics of their history. In 1569 the Pegu king declared war on account of two white elephants, which the Siamese refused to surrender; and after prodigious slaughter on both sides, Siam became tributary to Pegu; but about the year 1620, raja Hapi delivered his crown from this servitude. In 1680, Philon, a Greek adventurer, being highly favoured by the king of Siam, opened an intercourse with France, for the purpose of supporting his ambitious designs; but they were punished by his execution in 1689, and the French connection was thus terminated. From Turpin, who has extended the history of Siam to the year 1770, we learn, that the first king began to reign about 1444 years before Christ, and that he had forty succedors before the epoch of the Portuguese discovery, or the year 1546, many of whom were precipitated from the throne on account of their depotsin. Nevertheless, these forty kings cannot be supposed to have reigned more than ten years each, at a mean computation, the first historical date cannot ascend beyond the year 1100 after Christ, instead of 1444 years B.C. One of the most remarkable events, after the French had evacuated Siam, is the war against the kingdom of Cambodia, which was reduced to the necessity of seeking the protection of Cochin-China. The Siamese army, having advanced too far into the country, was destroyed by famine; and their fleet, though it destroyed the town of Ponteams, with 200 tons of elephants' teeth, had little success. In 1760 a signal revolution happened in Siam, preceded by violent civil wars between two rival princes. According to Turpin's statement, the Birmans, a people of the kingdom of Ava, had, in 1754, languished five years under the Peguese domination. Having lost by death their
their king, queen, and most of their princes, they lamented their humiliation and servitude, and anxiously sought for a deliverer. With this view they selected one of their companions, named Manlong, a gardener, who, singularly qualified for the office they devolved upon him, by corporeal and mental endowments, undertook to rescue them from the yoke of tyrants, on condition of their cutting off the heads of all the little fabulent tyrants whom the Peguese had sent to oppress them. They readily submitted to his terms; and after the massacre, Manlong was proclaimed king. Having prepared a force, and established a discipline which rendered the Birmans almost invincible, he began by the capture and complete ruin of the city and port of Siriam, which took place about the year 1759; and advancing to Martavan and Tavil, the new monarch received information of the riches of Siam, and formed the desir of its conquest. He began by sending 30 ships to pillage the cities of Mergui and Tanaferim, and this success led him to flatter himself that he should be able, with great ease, to subdue the whole kingdom of Siam. The court of Siam, hearing of this irruption, sent to the bishop of Tabraca, to request that he would arm the Christians, who amounted only to the number of 100, and yet acquitted themselves with greater honour than the puffedimalious multitude. The Birman sovereign, being at the distance of three days' march from Yuthia, the capital, died in consequence of an abeyce. The subhurs, however, on the Dutch quarter were ravaged and burnt; and the surrounding country was exposed to a thousand cruelties. The death of Manlong delivered the Siamee capital; the young efl of his sons having assumed the sceptre, found himself under the necessity of regaining his own kingdom, in order to stifle any revolt. The Siamee sovereign, however, having rashly pronounced a sentence of death against the faoujeur of his brother, was forced to abdicate the throne, and in consequence of this event he became a Talapoin, or monk, in May 1762, and many of his nobles followed his example. Siam remained in a state of security, upon the report that the new prince of the Birmans had been dethroned upon his return to A v a; and that his elder brother, who had succeeded, had no wish to make conquests. This pacific monarch dying suddenly, a pretence of war was afforded by the affiance which the Siamee had given to a rebel Birman governor. In January 1765, the Birmans attacked Mergui and took it; and then proceeded to Tanaferim, which they reduced to ashes. Flushcd with success, the general of the Birmans marched against Yuthia, not doubting that the conquest of the capital would induce other cities to submit. The provinces on the north-west of the royal city were ravaged; and the inhabitants saved themselves from death or slavery by dijperion into forests, where they participated the food of wild beasts. The Siamee, threatened with speedy and total destruction, reunited their forces; but though they fought with ardour, their languid defeat subjected their country to the power of their conqueror. The fields, ravaged by the confuming flames, preferred nothing to them but ashes, and famine became more terrible than war. The victorious Birmans built, at the confluence of two rivers, a town, or rather a fortified station, which they called Michoug. The Siamee, on their part, attempted to fortify the capital, and earnestly solicited the affiance of two English vessels which happened to arrive. The captain of one of them contented to defend the capital, on condition of being supplied with cannon and ammunition: but the jealous Siamee infaith that he should first lodge his merchandizes in the public magazine. With this condition he complied, and going on board his ship, harased the enemy, and destroyed their forts, so that every day was marked either by their defeat or flight. But demanding more ammunition, the daftardly court became afraid, that the English captain, with his single ship, would conquer this ancient monarchy. Its indignant captain withdrew, after feizing six Chinese vessels, whose officers received from him orders upon the king of Siam to the amount of the merchandizes which had been lodged in the public treasury. Upon his retreat, the Birmans, finding no opposition, spread universal desolation, and configned even their temples to the flames. Instead of recurring to arms, the superfluous monarch and his minions repented their whole confidence in their magicians. A Siamee prince, indeed, who had been banished to Ceylon, raised a little army, and returned to the affiance of his country; but the disunited court of Siam sent forces to oppose their deliverer. Many of the Siamee, justly provoked by this conduct, joined the Birmans, who in March 1766 again advanced, after having been repulsed by the English captain, to within two leagues of the capital. In September 1766, the Birmans feized a high tower, at the distance of about a quarter of a mile from the city, and raised a battery of cannon, which gave them an absolute command of the river. In this state of urgent danger, 6000 Chinese were charged with the defence of the Dutch factory, and of a large adjacent temple. The Birmans, in consequence of previous skirmishes and a subsequent assault, feized on five considerable temples, which they converted into fortresses; but in another assault they were compelled to retire. The Siamee officers, eager to secure the magazines of grain, as a future resource, produced an immediate famine which, followed by a contagious disorder or pestilence, occasioned the most dreadful devilation. The Dutch factory was in vain defended by the Portuguese and Chinese; and after a siege of eight days, it was taken and reduced to ashes. The whole Christian quarter of the city shared the same fate; and the virgins were obliged to marry the first young men that presented themselves, in order to be protected by the matrimonial tie, which the Birmans reverence. The Birmans, demanding an unconditional surrender, assaulted the city, and captured it on the 28th of April 1767. The wealth of the palaces and temples was consumed by the flames, or abandoned to the soldiery. The golden idols were melted; and the victors, finding that their avarice had been sacrificed to their fury, recurcd to acts of violation and cruelty. The great officers of the kingdom were loaded with irons, and condemned to the galleries. The king, attempting to escape, was massacred at the gate of his palace. When nothing remained for these conquerors to destroy, they refumed their march to Pegu, accompanied, among other captives, with the remaining princes and princesse of the royal blood of Siam. In June the Birmans quit Siam, after having burnt the town of Michoug, soon after its construction.

When the Birmans evacuated their conquest, the Siamee fled from their forraits, and superfluously directed their first rage against their gods, for having abandoned them to a destructive enemy. Availing themselves of the wealth which accrued from the statues, filled by superfluous perfons with gold and silver, who expected to find them when they revisited this world, they proceeded to elect a leader; and Phai-Thai, an officer of acknowledged ability, was the object of their choice. This new prince displayed considerable bravery and talents; and in the year 1768 suppressed a rebellion that was infligated against him. The Birmans in vain attempted to renew their incursions into the Siamee territory: they were repulsed, and afterwards obliged to turn their arms against the Chinese, who were defeated in their turn. For further particulars with regard to the history of Siam, see Birman Empire. Indeed, if the Birman empire maintains
maintains its present extent. Siam, we can have little doubt, will ere long be deprived of its independence. But it is an event not, perhaps, less probable, that the Burman empire itself will fall into confusion, and be disemboweled.

Everything we are told respecting the government, the laws, the literature, the arts, and personal qualities of the Siamese, indicates a corresponding state of advancement with that of the Burmans. That the religion of the Siamese is the same with that of the Burmans, and derived from the same origin as that of the Hindus, there seems to be sufficient evidence. Somonnodaen, mentioned by Loubere as the chief idol of Siam, is interpreted by competent judges to be the same with the Buddha of Hindoostan. The sacred language called Pali is of the same origin: the most esteemed book seems to be the Vina, and the precepts of morality are chiefly five: one, not to kill, not to steal, not to commit uncleanliness, not to lie, and not to drink any intoxicating liquor. Loubere has given a translation of a more minute code of morals, chiefly compiled for the use of persons dedicated to religion, whom he calls Talapoons. Their laws are said to be in high reputation all over the East; and it is not certain, whether, like those of the Burmans, they are of Hindu, or of indigenous birth. Their system of legislation is represented by all writers on this country, as extremely severe in its sanctions; death or mutilation being punishments of unspeakable of offences. The Siamese imitate the Chinese in their festival of the dead; and in some other of their rites. The government of Siam is despotic, and the sovereignty, as among the Burmans, is revered with honours almost divine. The succession to the crown is hereditary in the male line. The population has not been accurately ascertained, nor have we any documents for this purpose. Allowing to the Burman empire more than fourteen millions, as some have estimated, the Siamese dominions may probably be peopled by about eight millions. However, Loubere assures us, in his time, that from actual enumeration, there were only found, of men, women, and children, 1,000,000. Loubere says that the Siamese had no army, except a few royal guards; but Mandello estimated the army, which may be occasionally raised, at 60,000, with no less than 3000 or 4000 elephants. The navy is composed of a number of vessels of various sizes, which display a singular fantastic elegance, like those of the Burmans; and naval engagements frequently occur. The revenues of this sovereignty are of uncertain computation. Mandello describes several races arising from the third of all inheritances, from trade, conducted by royal agents, annual presents from the governors of provinces, duties imposed on commerce, and the discovery of gold, which seems to be a royal claim. Tin is also a royal metal, except that found in Junjkelyon, which is abandoned to the adventurers. Loubere adds a kind of land-tax, and other particulars, among which is the royal domain.

Siam appeared to the French, in the reign of Louis XIV., to be of considerable political importance; for this monarch was ambitious of forming permanent settlements, by rendering it a rich mart of Indian commerce. If we had any apprehension that the Burmans would become dangerous to our pollexions in Bengal, our alliance with Siam might be highly serviceable. In a merely commercial point of view, as it may be difficult to preserve the friendship of both the Burmans and the Siamese, it is not easy to determine from which state superior advantages might be derived. If directed by European policy, Siam would form frict alliances with the more easterly states of exterior India, as a common defence against the growing preponderance of the Burmans.

As to the manners and customs of the Siamese, as they have embraced a branch of Hindu belief, they are rather Hinduistic than Chinese; though its formation is centred between the vast countries of China and Hindoostan. Loubere has given a detailed account of the Siamese ceremonies. The females are under few restraints, and marry at an early age, and are paid parturition at forty. Marriages are conducted by female mediation, and a priest or magnetist is usually consulted concerning the propriety of an alliance. On the third visit the parties are considered as wedded, after the exchange of a few presents, without any further ceremony, civil or religious. Polygamy is allowed, more from embellishment than any other motive; and one wife is always acknowledged as proper. Royal marriages, from considerations of pride, are sometimes ineffectual; nor does a king hesitate to espouse his own sister. Divorce is seldom practised; but the rich may chuse a more compliant wife without dismaying the former. Few women become nuns, till they are advanced in years. The Siamese funerals resemble those of the Chinese. On this occasion, the Talapoons sing hymns in the Pali tongue. After a solemn procession, the body is burnt on a funeral pile of precious woods, erected near some temple; and the magnificence of the spectacle is enhanced by theatrical exhibitions, in which the Siamese are said to excel. The tombs are pyramidal, and those of the kings are large and lofty. The common food of the Siamese consists of rice and fish; they also eat lizards, rats, and several kinds of insects. The buffaloes yield rich milk; but butter would melt and become rancid; and cheese is unknown.

In Siam little animal food is used; the mutton and beef being very bad. The doctrine of Buddhism inspires the Siamese with horror at the effusion of blood. The houses are small, and constructed of bamboo, upon pillars, in order to guard against inundations, which are common. The palaces only exceed common habitations by occupying a wider space, and being constructed of timber, with a few ornaments. They are also more elevated, but have never more than one floor. With regard to their persons, the Siamese are rather small, but well made. The figure of the countenance, says Kempter, both of men and women, has less of the oval than of the lozenge form, being broad, and raised at the top of the cheek; and the forehead suddenly contracts, and is almost as pointed as the chin. Their eyes, rising towards the temples, are small and dull; and the white is commonly completely yellow. Their cheeks are hollow; mouth very large, with thick pale lips, and teeth blackened by art; the complexion coarse, brown mixed with red, to which the climate greatly contributes. From this description the Siamese appear to be much inferior in personal appearance to the Burmans; and to approach rather to the Tartarie or Chinese features.

The dress of the Siamese is light, clothes being rendered almost unnecessary by the warmth of the climate. A mufflin shirt, with wide sleeves, and a kind of loose drawers, are almost the only garments of the rich, a mantle being added in winter, and a high conic cap upon the head. The women use a scarf instead of the shirt, and the petticotes of painted canvas; but with this light dress they are extremely modest.

The Siamese are said to excel in theatrical amusements; the subjects being taken from their mythology, and from traditions concerning their ancient heroes. Their ordinary amusements consist of races of oxen, and those of boats, the combats of elephants, cock-fighting, tumbling, wrestling, and rope-dancing, religious processions, illuminations, and beautiful exhibitions of fire-works. The men are generally very indolent, and fond of games of chance; while the
the women are employed in works of industry. Although the Siamese are industrious, they are ingenious, and some of their manufactures deserve praise; nevertheless, the ruinous and depopulating war of the government crushes industry by the uncertainty of property. They are little skilled in the manufacture of iron or steel, but excel in that of gold, and sometimes in miniature painting. The common people are mostly occupied in procuring fish for their daily food, while the superior classes are engaged in a thriving traffic.

The language of the Siamese, called "Thay," according to Dr. Leyden's account of it (Asiatic Researches, vol. x. p. 244.), appears to be in a great measure original; but there is reason to conjecture, that it is not different from that of the Burmans. To this purpose it is alleged, that Siamese dramatis personae used to perform in the Burman dominions, which is not probable, unless the language were common. Dr. Leyden says, that it is more purely monosyllabic, and more powerfully accented, than any of the Indo-Chinese languages. It certainly is connected, in some degree, with some of the Chinese dialects; especially the Mandarin or Court language, with which its analogies, as well as some other terms, coincide, but these are not very numerous. It borrows words freely from the Balis, but contrasts and disguises more the terms it adopts, than either the Rukheng or the Burman. It is a very defective original, and the mode of expressing esteem and adulation, this language resembles the Chinese dialects, with which also it coincides more nearly in construction than either Burman or Rukheng. Its construction is simple and inartificial, depending almost solely on the principle of juxta-position. Relative pronouns are not in the language; the nominative regularly precedes the verb, and the verb precedes the subject which it governs. When two sublative verbs come together, the last of them is for the most part suppos'd to be in the genitive. This idiom is confonnant to the Malayu, though not to the Burman or Rukheng, in which, as in English, the first sublative has a possessive signification. Thus, the phrase, a man's head, is expressed in Burman and Rukheng, by bu-la-huang, which is literally man-head; but, in Siamese, it is kua-khon, and in Malayu, kapala orang, both of which are literally head-man. A similar difference occurs in the position of the accented with an active verb, which can be in Burman and Malayu generally precedes the verb, as tumming cha, literally rice eat; but in Siamese follows it, as keng kaw, literally eat rice, which corresponds to the Malayu, makan-nafi. The adjective generally follows the sublative, and the adverb the word which it modifies, whether adjective or verb. Whenever the name of an animal, and, in general, when that of a species or class, is mentioned, the generic, or more general name of the genus to which it belongs, is expressed with it, as often happens in the other monosyllabic languages, as well as in the Malayu. In the position of the adverbial particle, the Malayu often differs from the Siamese; as Mana pargi, literally where go, but in Siamese, pai bhei, go where. The Siamese composition is also, like that of the Burman, a species of measured prose, regulated solely by the accent and the parallelism of the members of the sentence; but in the recitative the Siamese approximates more nearly to the Chinese mode of recitation, and becomes a kind of chant, which different Brahmins admired. Dr. Leyden is very similar to the mode of chanting the Samaveda.

The Thay coincides occasionally, even in simple terms, both with the Burman and Malayu; but these terms bear so small a proportion to the mass of the language, that they seem rather the effect of accident or mixture, than of original connection.

The Thay or Siamese alphabet differs considerably in the power of its characters from the Balis; though it not only has a general resemblance to it in point of form, but also in the arrangement of the character. The vowels, which are twenty in number, are not represented by separate characters, but by the character corresponding to the short akar, variously accented; excepting the vocalic ru and lu, which are only variations of the r and l consonants. The consonants are thirty-seven in number, and are not arranged by the series of five, like the Deva-nagar and Balis, but the first series, ka, consists of seven letters; the second series, cha, of six; the third series, ta or da, of five; the fourth series, ba or pa, of eight; the fifth series, ja, of four; and the last series, ja, of six, including the vocalic akar, though two of them are not in common use. Each of these letters is varied by sixteen simple accentuations, and by thirty-fix complex ones. The letters ka, nga, ta, or da, na, ma, ba or pa, are also final consonants. Hence it is easy to perceive the near approximation of the Siamese to the delicacy of the Chineze accentuation; while in other respects, the alphabet is considerably more perfect, than in the Burman or Court language of the Chineze, which has neither the same variety of consonants, nor admits so many, in the close of a syllable. The Siamese pronunciation, even of consonants, corresponds very imperfectly to the European mode: r and l are generally pronounced n in the close of a syllable; b is often prefixed to a consonant; but from the total suppression of the voice in pronouncing syllables which terminate in a consonant, no aspiration can be pronounced after them; ma and ba, sa and sby, are often difficult to be distinguished in pronunciation, as are ja and ja, kye and chye, with other combinations. From this circumstance, many combinations of letters are pronounced in a manner somewhat different from that in which they are written.

The first European who attempted the study of the Siamese literature, was the learned German, but his labors have never been published. The learned and indefatigable Hyde procured from the Siamese ambassador at London, an imperfect copy of the Siamese alphabet, which has been published by Greg. Sharpe, in the "Syntagma Dissertatioum," 1767. It is inferior to La Loubere's alphabet in accuracy, though it contains a greater number of compound characters. La Loubere's alphabet contains three forms of the qa, corresponding to the Nagari; but the bha and bha, being diffused in common pronunciation, are commonly omitted both in the alphabet and in modern MSS.

The Siamese or Thay language contains a great variety of compositions of every species. Their poems and songs are very numerous, as are their Chetiras, or historical and mythological fables. Many of the Siamese princes have been celebrated for their poetical powers, and several of their historical and moral compositions are still preferred. In all their compositions, they either affect a plain simple narrative, or an unconnected and abrupt style of short, pithy sentences, of much meaning. The books of medicine are reckoned of considerable antiquity. Both in science and poetry, those who affect learning and elegance of composition, sprinkle their style copiously with Bali. The laws of Siam are celebrated all over the East, and La Loubere has mentioned three works of superior reputation, the Pra-Tam-non, the Pra-Tam-Ra, and the Pra-Raja-Kam-manot. Of these, the first is a collection of the institutions of the ancient kings of Siam; the second is the constitutional code of...
of the kingdom, and contains the names, functions, and privileges of all the officers; the third, which is about 150 years old, contains additional regulations. Of these, the first is the most celebrated and the most deserving the attention of Europeans.

The Thay exhibits considerable variety of measures in conjunction, and frequently introduces several of them in the same manner as is frequently done in Bithynia, Parthia, and Sikkim competitions. The most frequent measure, however, among the Thay, as among the Rukhsang and Barma, seems to be that described in Raj, which consists of four long syllables, but admits occasionally of one or more intercalary short ones: the Jam, which consists of five syllables, the Chod-hang of six, the Lhathamang of seven, the Jelurata of eight, are also frequently employed. The Siamese are not deficient in literature, and their modes of education are well explained by Loubere.

From Mandello we learn, that the commerce of the capital of Siam consists in cloths imported from Hindostan, and various articles from China; in exports of jewels, gold, benjoin, lacca, wax, tin, lead, &c. and particularly dear-flax, of which more than 150,000 were sold annually to the Japanese. Rice was also exported in great quantities to the Asiatic Isles. The king was, by a rumious policy, the chief merchant, and had factors in most of the neighbouring countries. The royal trade consisted in cotton cloths, tin, ivory, faltpetre, rack, and skins sold to the Dutch. A late writer informs us, that the productions of this country are prodigious quantities of grain, cotton, bennjamin; fandal, akindig, and Japan woods; antimony, tin, lead, iron, load-flax, gold, and silver; saphires, emeralds, agates, crystal, marble, and tambac. Siam, in respect of fertility, loco-position, and productive labour, possesses commercial advantages of the fame nature with those of the Birman empire; but on the coast at least, the climate is far from being healthy.

The two first months of the Siamese year, corresponding with our December and January, form their whole winter; the third, fourth, and fifth, belong to that portion which is called their little summer; and the seven others to their great summer. As they lie north of the line, their winter corresponds with ours, but it is almost as warm as a French summer. Their little summer commences their winter; autumn is unknown in their calendar; the winter is dry, and is distinguished by the course of the wind, which almost constantly blows from the north, and is refreshed with cold from the snowy mountains of Thibet, and the bleak wastes of Mongolia.

We have already described this country as a wide vale between two high ridges of mountains; but compared with the Birman empire, the cultivated land is not above half the extent either in breadth or length. Lays indistinct more than the Birman, the agriculture of the Siamese does not extend far from the banks of the river, or its branches; so that towards the mountains there are vast aboriginal forests filled with wild animals, whence they obtain the skins which are exported. The rocky and variegated shores of the noble gulf of Siam, and the fire and magnificence of the Melan, confpire with the rich and picturesque vegetation of the forests, illuminated at night with crowds of brilliant fire-flies, to inspire strangers with admiration and delight.

The soil towards the mountains is parched and infertile; but on the shores of the river consists, like that of Egypt, of a very rich and pure mould, in which a pebble can fearfully be found; and the country would be a terrereal paradise, if its government were not so despotic as to be reckoned far inferior to that of their neighbours the Birman. Rice of excellent quality is the chief product of their agriculture; wheat is not unknown, pulse and other vegetables abound, and man is supplied in their gardens.

The fertility of Siam depends in a great degree, like that of Egypt on the Nile, on their great river Menam, and its contributory streams; for an account of which, see MEIUMAN.

Of the lakes of this country little is known. A small one, however, lies in the east of the kingdom, which is the source of a river that flows into that of Cambodia. It possesses extensive ranges of mountains, including the kingdom on the east and west, and we have already referred. A small ridge also extends from east to west, not far north of Yenam, called by Loubere Tarananum. The forests of the country are large and numerous, and produce many valuable woods. Its chief animals are elephants, buffaloes, and deer. The elephants in particular are distinguished for their sagacity and beauty; and those of a white colour are treated by the Siamese with a kind of adoration, as they believe the soul of each is royal. Wild beasts, tigers, and monkeys, are numerous. The reports of the mineralogy of Siam are various. Mandello, or rather his translator Wegequart, who added, about the year 1670, the accounts of Pegu, Siam, Japan, &c. informs us, that Siam contains mines of gold, silver, tin, and copper; and Loubere suggests, that they were anciently more diligently wrought, as the ancient pits indicate; not to mention the great quantity of gold, which must have been employed in richly gilding the idols, pillars, cedings, and even roofs of their temples. In his time no mine of gold or silver, worth the labour of being wrought, could be found. The mines chiefy wrought by the Siamese were those of tin and lead. The tin, called "calin" by the Portuguese, was sold throughout the Indies; but it was soft and ill refined. Near Louvo was a mountain of lead-stone, and another of inferior quality in Junkfiiion; which, see Pinkerton's Geog. vol. ii.

The Siamese, though of a melancholy turn, have no objection to lively music. They have often parties on the water, which they render very pleasant by a number of voices, and the clapping of hands, with which they beat time.

The instrument in the highest favour with them produces a sound similar to two violins perfectly in tune, played at the same time. But there is nothing more disagreeable than its diminutive, the kit of this instrument, which is a kind of rebec, or violin with three brahs flings.

Their copper trumpets very much resemble, in tone, the cornets with which the peasants of France call their cows. Their flutes are not much sweeter. They make likewise a kind of carillon with small bells, which are lively, and not disagreeable, when not accompanied by their iron drum, which flaps every one that is not accustomed to its noisy harpsheas. They have drums made of terra-cotta, a baked clay, with a long and very narrow neck, but open at the bottom: they cover the drum with a buffalo's hide, and beat it with the hand in such a manner, that it serves for a bass in their concerts. Their voices are not disagreeable, and if we were to hear them sing some of their airs, we should not be displeased. Laborde.

Siam, a name sometimes given to the country above described. See JUTHA, and the preceding article.

Siam, Gulf of; a large bay of the East Indian sea, between Cambodia and the peninsula of Malacca, having to the north Siam.

SIAMOILE, a town of Hindooftan, in the Carnatic; 13 miles N. of Nellore.

SIAMAPA. See CHAMPA.
SIAN, Sceio, or Cio, a town of Africa, in Melinda.

SIANCAS, a town of South America, in the province of Tucuman; 30 miles E.S.E. of St. Salvador de Jujui.

SIANDUPADA, a town of Hindoostan, in Myfore; 13 miles S.W. of Bangalore.

SIANELLY, a town of Hindoostan, in Myfore; 13 miles S.W. of Bangalore.

SIANG, a city of China, of the second rank, in Quang-fi. N. lat. 27° 58'. E. long. 109° 41'.

SIANG-CHAN, a town of China, of the third rank, in Tche-kiang; 25 miles S.E. of Ning-po.

SIANG-HIAN, a town of China, of the third rank, in Hou-quang; 40 miles S.W. of Tchang-tcha.

SIANG-TAN, a town of China, of the third rank, in Chan-f; 20 miles S.E. of Ting.

SIANG-YANG, a town of Corea; 28 miles N.N.W. of San-pou.

SIANG-YN, a town of China, of the third rank, in Hou-quang, on the Heng river; 27 miles N.N.W. of Tchang-tcha.

SIANKE, or SYNKE, in Natural History, a name given by the people of some parts of the East Indies to the caryophyllus, or clove-ipece. The people of the Moluccas, according to Garcias, call it "chanque," which is only a small difference of pronunciation. The Turks and Persians call the same ipice "calafur."

SIAO, in Geography, a town of China, of the third rank, in Kiang-nan; 22 miles W. of Pefu.

SIAO, an island in the East Indian sea, about 30 miles in circuit, which belongs to the sultan of Ternate. The Dutch maintain in this island a corporal, a few soldiers, and a school-master for the instruction of the children of the natives. It abounds with provisions. N. lat. 2° 44'. E. long. 123° 5'.

SIAO-CHAN, a town of China, of the third rank, in Tche-kiang; 17 miles N.W. of Chao-king.

SIAO-HE-CHAN, a town of Chinefe Tartary. N. lat. 37° 54'. E. long. 120° 34'.

SIAO-HO-TCHAN, a town of Chinese Tartary. N. lat. 41° 43'. E. long. 121° 42'.

SIAO-NON-HOTUN, a town of Chinese Tartary. N. lat. 41° 24'. E. long. 126° 50'.

SIAO-PI-HOTUN, a town of Corea. N. lat. 40° 24'. E. long. 125° 26'.

SIAO-TEIN, a river of China, which runs into the Eastern sea, N. lat. 37° 21'. E. long. 118° 44'.

SIARA, a small town of Brasil, and capital of a district or captnicity of the same name, so called from a river which rives in the mountains, and discharges itself into the ocean in S. lat. 3° 30'. The captnicity is small, not being above 54 miles in compass. It has two fortresses, one on the north, joining to the town of Siara, and situated on a small hill on the right side of the fave of the river, which is so shallow as to admit only small vessels; and the other, called Fort St. Luke, situated on the coast, at the mouth of a small river, navigable only by barks. This district abounds in cotton, fugar, tobacco, and Brasil wood, the usual staples of the country. The trade of the town, consisting chiefly of fugar and tobacco, is considerable. S. lat. 3° 15'. W. long. 58° 40'.

SIABREHUI, a town of Hindoostan, in the Carnatic; 3 miles N.E. of Udegherry.

SIARMAN, a town of Persia, in the province of Ma-

zanderan, on the Calpian fea; 12 miles E.S.E. of Ferra-

bad, or Farahat; which see.

SIAS, a river of Russia, which runs into lake Ladoga, near Sialkoi.

SIASKOI, a town of Russia, in the government of Peterburg, near lake Ladoga; 24 miles N.E. of Nova Ladoga.

SIATGONG, a town of Hindoostan, in Bahr; 20 miles S. of Bahar.

SIATON, a town on the south coast of the island of

Negroes. N. lat. 6° 21'. E. long. 125° 3'.

SIH, a town of Arabia, in the province of Mafcat; 30 miles W.N.W. of Mafcat.

SIABA, a small island in the East Indian sea, near the south coast of Mindanao. N. lat. 6° 36'. E. long. 125° 25'.

SIÉ, or SOB, called also Ibe or Sohe, in Ancient Geography, a people of India, on this fide of the Ganges, and one of the firft nations that encountered Alexander on the banks of the Acmeines.

SIBALD DE WERT, in Geography. See Falkland Islands.

SIBALDES, a cluster of islands near the coast of Patagonia. S. lat. 50° 53'. W. long. 59° 35'.

SIBATTA, a town of Japan, in the island of Niphon; 15 miles S.E. of Nambu.

SIBAU. See SEBO.

SIBB, a diftric of the Perfian empire, in the province of Mekran, governed by a chief, who resides in a small town of the fame name. It confists of a very extreme plain, through the centre of which flows a river, nearly dry, in the bed of which are several groves of date-trees; but the country, generally speaking, is quite barren.

SIBBA. See SEBBA.


Gen. Ch. Cal. Perianth inferior, of one leaf, cut half way down into ten segments; its bafe erect; segments spreading, half-lanceolate, equal in length, permanent, the intermediate ones narrowefl. Cor. Petals five, ovate, inserted into the calyx. Stam. Filaments five, capillary, shorter than the corolla, inserted into the calyx; anthers small, obtuse. Fil. Germans five, ovate, very short, in the bottom of the calyx; styles from the middle of one fide of each germen, the length of the flamen; stigmas capitulate. Peric. none, the closed calyx sheltering the Seds, which are five, somewhat oblone.

Obi. The ptils were found by LINNAEUS to be fometimes, though very rarely, doubled in number, on the fame plant with other flowers that had only five. They appear to vary from five to ten.

Elf. Ch. Calyx in ten segments. Petals five, standing on the calyx. Styles from the bafe of each germen. Seeds five, in the bottom of the calyx.

25. t. 6. f. 1. Scotch Cinquefoil; Pet. herb. Brit. t. 41. f. 71.—Leaflets wedge-shaped, three-toothed. Native of the summits of the highest mountains of Lapland, Scotland, Switzerland, Siberia, and North America. Tournefort gathered it also in Cappadocia. The plant thrives best in a moauldering mucous soil, flowering in June and July. The root is perennial and woody, throwing out many short, spreading, leathy, herbaceous, round, downy flods, which are slightly branched, and procumbent, except sometimes at their flowering extremities. Leaves on long stalks, whose base bears a pair of oblong, acute fiped, like thole of a rose; their leaflets three, on short, flat parts, wedge-shaped, inclining to ovate, green, hairy, entire, except their three large terminal teeth. Flowers in small terminal leafy corymbs, inconspicuous, with minute yellow petals and filaments, inserted into the thickened rim of the green leafy calyx. Seeds dry, hairy. We have noticed in Fl. Lapp. (C Knutsen's t. 242. f. 3. cited by Linnaeus, and recently copied by Pursh, belongs rather to the Petasitf puberula; nor does this figure, in essential points, resemble Sibbaldia.


3. S. altaeae. Large-flowered Sibbaldia. Linn. Suppl. 131. Willd. n. 3. "Pall. Act. Petrop. for 1773; 526. t. 18. f. 2." (S. n. 42, var. J; Gmel. Sib. v. 3. 187.)—Leaves in numerous linear segments. Stems slightly branched. Petals roundish-heart-shaped. Found by Pallas very abundantly on the rocks of Dauria. The stems are cut, and about three inches high, slender, often simple, and slightly leafy. Flowers, especially their petals, three or four times the size of the leaf, of which nevertheless Gmelin, and at one time Pallas himself, thought this plant a variety. SIBBENS, or STEVENS, in Medicine, and in particular diseases, of a chronic nature, somewhat resembling phyllyps, prevalent in the western parts of Scotland. It is said to denote from the appearance of a fungous exu-erhence from some of the cutaneous spots, not unlike a raspberry; the word fibres, or flised, being the Highland appellation for a wild raspberry. Whence it has also been sometimes confounded with pea, a disease of tropical climates, brought from Africa, and so denominated by the Negroes from the same fruit. See Framboeia and Yaws.

This malady is not of ancient date in Scotland. The first writer on the subject was Dr. Gilchrist, who, in the year 1765, distributed a short description of the fibres among the people of Ayshire, which was afterwards published by the Philosophical Society of Edinburgh. (See Essays and Observations Physical and Literary, vol. ii. art. 11.) According to tradition in the Highlands, the disease was introduced there by the soldiers of Oliver Cromwell, who laboured under the venereal disease, when garrisoned in that country. From thence it is said to have been carried to Dumfries by a party of soldiers, who had been stationed in the north Highlands; and it is perfectly as-terned, according to Dr. Paterson, that it was introduced into Ayshire, about the year 1745, by people who went thither from Dumfries to buy cattle. Since that period it has constantly prevailed in different places in that district, at different times; sometimes abating so much, that even in some instances, as to give hopes that it would entirely disappear; then breaking out again with greater violence, generally in the harvest season, and spreading over several parishes. (See Dr. Paterson's Letter, in Beddoes's Contributions to Physical and Medical Knowledge, p. 408.) At its first appearance, it occasioned little uneasiness or apprehension to those affected with it; but it was found discovered to be a formidable disease, resembling in character the venereal disease, and to be propagated extensively by its contagion. In such a manner, as Dr. Gilchrist expressed it, 'great are the perplexity and distress, the ful- pision and terror, caused by it, wherever it comes; and hitherto nothing has been able to prevent the spreading of it.' The disease differs, however, materially from lues venera, though it is cured by the same remedy; the poison being introduced into the system not through the medium of the organs of generation, but commonly by the mouth and throat, in which the primary ulcerations occur.

The fibres almost always begins with an inflammation of the throat, first on the uvula and velum postcum of the palate, and afterwards on the tonsils, of a dark red colour, which is succeeded in one or two days, and sometimes more quickly, by small pimples, or vesicles, which terminate in ulcers, with a white surface, and red abrupt edges. There is often also an aphthous appearance, or a series of white specks and sloughs, upon the roof of the mouth, and inside of the cheeks and lips, which commonly figs itself also at the corners of the mouth, in a small rising of the skin, of a pear or whey-colour; upon which part also a small fungous excrescence often appears, not unlike a raspberry, which changes to a scab, and is a pretty sure sign of the disease, although there be no aphtha or sore throat. The uvula is sometimes destroyed by the ulceration; and children at the breast, when thus affected in the mouth and throat, have perished from hunger, not being able to suck or swallow.

In a little time the constitution is contaminated by the absolutions of the poison, and a series of secondary symptoms appears. In some, and especially in adult persons, dark red spots, or sometimes fungous excrescences, arise about the anus and perineum, which gradually increase and ulcerate. But the most common appearances are eruptions of a pulular character on the skin, containing, however, little fluid, and soon terminating in a dry scab, surrounded by a livid margin, and ultimately in ulceration. In some, and especially in children, these eruptions occupy chiefly the belly, groins, and sides, and are sometimes seen on the face. The ulcers, into which they pass, usually make but small progress, not exceeding in general the point of the finger in fume, and being irregular in their forms, and pretty clean, with slightly inflamed edges. In some instances, however, they have been seen to become confluent, and to unite into one large foul ulcer over a great part of the abdomen, ex- haling a most intolerable and peculiar fume. In some children, indeed, the whole scalp has gangrened, and the ears have nearly fallen off. Smaller ulcers have also formed on the breast and face, covered with a purulent flough, remaining inert, without pain or inflammation, and seldom increasing in size.

In other cases, where the primary symptoms have been moderat,
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moderate, and have subided, the secondary symptoms, affecting the skin superficially, assume different shapes. The whole surface of the body, Dr. Gilchrist says, has been observed to be mottled, of a dusky copper colour, or a dirty hue, as the discolourings of the skin in this distemper commonly are. Infants of the month have had a redness in the lower part of the belly, buttocks, thighs, and part of the legs, where sometimes it terminates abruptly in a ring. In some of these there was an inflammation, and a watery shining swelling of the pudenda. A more certain appearance in such subjects somewhat older are broad red patches, as large as the palm of the hand, over all the trunk, as well as the limbs, attended with inflammation. A clatter, or clutters, of small pustules come out; the skin grows dry, and peels off, leaving a new tender skin beneath; and this will happen a great many times, sometimes in one place, sometimes in another. Scabby eruptions are often met with on the scalp, fore-head, inside of the thighs, groins, and parts contiguous; where frequently small hardnefles, rifing just within the skin, excite a very troublesome itching. Besides the inflammation and excrections about the fundament already noticed, other appearances of the distemper present themselves on the breast, shoulders, and elsewhere, especially a fort of herpes excedens, or spreading tetter, healing in one part, while it breaks out in another adjoining, and leaving a great deformity of the skin, after it cicatriz. In a few cafes, an eruption of tubercles occurs upon the face, rather numerous, and in figure and figure resembling the small-pox at the height, but being of a reddish colour. These are attended with great heat and tumour of the face, so as sometimes to close up the eyes. In some cafes they have spread thickly over the whole body, and suppurated, not unlike the confluent small-pox, and have even proved fatal, as the swelling subided; but in others, where not so numerous, they gradually decay, without coming to suppuration. In some persons there is a swellling of the surface, without any appearance of tubercles; in which cafe, the cuticle exfoliates from time to time in fine white reticulated flakes, as often as it is renewed. In other cafes, tubercles arise from small bright red spots, of a more intense redness than those just mentioned, which in some places become confluent, and form a flat smooth elevation, which soon becomes of the usual colour of the skin, and sometimes slightly ulcerates. The face, too, is often affected with different kinds of eruption, sometimes alone, and sometimes together with the rest of the body.

Where the distemper attains still greater malignity, larger boils appear difperfed over the arms, shoulders, face, legs, and feet, which suppurate, and form ulcers, which penetrate to the muscular parts, laying them quite bare, and seeming even to corrode them superficially. These ulcerations are of a high florid colour, with scarcely any discharge upon their surface, except a little ichor, which renders them exquisitely tender and painful, and fiercely bearing the mildest applications. Their edges are hard and ragged, their size various, and their appearance very malignant; so that Dr. Gilchrist says, when viewed singly, they might have been mistaken for real cancers, but the number of them, the manner of their coming out, and other circumstances, soon determine the distemper to which they belong.

There is one symptom, not yet particularly described, but from which the distemper takes its name, which remains to be mentioned. An itchy tetter, or a fort of ring-worm, breaks out in a circular form, which either spontaneoufly, or from being scratched, becomes raw and excoriated, and does not cael, but continues to ooze out an ichorous hu-

mour. In a short time a fungous excrecence sprouts up, much like a raspberry or strawbery, elevated one half above the surface, and, when fully formed, appearing as if felt in a pocket cut in the flesh exactly to receive it. Sometimes, however, a black scab forms, crumbling over the fores, except at the edges, where there is a crack or ring, like the line of fracture between a mortified and a sound part, from which the fame fort of ichor constantly oozing. By degrees this crack enlarges towards the centre, and the scab, being pulled off, gives place to the fungus just described. In other cafes, these fungous excrecences are preceded by a dark or grey scurf, resembling the scaly leprosy. These parts are the seat of an intense itching, and when they are excoriated by scratching or rubbing, the fungus has room to sprout up. These fores occupy every part of the body, and many of them are seen in the same subject at the same time; but the excrecences do not always sprout up, and are more commonly produced in the fores which never form a scab, than in the scabby or scaly ones. The fungus is rather indolent than tender to the touch, and its colour is not remarkably different from that of the fungus of other fores.

The fibbens very rarely affects the bones, and then only by extending from the soft parts, and perhaps never attacks the large and more solid bones. In several cafes, the teeth, with their sockets, have been lofl, and fome of the bones of the cheeks and nofe have come away, and a portion of the cartilaginous separafion of the noftrils has been destroyed by the distemper. Several perfons die in a flate of hectic, from the very extensive ulcerations, before the bones could be materially affected.

Cafes of Sibbens.—This distemper has been principally prevalent among the lower ranks of the people in Scotland, though not exclusively; for fome families of good condition have lofl their children by its attacks. The distemper affects the young and adult perfons equally; but perfons advanced in years appear to be lefs liable to the infection. Children, however, and women, from their more irritable frame, are most fitceptible of it.

The distemper is commonly communicated by the direct conveyance of the infectious matter by some species of contact, and generally through the medium of the mouth; whence the primary symptoms appear in the mouth and throat, as before described. "It is propagated," Dr. Gilchrif obferves, "by using the fame fpoons and knives, and wiping with the fame cloth, which the infected have ufed, without cleaning or washing them; drinking out of the fame glaf or cup; fmoaking with the fame pipe; feeping with the infected, or in the fame bed-clothes they have lain in, and handling their fores; by locking or giving fuch, faling, or killing, and fondling children, or feeding them in an uncleanly way." Dr. Gilchrif adds, that it is completely proved, that the fibbens is propagated chiefly by these inattentions to cleanliness, by this circumstance, that "it has never got footing among thofe of better fafhions," nor in towns, where, excefs with the very bowling, greater attention to cleanliness is generally observed; and that it was unknown among the more cleanly inhabitants of the Englih border, while it occurred at Dumfries, and along the Scottish boundary. Another proof was deduced from the more frequent occurrence of the distemper after autumn, which was thus accounted for. "A company of reapers is made up of very different people, brought together from all parts; they eat and drink promiscuously out of the fame cups and dilies; and a few fpoons are made to ferve a good many, by putting them round from one to another. The fame is done with a pipe
pipe in smoking. When the body is warm, and the pores open, the tender tips of the lips and mouth is most exposed to receive the infection, which, the heat, in labours, will render more active and apt to be communicated. A girl, who had the thrush to a great degree, at the tables, read the disease through a whole parish, where it was not formerly seen.

Contagious as this fact are not usually communicable by effusion; but it seems to be believed, by those who have witnessed the progress of fibbens, that it may be propagated without actual contact. Dr. Gilchrist says, "nor is it unlikely, that in certain circumstances, the breath may become contagious;" implying, however, his want of positive evidence on the subject. But Dr. Pateron allers, that "it is a fact so astonishing, that the breath of people, labouring under the sore throat, is loaded with infection, and communicated the disease, without the contact of objects." Beddoes' Contributions, loc. cit.

It will be obvious, from the preceding detail of the symptoms and causes of fibbens, that it is the result of a morbid point, operating felt locally, and afterwards constituting a disease, or producing phenomena, exceedingly analogous to those of the venereal disease. There is also the farther analogy, as we shall see, that the cure is effected principally, if not exclusively, by mercury; whereas several writers, and apparently Dr. Gilchrist among the rest, have deemed it a modification of syphilis. It was found discoverd, says the writer, "to be of the venereal kind, or the foul disease." Dr. Pateron, however, has pointed out several circumstances which mark a difference between the two.

In the first place, he observes, the venereal disease was common in Scotland long before the fibbens appeared; and he had never been able to trace the latter to any person affected with syphilis. Secondly, it is much more infectious than common syphilis, for it seldom gets into a family without infecting every person in it, and frequently spreads rapidly over a village. If the common sense were to spread in a similar manner, its progress in all large towns would be truly dreadful. Thirdly, the fibbens is a more purely cutaneous or superficial affection than the common lues, for it very rarely indeed occasions buboes, and almost never affects the large bones. And, lastly, the fibbens is much more readily cured than the ordinary form of syphilis; for a much less quantity of mercury removes blotches and extensive ulcers, than is required to cure the secondary symptoms of syphilis, contracted in the ordinary manner. Its ordinary commencement in the organs of déglutition, and its never appearing in a primary form on the genitals, nor being propagated by contagion, appear also to establish a distinction between the two maladies.

Cure of Fibbens.—We have partly anticipated this subject in the preceding paragraph, where we have stated that mercury is found to be the specific remedy. It appears that, like syphilis, the disease is perhaps never cured by the unassisted efforts of the constitution; and that mercury, as in the other affection, does not fail to cure it, except in those deplorable cases, where, from the long continuance of the disease, hectic symptoms have come on, and the constitution is so broken down as to be unable to bear the remedy.

It seems to be a well ascertained fact, too, that, of all the preparations of mercury, the corrosive sublimate, or oxyminurate, is the best adapted for the cure of fibbens; that is, it cures it more speedily, and with equal certainty with any other mercurial preparation. This circumstance also constitutes a point of distinction between the two maladies, and may arise, according to Dr. Pateron's suggestion, from the fibbens being a more superficial or cutaneous affection than syphilis. Dr. Gilchrist, however, considers it better to adopt the ordinary dose of mercury, though not carried to the extent of high salivation. For the purposes of forcing regularly by mercury in cold, without which, he finds, it often fails, and the symptoms return, rendering a secondary course of medicine necessary. He frequently says, that the disease is prevented of slight administration of the remedy, that it will sooner or later return with greater force, or in a worse form; and that it is only to be treated by a regular course of medicine, judiciously adapted to the feverish degree and continuance of the malady.

As to the active preparation of the disease in Scotland was held in the ordinary practice which prevailed among the lower classes of the people, I shall mention the last. It is eating and drinking, pulling the hands from the mouth to the mouth, rubbing in the face, using the hand towel, &c.; for the most effectual check to the propagation of the malady was to be expected from a system of prevention, which consisted in adopting a more decent and cleanly proceeding. Dr. Gilchrist recommends the persons employed in harness work, each to carry with him a dith, cup, knife, spou, and a cloth to wipe with, that all the parties to eat not with the same utensils, and transact their consumption to one another. He also strongly urged the improbity of admitting that common familiarity, which every one claims by custom to kids and kindred children, and especially to deny it to strangers, and those of low rank. By attending to these, and similar means of prevention, the disease appears to have been materially controlled, and its prevalence diminished.
flated at 5350, and the breadth at 1960, which extent exceeds that of Europe. The vast country of Siberia, says Mr. Tooke, contains, by calculation, upwards of 105 millions of square versts, comprehending within it several kingdoms, taken by roving Kozaks (Coffacks) on their own account, and then surrendered to the tzar, who completed the conquest; at present this country consists of several of the most extensive governments. The farthest eastern boundary is that of Afia, and the seas of Kamtchatka and Ochotok, and the northern is the Arctic ocean. On the W. the frontiers correspond with those between Afia and Europe, and the southern limits may be rated more at large in the following manner: The river Cuban, part of the Caucasian chain, and an ideal line, divide the Russian territory from Turkey and Persia. The boundary then ascends along the north of the Caspian through the steppe or desert of Isfin, and the eastern shore of the river Ob, to its course in the Altai mountains, where it meets the vast empire of China, and proceeds among that chain to the sources of the Onon, where it includes a considerable region called Daouria, extending about 200 miles in breadth, to the south of the mountains called Yablonnoy; the limit between Russia and Chinefe Tartary being partly an ideal line, and partly the river Argoon, which joined with the Onon constitutes the great river Amur. Thence the boundary returns to the mountainous chain, and follows a branch of it to a promontory on the north of the mouth of the Amur.

The population of Asiatic Russia may be regarded as primitive, except a few Russian colonies recently planted; and the Techaks in that part which is opposite to America, suppos'd to have migrated from that continent, in their persons and customs are different from those of the Asiatic tribes. Next to the Techaks, most remotely north, are the Yukagirs, a branch of the Yaku's, and further west the Samoyedes. South of the Techaks are the Koriaks, and further south the Kamtchadales, who are a different people, and speak a different language. The Lamutes are a branch of the Mandchures or Tungules, who are widely diffus'd between the Yenific and Amur, and the southern tribes, ruled by a khun, conquer'd China in the 17th century. The Ovlaks, and other tribes of Samoyedes, have penetrated considerably to the S. between the Yenific and the Irific, and are followed by various tribes of the Mangusils, as the Kalmucks, Burats, &c. and by those of the Tartars or Huns, as the Tosuts, Kirguses, and others. The radically different languages amount to seven, independently of many dialects and mixtures.

The vast extent of northern Afia was first known by the name of Sibir, or Siberia; but the appellation is gradually passing into diffuse. When the Mangusils establish'd a kingdom in these northern regions, the first residence of the princes was on the river Tura, on the site of the town now called Tumen, about 180 miles S.W. of Tobol'sk; but they afterwards removed to the eastern shore of the Irific, and there founded the city of Ilker near Tobol'sk. This new residence was also called Sibir, of unknown etymology, and the name of the city pass'd to the Mongolia principality.

Although this is doubted by Coxe, Pallass says that the ruins of Sibir are still visible 23 versts from Tobol'sk, and that it gave name to the rivulet Sibirska, and the whole of Siberia. When the Russians began the conquest of the country, they were unappreciated of its extent; and the name of this western province was gradually diffus'd over the half of Afia. The principality establish'd by the Mongusils under Sheibuni in 1242 in the western part of Siberia, around Tobol'sk and the river Tura, from which it has been sometimes called Tura, has been already mention'd. The actual conquest of Siberia commenced in the reign of Ivan Vassilievitch II., who ascended the Russian throne in 1534. Induced by the prospect of establishing a traffic for Siberian furs, he determined to undertake the conquest of the country, and in 1538 added to his titles that of Lord of Sibir, or Siberia. Yarmak, a Collack chief, being driven, by the Russian conquests in the south, to take refuge, with 6000 or 7000 of his followers, near the river Kam, afterwards marched down the Ural chain, defeated the Tartar Kutchun, khan of Sibir, and pressed forwards to the Tobol and the Irific, and also to the Ob, and in this astonishing expedition, subjugated Tartars, Vogules, and Oflaks. Finding it impossible to maintain and complete his conquests with his small army, he surrendered them in 1591, by a formal capitulation, to the tzar Ivan Vassilievitch, who nobly redeemed his magnanimity and exertions. This conqueror of Siberia, however, did not live to witness the full accomplishment of this enterprise. He died in 1584: and after his death the discovery and conquests which he had made were prosecuted by regiments of Donkoi Collacks, sent thither for that purpose, as far as the eastern ocean and the mountains of China; and in the middle of the 17th century this whole part of the world had become a Russian province. A person, whose name was Cyprian, was appointed first archbishop of Siber in 1621, and at Tobol'sk, where he resided, he drew up a narrative of the conquest. About the middle of the 17th century the Russians had extend'd east as far as the river Amur; but Kamtchacta was not finally reduced till the year 1711. Behring and other navigators afterwards proceeded to discover the other extensive parts of Afia. In his first voyage of 1728, Behring coasled the eastern shore of Siberia as high as latitude 67° 18', but his important discoveries were made during his voyage of 1741. The Aleutian isles were visit'd in 1745; and in the reign of the emperors Catharine II. other important discoveries followed, which were completed by captain Cook. In the south the Mongol kingdom of Kazan was subdu'd in 1552, and that of Altakhan in 1554, and the Russian monarchy extended to the Caspian sea. In 1727, after previous conflicts, the Russian limits were continued westward from the source of the Azoton to the mountains Sahambas, near the confluence of two rivers with the Yenifici; the boundary being thus ascertained between the Russians and the Mongols subject to China. The trade with China has been conducted at Zuruchaiou, on the river Argoon, N. lat. 50°, E. long. 137°, and at Kychta, about 90 miles S. of the sea of Baikal, N. lat. 51°, E. long. 160°. This boundary between two states is the most extensive on the globe, reaching from about the 65th to the 145th degree of longitude; 80° (lat. 50°) yielding, by the allowance of 39 geographical miles to a degree, 3120 miles.

The most curious antiquities in Siberia seem to be the stone tombs which abound on some flespe, particularly near the river Yenifici, representing in rude sculpture human faces, camels, horsemen with lances, and other objects. Here are also found, besides human bones, those of horses and oxen, with fragments of pottery and ornaments of drefs. The most singular ancient monument in Siberia is found on the river Abakan, not far from Tobol'sk, being a large tomb with rude figures.

The religion of the Greek church, which is professed by the Russians, has made no great progress in their Asiatic dominions. Many of the Tartar tribes in the S.W. are Mahometans, and others are votaries of the superstition of Dalai Lama. But the religious sentiments of the Schamanists are the most prevalent; particularly among the Tartars, Finns, Samoyedes, Oliaks, Mandchurs, Burats, and Tun.
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gues; and they have been adopted by the Koriaks, Tchuka, and people of the eastern tribes. On the eastern coast of the sea of Baikal is the rock of the Schamans, an island of a peculiar shape; whilst the Schamanians admit one chief infernal deity and his subalterns, authors of evil, who also believe in one supreme uncreated beneficent being, who commits the management of the universe to inferior deities, and they delegate portions of it to subaltern spirits. See Schamans.

The archipelagic fee of Tobolsk is the metropolis of Russian Asia in the north, and that of Astrakhan in the south. There is another fee, that of Irkutsk and Nertchinsk, and some others of more recent origin.

Siberia is divided into two great governments, those of Tobolsk in the west, and Irkutsk in the east. The smaller provinces are Kolivan, Nertchinsk, Yakutsk, and Ochotchik. In the S.W. is the government of Caucaucus, with one or two other divisions, blending Europe and Asia.

The population of Siberia cannot be computed at above 3½ millions. The political importance and relations of this part of the Russian empire principally relate to China and Japan. The manners and customs of Aiatric Russia vary with the numerous tribes by whom it is peopled. The Tartars are the most numerous: next to their importance are the Mongols, one tribe of whom, viz. the Kalmucks, are found to the W. of the Capan, while the others, called Burats, Tartars, &c. are chiefly round the sea of Baikal. Further to the east are the Mandchous or Tunguses. See these denominations respectively.

The languages of all the original nations of Aiatric Russia are radically different; and among the Tunguses, Monguls, and Tartars, there are some traces of literature, and not a few MSS. in their several languages.

The principal city of Aiatric Russia is Astrakhan, which fee. Azof (which fee) derives its importance chiefly from its being a fortified port. The chief towns on the Aiatric side of the Volga, are Samara and Stauropol. At the mouth of the river Ural, or Jak, stands Gurief; but the chief place after Astrakhan is Orenburgh, founded in the year 1740, and the seat of a considerable trade with the tribes on the E. of the Capan. Beyond the Uralian chain the first city that occurs is Tobolsk; which fee. Kolyvan is a town of some consequence on the river Ob, having in its vicinity some silver mines of considerable produce, and north to this is Tomik. Further to the E. the towns become less of consequence. On the river Yenisey is a small town of the same name, and another called Sayanik. On the river Angara stands Irkutsk, supposed to contain 17,000 inhabitants, the chief mart of the commerce between Russia and China, and the seat of supreme jurisdiction over eastern Siberia. On the wide and frozen Lena stands Yakutsk; which fee.

The chief commerce of this part of the Russian empire consists in fables and other valuable furs; for which the Chinese return tea, silk, and mankeen. That with the Kirguses consists in exchanging Russian woolen cloths, iron, and household articles, for horses, cattle, sheep, and beautiful sheep-skins. On the Black sea there is some commerce with Turkey, the exports being furs, kavior, iron, linen, &c. and the imports wine, fruit, coffee, silks, rice. In the trade on the Capan the exports are the same, and the return chiefly filk. The principal Russian harbours are Astrakhan, Gurief, and Kifir, near the mouth of the Terek, but the chief haven is Baku, belonging to the Persians. The Tartars, on the east of the Capan, bring the products of their country and of Bucharia, as cotton-yarn, furs, fluffs, hides, and rhubarb; but the chief article is raw filk from Shirvan and Ghanan, on the W. of the Capan.

In Aiatric Russia the climate extends from the vine at the bottom of the Caucasus, to the solitary beetle on the shores of the Arctic ocean. Through the greater part of Siberia, the most southern frontier being about 50°, and the temperature according to 78°, the general climate may be considered rather as frigid than temperate; being in three quarters of the country on a level with that of Norway and Lapland, untouched by the gales of the Atlantic. To the S. of Baikal, the climate corresponds to that of Berlin and the N. of Germany. The chains of high mountains, which form the southern boundary of these provinces, contribute also to increase the cold; so that the sea of Baikal is commonly entirely frozen from December till May. The finest climate in these eastern parts is that of Daouria, in the province around Nertchinsk; and the numerous towns on the Amur enjoy the great superintendence of what is called Chinese Tartary, which is comparatively a fertile and temperate region. The change of the seasons is very rapid; the long winter is almost insensibly succeeded by a warm spring; and the quickness and luxuriance of the vegetation exceed description.

The greater part of Siberia, that is, the middle and southern latitudes of it, as far as the river Lena, is extremely fertile, and fit for every kind of produce; but the northern and eastern parts, being encumbered with wood, are destitute of this advantage, being unfit both for pasturage and culture. The whole of this part, as far as the 60th degree of N. latitude, and to the Frozen ocean, is full of bogs and morasses covered with moss, which would be absolutely impassable, if the ice, which never thaws deeper than seven inches, did not remain entire beneath it. In the central parts vegetation is checked by the severe cold of wide a continent. Towards the S. there are vast forests of pine, fir, larch, and other trees, among which is a kind of mulberry, which might thrive in many climates that are now destitute of it. The sublime scenes around the sea of Baikal are agreeably contrasted with the marks of human industry, the cultivated field and the garden. Many parts of Siberia are totally incapable of agriculture; but in the southern and western districts the soil is remarkably fertile. North of Kolyvan barley generally yields more than twelve-fold, and oats commonly twenty-fold. Exclusive of winter wheat, most of the usual European grains prosper in southern Siberia. In some parts flax grows wild, and hemp is prepared from the nettle. Wheat is found in Siberia, and falcon near the Caucasus. The beet rhubarb abounds on the banks of the Ural or Jak, southern districts being watered by the Yenisey, and in the mountains of Daouria. But it is not possible that agriculture should flourish while the peasantry are slaves, and sold with the soil. Nevertheless, an intelligent traveller was surprised at the abundance of buckwheat, rye, barley, oats, and other grain which he observed to the S. of Tobolsk; where the cattle were also very numerous, and in the winter fed with hay. The large garden strawberry, called hautbois, is found wild in the territory of Irkutsk; and on the Altai mountains the red currant attains the size of a common cherry, ripening in large bunches of excellent flavour. Near the Volga and the Ural are excellent melons of various kinds.

Some of the largest rivers of Asia belong to the Russian empire; such as the Ob, of 1900 British miles in course; the Yenisey, about 1750; and Lena, 1570. To these we may add the Irtysh, the Angara, the Schiega, the Yaks, &c. The lakes of this country are numerous. The most considerable in the north of Siberia is that of Pazaik; that of Baikal, derived under that article; a large lake between the rivers Ob and the Irtysh, 170 miles long, divided by an island into two parts, called the lakes of Tchany and Soum.
In this quarter there are many smaller lakes, and others to the N. of the Caspian, some of which are salt, particularly that of Bogdo. To these we may add the Altan Nor, or golden lake, and the lake of Atyn, called by the Russians Telelako. The mountains are the Uralian, the Altai, Bogdo Alim, or the Almighty mountain, Sinai-Sepka, Schlangenberg, which is the richest in minerals, the Sayanik mountains, the mountains of Nerfinka and Russian Daouria, the chain of Stanvooi or mountains of Ochotlik, and Cauca-

tina. For the corners of Russia, see STEPPY.

Siberia has hitherto been found to possess scarcely any genera of plants; and even all the species of any considerable importance, are those trees which are common to it with the north of Europe. Under the head of the zoology of Asiatic Russia, we may enumerate the rein-deer, which performs the offices of the horse, the cow, and the sheep; the dogs of Kamtschatka, which are used for carriage; the horse, which is found wild, a species of afs, the urus or bison, the argali or wild sheep, the ibex or rock-goat, large flags, the mulk or civet, and wild boar; wolves, foxes, and bears; the fable, several kinds of hares, the catlor or beaver, the walrus, and the common seal. But it would be superfluous to enlarge. Siberia is so rich in zoology and botany, that, as Mr. Pennant observes, even the discovery of America has scarcely imparted a greater number of objects to the naturalist. The mineralogy of Siberia is equally fertile, and displays many singular and interesting objects. The chief gold mines of Siberia are those of Catherinburg or Ekatherinburg, on the E. of the Uralian mountains, about N. lat. 57°; the mines of Nerfinka, discovered in 1704, are principally of lead, mixed with silver and gold; and those of Kolyvan, chiefly in the Schlangenberg, or mountain of serpents, so called by the Germans, began to be wrought in 1748. The gold mines of Beredof are the chief in the empire; those of Kolyvan and Nerfinka being denominated silver mines. Besides the copper mines in the Uralian mountains, there are fome in those of Altai. But the iron mines of Russia are of the most solid and lasting importance, particularly those which supply the numerous founderies of the Uralian mountains. Rock-fall is chiefly found near the Ilek, not far from Orenburg. Coal is scarcely known; but sulphur, alum, fa ammoniac, vitriol, nitre and patron, are abundant. Siberia possesses a variety of gems, particularly in the mountain Adunfotto, near the river Argoon, in the province of Nerfinka or Daouria. Common topazes are found here, and also the jacinet. The kind of jade called mother of emerald is a Siberian product; and beryl or aqua marina is found in Adunfotto, and in greater perfection in the gem mines of Mourintfsky, near Catherinburg, along with the chrysolite. Red garnets abound near the sea of Baikal. The rubycoloured fchior has been discovered in the Uralian mountains. The green fespar of Siberia is a beautiful ftone, and carved by the Russians into a variety of ornaments. The Daourian mountains, between the Onon and the Argoon, afford elegant onyx. The beautiful ftones called the hair of Venus and Thetis, being limpid rock crystals containing capillary fchior, red or green, are found near Catherinburg. The alliance ftone consists of a greyish porphyry, united, if gned together, with transparent quartz. Great quantities of malachite have also been found in the Uralian mountains; one piece of which is said to have weighed 107 pounds, or 3852 pounds. Siberia affords the beautiful red and green Jasper; and lapidaries are found near Baikal. The Uralian chain presents fine white marble; and in the numerous primitive ranges there are many varieties of granite and por-
phry. The chief mineral waters of Russia are those of Kamtschatka.

The islands belonging to Asiatic Russia may be distributed into the Alcuitan, Andrenovian, and Kurilian groups, with the Fox islands, which extend to the promontory of Alaska in North America. See these articles respectively. For further particulars respecting Siberia or Asiatic Russia, see RUSSIA. See also Cosse's Russian Discoveries; Tooke's Rufl. Emp.; and Pinkerton's Geog. vol. ii.

SIBERIAN KOZAKS, or COFFACKS, a branch of the Don-
cfki Coffacks, who, inligated by a disposition to roaming and pillage, in the 16th century, abandoned their habitations on the Don, in order to plunder the countries lying eft-
ward. In order to restrain their progrege, Ivan Vasilliefich II., who fat upon the Russian throne, assembled, in the year 1577, a considerable army, and got together a fleet of ships to chaffle these audacious robbes. These hordes, intimidated by these hostile preparations, dispersed and fled into the neighbouring regions. See the preceding article.

SIBERIAN BARLEY, in Agriculture, a hardy fort of grain of the barley kind. See BARLEY.

SIBERIAN OAT, an useful fort of hardy oat brought from that country. See OAT.

It has been found by fome as much superior to the common black oat as the Poland fort is to others. It has the advantages of being capable of being grown with safety in December, and of being fit to cut as foon or sooner than early peas; the produce is greater than the usual forts; and rain, instead of injuring, rather improves the colour, which is of the pied kind. The kernel is plump and large, and the flour to make excellent fodder for live-rock of the next ficle kind.

SIBIDOOLOA, in Geography, a town of Africa, in the flat of Manding, the government of which is a republic, or rather an oligarchy; 40 miles N. of Lilas.

SIBIL-L-MULSIB, a town of Arabia, in the province of Hedjjas; 120 miles N.N.W. of Mecca.

SIBILI, a town of Africa, in the kingdom of Bam-
bara; 25 miles N.E. of Segu.

SIBILI KAOVA, a town of Russia, in the government of Tobolok, on the Irift; 28 miles N. of Tara.

SIBIRIXOA, a town of New Mexico, in the province of Cinaloa; 45 miles N.W. of Cinaloa.

SIBINBAS, a town of Hindootan, in Bengal; 10 miles E.N.E. of Kifhenagur. N. lat. 25° 25'. E. long. 88° 50'.

SIBOCKOO, a town on the E. coast of the island of Borneo. N. lat. 4° 24'. E. long. 119° 12'.

SIBOURNE, a town of France, in the department of the Lower Pyrenees, on a small river opposite to St. Jean de Luz.

SIBRAIM, or SARAHRIM, in Ancient Geography, a place which terminated the land of promise towards the north. Ezekiel says (xlvii. 16.) that this city was between the con-

cesses of Hamoth and Damascus, probably the fame which Abulfeida calls Houverin, a village of the country of Ems, or Hamoth, S.E. of that city.

SIBISIB, in Zoology, an animal of the empire of Moz-
rocco, abounding in the mountains of the province of Sufe; of an intermediate species between the cat and the squirrel, somewhat similar to the ichneumon in form, but not half its size; it inhabits the Atlas, and lives in holes, among the ftones and caverns of the mountains; it has brown hair, and a beautiful tail, resembling that of a squirrel, about the length of its body. The Shelluks and Arabs eat this animal, and consider it a delicacy. This is the only animal which the Mahometans torment before its death, which they do by taking hold of its hind-legs, and rubbing it on a ftone, or flat
flat surface, for a few minutes, which operation causes the animal to scream out. They then cut its throat, according to the Mahometan custom. In take it is laid to resemble a rabbit; but friction, as they pretend, is necessary to render it tender and palatable.

SIBTHORP. John, in Biography, an eminent botanist and traveller, was the youngest son of Dr. Humphrey Sibthorp, professor of botany at Oxford, where the subject of the present article was born, October 28, 1758. He received the first rudiments of his education at Magdalen school, from where he was removed to the school at Lincoln. In due time he entered at Lincoln college, Oxford; but upon obtaining the Redcliffe travelling fellowship, he became a member of University college. Being intended for the medical profession, he was necessarily sent to Edinburgh, to complete that branch of his education; but he took the degree of doctor of physic in his own university. The tale he had early imbued for natural history, especially botany, was cultivated at Edinburgh, and indulged in a tour to the Highlands of Scotland. After his return from thence, he visited France and Switzerland, spending a con siderable time at Montpellier, where he formed an intimacy with the amiable Broussais, (see Paper,) collected many plants of that country, and communicated to the Academie des Sciences of Montpellier, of which he became a member, an account of his numerous botanical discoveries in the neighbourhood. The death of an elder brother of his father, by which a considerable estate devolved on the latter, occasioned Dr. J. Sibthorp to return to England in 1783, when, on his father's resignation, he was appointed to the botanical professorship. For this his Oxford degree of M.D. was necessary. (See Sibthorp, arid Sibthornia.) It was perhaps the last service he expected from it, for he was a favourite son, and had bequest an ample independency of his own in pro sect, from the estate of his mother, who was his father's second wife. These expectations, and his academic appointments, though they releaved him from the calls of his profession, only rivetted more firmly his ardent attachment to botany; his passion for which became, by those appointments, a duty; nor was it ever, to his last hour, dispelled from the task he had undertaken, or to prefer any relaxation, or any indulgence, to this laborious pursuit.

During the stay of professor J. Sibthorp at London, in the winter of 1783, the museum and library of the celebrated Linnaeus were fold, by private contract, to the writer of this article. The professor was commendably defirous of adding to great a treasure to the collections, already famous, at Oxford; but the acquisition depended on a resolute and decisive step, which was already taken, and not on any management or negotiation, to which the person entrusted with the sale was superior. This competition occasioned no interruption in the friendship, but rather then formed, between the parties concerned, which continued increasing during their joint lives.

Dr. Sibthorp passed a portion of the year 1784 at Got tingen, where he projected his first tour to Greece; the botanical investigation of which celebrated country, and especially the determination of the plants mentioned by its classical authors, had, for some time past, become the leading object of his pursuits. He first visited the principal seats of learning in Germany, and surveyed some of its mountains and forests; but it was impossible to quit this part of the world without a considerable stay at Vienna. There he cultivated the friendship of the two professors Jacob, father and son; familiar with peculiar care the celebrated manuscript of Dioscorides, which had so long been preserved in the imperial library; and procured a most excellent draftsmanship of Mr. Ferdinand Bauer, to be the companion of his expedition. On the 6th of March, 1786, they set out for the various ports of Greece, and passed through Carcass to Tripoli, Venice, Pisa, Florence, Rome, and Naples; examining every thing that was curious, and keeping an exact record of their botanical observations. After visiting the celebrated environs of Naples, they let out this city, early in May, and touching at Malta, as well as at the site of Milo, they proceeded to Crete. Here, in the month of June, our botanical expeditions were welcomed by Flora in her gayest attire. The lovely scenery of the Spachicote mountains was withdraw'd, and a tribe of lovely little butterflies were just peeping through the veil.

Having narrowly escaped shipwreck, in returning to Milo by one of the country vessels, Dr. Sibthorp and Mr. Bauer touched successively at several islands of the Archipelago, visited Athens, and remained for a while at Smyrna. Here they traced the steps of Socrates and Hellequin, proceeded, by land to Buria, climbed the Parnassian mountains, and at length reached Constantinople, where they spent the ensuing winter, in the course of which Dr. Sibthorp devoted himself to the study of modern Greek. In a botanical excursion to Belgrad, on the 17th of February, 1787, and another to the jucquerie, March 5, the plants found in flower were entirely the same as are met with, at the same season, in England. Dr. Sibthorp's residence at Constantinople, the neighbouring tribe of Karkis, and his communications with the naturalists of the fishes and birds of those regions, enabled him to throw much light on the writings of naturalists.

On the 14th of March, 1787, having joined our captain with captain Emery and Mr. Hawkins, Dr. Sibthorp and his draughtsman sailed from Constantinople in a Venetian merchant-ship for Cyprus, taking the islands of Mytilene, Scio, Cos, and Rhodes; and touching at the coast of Asia Minor, in their way. A stay of five weeks at Cyprus enabled Dr. Sibthorp to draw up a Flora and Flora of that island. The former consists of 18 Mammalia; 83 Birds, 19 Amphibians, and 100 Fishes; the latter comprehends 616 species of plants. The particular distinctions, domestic and medical uses, and reputed qualities of these last, are amply recorded; and the vernacular names of the animals, as well as of the economical plants, are subjoined. The fame method is pursued, in a subsequent part of this journal, rejecting the plants and animals of Greece, with every thing that could be collected relative to the medicine, agriculture, and domestic economy of that country and the circumjacent islands. The illustration of the writings of Dioscorides, in particular, was Dr. Sibthorp's chief object. The names and reputed virtues of several plants, recorded by that ancient writer, and still traditionally retained by the Athenian shepherds, served occasionally to elucidate, or to confirm, their synonymy. The first sketch of the Flora Greece comprehends about 1200 plants. "Thus," says the author, "may be considered as containing only the plants observed by me in the environs of Athens, on the snowy heights of the Grecian Alp Parnassus, on the steep precipices of Delphi, the empyrean mountain of Hymettus, the Pentele, the lower hills about the Piræus, the olive grounds about Athens, and the fertile plains of Bœotia. The future botanist, who shall examine this country with more leisure, and at a more favourable season of the year, before the summer sun has scorched up the spring plants, may make a considerable addition to this list. My intention was to have travelled by land through Greece; but the disturbed state of this country, the eve of a Russian war, the rebellion of its bailiffs, and the plague at Larissa, rendered my project impracticable." On the Mammalia of Greece,
Greece, 37 are enumerated, with their modern names, 25 reptiles and 82 birds. All these catalogues were greatly augmented by subsequent observations, in so much that the number of species, collected from an investigation of all Dr. Sibthorp's manuscripts and specimens for the materials of the *Prodromus Flore Graece*, amounts to about 3000.

We shall not particularly trace our traveller's steps through Greece, or the various islands of the Archipelago. His health, which suffered from the confinement of a ship, and the heat of the weather, was restored at Athens, where he arrived on the 19th of June, 1787. From thence he proceeded his journeys in various directions, and with various success. The ascent of mount Delphi, or Delphi, in Negropont, in a storm of wind and rain, on the 30th of August, was one of his most laborious, if not perilous, adventures; but his botanical harvest was abundant. With regard to scenery, mount Athos, which he visited a week after, seems to have made most impression on his mind. This spot also greatly enriched his collection of rare plants. From hence he proceeded to Thessalonica, Corinth, and Patras, at which last place he embarked with Mr. Bauer, on board an English vessel, for Bristol, on the 24th of September. After a tedious and stormy voyage, they arrived in England the first week in December.

The constitution of Dr. Sibthorp, never very robust, had suffered materially from the hardships and exertions of his journey. But his native air, and the learned leisure of the univcrsity, gradually recruited his strength. The duties of his professorship were rather a recreation than a toil. The superintendence of his exquisite draughtsman, now engaged in making finished drawings of the Greek animals, as well as plants; and his occasional visits to the Linnean and Bankian herbariums, for the removal of his difficulties; all together filled up his leisure hours. He was every where welcomed and admired for his ardour, his talents, and his acquisitions. His merits procured an augmentation of his stipend, with the rank of a Regius professor; both which advantages were, at the same time, conferred on his brother professor at Cambridge. He became a fellow of the Royal Society in 1789, and was among the first members of the Linnean Society, founded in 1788. In the spring of the year last mentioned, the writer of this, with Sir Joseph Banks and Mr. Dryander, paused a week at Oxford, which was devoted to a critical survey of the professor's Grecian acquisitions; nor was the honey of mount Hymettus, or the wine of Cyprus, wanting at this truly artistic entertainment. But the greater these acquisitions, the less was their poetical satisfacon with them. No one knew, so well as himself, how much was wanting to the perfection of his undertaking, nor could any other person so well remedy these defects. Though lie was placed, a few years after his return, in very affluent circumstancies; and though his necessary attention to his landed property, and to agricultural pursuits, of which he was passionately fond, might well have turned him, in some measure, aside from his botanical labours; he steadily kept in view the great object of his life, to which he finally sacrificed life itself. No name has a fairer claim to botanical immortality, among the martyrs of the science, than that of Sibthorp.

On the 20th of March, 1794, Dr. Sibthorp set out from London, on his second tour to Greece. He travelled to Constantinople in the train of Mr. Lifton, ambassadour to the Porte, and was attended by Francis Borone, of whom an account may be seen at the end of the article Rutaceæ, as a botanical assistant. They reached Constantinople on the 19th of May, not without Dr. Sibthorp's having suffered much from the fatigue of the journey, which had brought on a bilious fever. He soon recovered his health at Constantinople, where he was joined by his friend Mr. Hawkins from Crete. Towards the end of August they made an excursion into Bithynia, and climbed to the summit of Olympus, from whence they brought a fresh botanical harvest. Dr. Sibthorp discovered at Fanar an aged Greek botanist, Dr. Dimitri Argirami, who had known the Danish traveller Forikall, and who was possessed of some works of Linnæus.

Recovered health, and the accession of his friend's company, caused Dr. Sibthorp to set out with alacrity on his voyage to Greece, on the 9th of September. Paffing down the Hellespont, on the 13th, with a light but favourable breeze, they anchored at Kouna Calie, in the Troad, spent two days in examining the plains of Troy, and then proceeded to the isles of Ithmas and Lemnos. On the 25th they anchored at mount Athos, and paffed ten days in examining some of the convents and hermitages, with the romantic scenery, and botanical rarities, of that singular spot, on all which Dr. Sibthorp descend at length, with great delight, in his journal. Their departure was, for some time, prevented, by a few Barbary pirates hovering on the coast, whom these monks, unlike the priests of the Athenian Bacchus, were not potent or valiant enough to defeat, or to turn into dolphins. Our voyagers sailed on the 5th of October, and on the 7th landed at Skiathos. From hence, on the 11th, they proceeded down the strait of Negropont, and on the 15th passed under the bridge of five arches, which connects that island with the main land of Greece. On the 15th, at noon, they entered the harbour of Pyraeus, and proceeded to Athens, where the four succeeding weeks were employed in collecting information relative to the present state of the government, the manufactures, and the domestic economy of that celebrated spot. Here Dr. Sibthorp left his assistant Borone, who perished by an accidental fall from a window, in his sleep, on or about the 20th of October.

November 16th, Dr. Sibthorp and Mr. Hawkins left Athens by the ancient Eleusinian way, while the classical dreams of the Cephalis, the heights of Helicon and Parainis lay before them. They proceeded to Patras and to Zante, where they arrived in the middle of December, enriched with a large collection of seeds, the only botanical tribute that could, at this season, be collected from those famous mountains. An apothecary at Zante furnisdh'd Dr. Sibthorp with an ample and faithful account of the plants of that island, with their modern Greek names; nor did the winter pass unprofitably or unpleasantly in this fequester'd spot; where neither agreeable society, nor copious information relative to our learned travellers' various objects, was wanting. The feast was sufficiently favourable in the middle of February, 1795, to allow them to visit the Morea, of which peninsula they made the complete circuit in some what more than two months. The Violet and Primrose welcomed them in the plains of Arcadia; and the Narcissus *Tazetta*, which Dr. Sibthorp was disposed to think the true poetic Narcissus, decorated in profusion the banks of the Alpheus. The barbarian horde, under whose escort they were obliged to travel, had talle enough to collect nosegays of these flowers. The oaks of the Arcadian mountains presented them with the true ancient Mistletoe, *Loranthus europaeus*, which fill servcs to make birdline; whilst our Mistletoe, *Vifium album*, in Greece grows only on the Silver Fir. May not this circumstance account for the old preference of such Mistletoe as grows on the oak, among the ancient Britons, and consequently help us to trace the origin of their superstitution to Greece? (See Druids.) The Jay, still called by its ancient
SIBThorp.

Secret name _Kiros_, which is generally taken for the Muggle, was swimming among these rocks; and the Water Ouzel, _Sitta vittata_, flying along the rocky sides of the alpine torrents of Arcadia, presented itself to Dr. Sibthorp’s recollection, as probably the White Blackbird, which Aristotle says is peculiar to the neighbourhood of Mount Cyllene. In vain did our classical travellers look for the beauty of Arcadian shepherdesses, or listen for the pipe of the tylban swain. Figures emaciated, and features harrowed, with poverty, labour, and care, were all that they met with. The verdun of the Pachus’s court, with other vermin, who presume to call themselves Christian monks, and whose places are all bought of the Turks, devour the subsistence of these poor people, and drive many of them to a precarious and predatory life among the mountains.

Proceeding to Argos, and thence to Mycenæ, the travellers were highly gratified by finding, on the gate of the latter, those ancient lutes, which Pausanias describes as the work of the Cyclops; and near it the reputed tomb of Agamemnon, a circular building, formed of immense malleus of stone, placed with such geometrical precision, though without mortar, that not one had given way. That which forms the portal is defended by Dr. Sibthorp as the largest stone he ever saw employed in any edifice. A number of fragments of vases, like those commonly called Etruscan, lay among the ruins of Mycenæ. At Hermione, now called Callirhoë, in the Argolic peninsula, famous for the purple dye anciently prepared there, a wall pile of the shell from which that dye was obtained, and still denominated Porphyri, served to ascertain the species, which is _Murex trunculus_ of Linnaeus, figured by Fabius Columba in his rare and learned work, _de Purpurari_, under the name of _Purpuraria nigra violacea_. (See _Purple Fish_.) From this place Dr. Sibthorp and his friend intended to have coasted along the bay of Argos in a boat, but the sea was then infested with pirates, which obliged them to give up that project, and to return by land to Argos, whence they proceeded to Corinth, Patras, and by way of Elis to Pyrgos. Here they obtained another escourt from Said Aga, to whose protection they had before been indebted, and safely reached Calamata, on the gulf of Corone, where they were detained by the celebration of Easter, on the 12th of April, amid a profusion of sky-rockets and crackers. Proceeding in a boat along the barren and raggy shore, covered with bushy and prickly _Euphorbia_, they reached Cardamoula. Here the Greeks are tolerably free from the tyranny of the Turks, and their persons and demeanour exhibit less marks of degen-eracy. Panagiote, a popular character, nephew of the Cherife, came down, with a train of followers, to welcome the strangers, and conducted them to his tower-like castle, where a narrow entrance, and dark winding stair-case, led to a chamber, whose thick walls and narrow loop-holes seemed well prepared for defence. The country of Mishia, though governed by a Bey, is under the control of eight subordinates, but partly independent, native chiefs, who, like our old feudal lords, often make war on each other, when they bring not only men but women into the field. No Turk is allowed to live in this district. The land is extremely hilly, and easily defended. Taygetus, the highest mountain in the Morea, and almost rivalling Parnassus, was ascended by our adventurous travellers; but the quantity of snow, and the great distance, prevented their reaching the summit. Panagiote and fifty of his followers accompanied them, and he displayed his botanical knowledge by shewing Dr. Sibthorp damnel, still called by, among the corn, which he said occasioned dizziness; and a wonderful root, the top of which is used as an emetic, the bottom as a purgative. This proved _Euphorbia Apina_, to which the very same properties are attributed by Dioscorides.

From Cardamoula the travellers were carried by the dependants of this hospitable Greek chief, along a precipitous road, to Mitrea, where they had the unexpected pleasure of meeting a party of their English friends, in the garb of Tartars, with whom they explored the site of ancient Sparta. After returning to Calamata, and returning from the summit of a neighbouring precipice the ruins of Meleager, with the rich plains watered by the Pamisos, and bounded by the hills of Lacoon, Dr. Sibthorp and Mr. Hawkins hastened to Corone, where a Venetian vessel wanted to convey them to Zante, which place they reached on the 25th of April. Here Dr. Sibthorp parted from the faithful companion of his tour, whom he was delineated never to see again, but in whose friendship he safely confided in his last hours. Mr. Hawkins returned to Greece; while the subject of our memoir, leaving Zante on the 11th of May, experienced a most tedious voyage of twenty-four days to Ótranto, though five days are the most usual time for that passage. He touched at the island of Cephalonia, and next at Prevela, on the Greek shore, where being detained by a contrary wind, he employed the 7th of May in visiting the ruins of Neapolis. The weather was unfavourable, and Dr. Sibthorp here caught a fever, and from which he never recovered. It seems to have proved the exciting cause of that disease, which had long been latent in the mesenteric and pulmonary glands, and which terminated in a consumption. Being obliged by the weather to put in at the little island of Panno, May 11th, the violent north-west wind "continued," as he too expressively says in his journal, "to nurse his cough and fever." He was confined to his bed, in a miserable hovel, to which, after frequent attempts to fail, he was driven back fix times by the unfavourable wind. At length, the vessel was enabled to call anchor in the port of Ótranto on the 24th of May. Here he was obliged to submit to a quarantine of three weeks, part of which, indeed, was allowed to be spent in proceeding to Ancona. From thence he sailed through Germany and Holland to England. Of the precise time of his arrival we find no mention. It was in the autumn of 1755, and his few succeeding months were chiefly marked by the progress of an uncoquatable disease, for which the climates of Devonshire and Bath were, as usual, referred to in vain. He died at Bath, February 8th, 1756, in the thirty-eighth year of his age, and lies interred in the abbey church, where his executors have erected a neat monument to his memory.

We have now to record the posthumous benefits which Dr. Sibthorp has rendered to his beloved science, and which are sufficient to rank him amongst its most illustrious patrons. By his will, dated Ashburton, January 12, 1756, he gives a freehold estate in Oxfordshire to the university of Oxford, for the purpose of publishing his _Flora Graeca_, in folio volumes, with 100 coloured plates in each, and a _Prodromus_ of the same work, in 8vo, without plates. His executors, the honourable Thomas Wrausden, John Hawkins and Thomas Platt, esqrs., were to appoint a sufficiently competent editor of these works, to whom the manuscripts, drawings, and specimens, were to be confided. They fixed upon the writer of the preface article, who has now nearly completed the _Prodromus_, and the second volume of the _Flora_. The plan of the former was drawn out by Dr. Sibthorp, but nothing of the latter, except the figures, was prepared, nor any botanical characters or descriptions whatever. The final determination of the species, the distinctions of such as were new, and all critical remarks, have fallen to the lot of the editor, who has also revised the rect.
ferences to Dioecorides, and, with Mr. Hawkins's help, corrected the modern Greek names, which later were unnecessarily taken down but incompletely, from many illiterate and imperfect authorities, on the spot. When these publications are finished, the annual sum of 200l. is to be paid to a professor of rural economy, who is, under certain limitations, to be the Sherardian professor of botany, and who is, very properly, obliged to read lectures, that the appointment may not become a reproach, instead of an advantage, to the university. The remainder of the rents of the estate above mentioned is destined to purchase books for the professor; and the whole of the textator's collections, with his drawings, and books of "Natural History, Botany, and Agriculture," are given to the university. This bequest rivals the munificence of Sherard and of Sloane, in the service of natural science, and has only been exceeded by that of the late Mr. Robertson of Stockwell, whose ill-made will was let aside by the common law of the land.

The only work which professor John Sibthorp published in his life-time is a Flora Oxoniensis, in one volume 8vo, printed in 1794. It has the merit of being entirely founded on his own personal observation. The species enumerated amount to 1200, all gathered by himself, and disposed according to the Linnaean system, with the alterations of Thunberg, which were then new, but which are now not admitted as improvements. The adoption, though imperfect, of Hedwig's genera of Mosses in this Flora, must be esteemed a more fortunate measure. S.

SIBFORPIA, in Botany, was so called by Linnaeus, in compliment to Dr. Humphrey Sibthorp, for about forty years professor of botany at Oxford, and the immediate successor of Dillenius. He is said to have delivered but a single lecture in all that time, which was not a successful one, nor do we know of his having enriched the science with any publication. A short letter from this gentleman, announcing the death of his predecessor, is extant among the Epistolae ad Hollerum. In this he modestly expresses a wish that he were equal to the talk before him. However imperfect his claims to botanical celebrity, his son has conferred more honour on the above name than either of them could derive from it; see the preceding article.—Linn. Gen. 350. Schreb. 418. Wild. Sp. Pl. v. 3. 340. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 667. Prodr. Fl. Grec. Sibth. v. 1. 419. Ait. Hort. Kew. v. 4. 51. Jull. 99. Lam. Illustr. t. 535. Gartn. t. 535—Clas and order. Didymsea Angiosperma. Nat. Ord. Periconae, Linn. Pedicellae, Jull.

Gen. Cal. Cal. Perianth inferior, of one leaf, turbinate, in five deep, ovate, spreading, slightly unequal, permanent segments. Cor. of one petal, bell-shaped, in five deep rounded segments; the uppermost largest, equal to the calyx; two lower ones shorter, and less coloured. Stam. Filaments four, awl-shaped, not half the length of the corolla, scarce visibly unequal, spreading, two at each side, opposite to its lateral stamens; anthers roundish, two-lobed. Pét. Germen superior, roundish, compressed; style cylindrical, very short, thicker than the filaments; stigma peltate. Peric. Capsule compressed, orbicular, notched, swelling at each side, acute at the margin, of two valves and two cells, the partitions from the centre of each valve. Sedis few, roundish-oblong, convex on one side, flat on the other, invested into a globulose central receptacle.


I. S. europae. Sibthorpia, or Cornish Money-wort.

Lim. Sp. Pl. 880. Willd. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 639. (S. profrata; Salib. Ilc. 11. t. 6. Allium purpure pulilla repens, folicis Saxifrage aurea; Rall Sym. 352. Pluk. Phyt. t. 7. f. 6. Cornwall Penny-wort; Petiv. Herb. Brit. t. 6. f. 11.)—Ray observed this curious little plant to be plentiful in Cornwall and Devonshire, on moist banks, and about the margins of rivulets, flowering from June to August, being accompanied by the elegant Campanula hederacea. There several succedent botanists have gathered both. Locley found the Sibthorpia in Portugal, and Mr. Hawkins on the mountains of Crete; but we know not of its having been noticed in any other country. We have seen it completely naturalized on the lawn of James Vere, esq. in his curious garden at Knightbridge. The root is fibrous, perennial. Stems prostrate, creeping extensively, branched, slender and delicate, leafy, hairy. Leaves alternate, filiform, horizontal, kidney-shaped, with thallus fistaft notches, hairy, rather fleshy, about half an inch broad; pale and veiny beneath. Flowers axillary, foliaceous, on short hairy filaks. Corolla of a pale greenish-yellow, with a purplish tinge in the three upper foment.

The S. evolvulacea of Linnaeus's Supplement being a very distinct genus, now known by the name of Dichondra, see that article, the above becomes the only species of Sibthorpia.

SIBU, in Geography, one of the Philippine islands, about 240 miles in circumference. The principalproductions are a species of grain called borona, which serves instead of rice; cotton, tobacco, wax, and civet. This island was discovered by Magellan in 1521. N. lat. 10° 41'. E. long. 123° 30'.

SIBU, Sibu, or Sogbu, a town in the above-mentioned island, containing 5000 houses, the see of a bishop, and residence of a governor. In this town, as some say, Magellan, the celebrated circumnavigator, died. N. lat. 10° 35'. E. long. 123° 44'.

SIBUCO, a town on the west coast of Mindanao. N. lat. 7° 3'. E. long. 122° 10'.

SIBULTIQUE, a river of Mexico, which runs into the Pacific ocean, N. lat. 13° 35'. W. long. 89° 16'.

SIBUYAN, one of the Philippine islands, about 36 miles in circumference. N. lat. 12° 36'. E. long. 122° 22'.

SIBYLS, Sibyl, fupposed to be the same with the Sybilline, supposed to be the same with the Sibyls of the ancient world, as the 9th, 0th, 30th, 33th, 35th, Anti-quit, virgin-prophetesses, or maidsupposed to be divinely inspired; and who, in the height of their enthusiasm, gave oracles, and foretold things to come.

Authors do not agree about the number of the Sibyls, though their existence is allowed, as sufficiently established by antiquity. Capella reckons but two; v. Erophyle of Troy, called Sibylla Phrygia; and Sinuachia of Erythe, called Sibylla Erythrea. Solinus mentions three; v. Cumea, Delphica, or the Sibyl of Sardis, and Erythrea; and of this opinion is Aufonius, who thus describes them;

"Et tres fatidice nomen commune Sibylla, Quasar ternegeminata fatalis carmine libri."

Ælian makes their number four, v. the Erythreaen, the Egyptian, the Sibyl born at Samos, and another of Sardis in Lydia; and Varro increases it to ten, denominating them from the places of their birth; the Perian, called Sabetta by the Persians; Libyan, according to Eupidides, the daughter of Jupiter and Latona; Delphi, named Daphne by Diidorus Siculus, who says that she was born at Thebes in Eudoxia; Cimmerian; Erythreaen, who prophesied to the Greeks, that were going to besiege Troy, the happy succses of
of their enterprise, and who lived, according to Livy, in the time of the Tregu war, as Varro believes, but under the reign of Romulus: Samians, called, according to Sosides, Piltho, or Petitionum, and according to Phulius Epiphanius: Cumaean, named with a variety in some authors, and by others Demophile or Hierophylus, who is said to have offered to Tarquin the Elder a collection of Sibyls verses, in nine books; Heliopolis or Troad, born at Miletus, near the town of Gorga, in Trea, who lived, according to Heracleides, in the time of Cyrus and Sother; Phrygiae, who gave her oracles at Assvr, the place of her residence; and Tiburtines named Albans, and honoured a divinity in the vicinity of the river Anio. Of these, the most celebrated are, the Erythraean, Delphic, and Cumaean Sibyls.

Some modern authors, with regard to the authority of Varro, or of that of the other ancient, are for nothing all the Sibyls in one; so that, according to them, different names were given to one and the same Sibyl from the different places where the utterer of her oracles she first published her predictions in the city of Erythrae, the place of her nativity: then roamed about the world; and closed her life at Cumae, in Italy. Dr. Hyde (De Relig. Persar.) shocked at the contradictions and fabulous adventures with which the Pagans filled the history of the Sibyls, accounts for them in the following manner. He observes in the collection Virgo a bright star, which the Persians called Sambula, denoting, in their language, epica, or an ear of corn; and remarks, that the Persians, who were fond of a lucubratory art, looked on the sign of the Virgin as having a greater power than all the other cephalic bodies, for discovering future events. The Greeks, having learnt the sciences of the eastern nations, soon adopted these trifling opinions, and, agreeably to their genius, embellished them with their fictions. Their poets soon invented a Sibyl virgin, in allusion to the term Sambula, carried her into several countries, and made her act the part of a prophetess. So that, according to this eminent writer, whatever has been said both by the ancients and moderns of the Sibyls and their prophecies, is entirely fabulous. This conjecture, though ingenious, is contradicted by the testimony of antiquity, which allows that there were, in different times and countries, such extraordinary personages, who were reputed to have a particular fore-knowledge of futurity, and whose predictions, carefully collected, were confided upon important occasions. The Persian Sibyl might, indeed, owe her original to the circumstance above-mentioned, but that is no sufficient argument against the existence of other Sibyls. The Romans had the highest and possible veneration for the Sibyl; and if they did not always regard them as divinities, they at least regarded them of a middle nature between gods and men; and some of them received divine honours. Lactanius says, with confidence, that the Tiburtine Sibyl was worshipped as a goddess at Tibur. Some of them had temples. Justin Martyr mentions that of the Sibyl of Cumae, in Italy, built over the cave where she delivered her oracles. Virgil mentions this temple, or rather he considers it as a temple the grotto where the Sibyl delivered her oracles, because in after-times there was one actually built there. "Vocat alta in Tempia Sacerdorum," Æn. i. 6. We may here add, that the inhabitants of Gorga, in the Leper Phrygia, had a custom of representing upon their medals the Sibyl who was born in that city, as being their great divinity. As a farther proof of the worship paid to the Sibyls, they had statues erected to them, which were placed in the temples.

The Sibylline oracles were held in great veneration by the more credulous among the ancients; but they were much suspected by many of the more knowing. The books in which they were written were kept by the Romans with great care; and nothing of them was destroyed without consulting them. Tarquin first committed them to the custody of two particular priests, appointed for that purpose. (See Diodorus Siculus.) Now, whether by whom this collection was made, are circumstances which authors have not ascertained. It is not likely that the Sibyl prophesied in verse, far less that they themselves kept their predictions, and delivered them to order. All that we know concerning them is, that a woman came to Tarquin the Elder, as Varro says, or, according to Pliny, to Tarquin the Proud, offering him a collection of their verses in nine books, or three according to Pliny; and that the demand for them 300 pieces of gold; that when the price or refusal to give that sum, the threw three of them into the fire, and asked the same sum for the remaining six, which being refused, the burned three more, and perfidiously asking the same sum for those that were left: at length the king, fearing that would burn the other three, gave her the sum which he had demanded. Although this story has very much the air of a fable, it is related by many authors; and it is certain that the Romans had in their possession a collection of the Sibylline verses.

These books were carefully kept till the civil wars of Sylla and Marius: when the Capitol being accidentally let on fire, and burnt down to the ground, these books were burnt with it. This happened in the year before Christ 83. But the Capitol being again rebuilt about seven years after this period, the senate determined to restore the Sibylline oracles; and having procured many that were said to be of this kind, laid them up in the Capitol, in order to supply the place and office of those that were lost. However, the books thus obtained had been dispersed in the hands of many, and were, therefore, by being thus vulgarly known, unfit for the use which the Romans proposed to make of them. On this account a law was passed, which required the surrender of them, and prohibited any from retaining copies of them, under pain of death. Augustus, when he assumed the high-priesthood of Rome, revived this law, and destroyed a great multitude of copies which were brought in. Tiberius caused many more to be burnt, and preferred only those which were found most worthy of approbation for that service of the state for which they were originally intended; and to these, as long as Rome remained heathen, they had constant recourse; till at length Honorius, the emperor, A. D. 395, issued an order for destroying them, in pursuance of which, Sulpicius burnt all these prophetical writings, and demolished the temple of Apollo, in which they were reputed. Nevertheless, there is still preferred, in eight books of Greek verse, a collection of oracles, pretended to be the Sibylline. Dr. Cave, who is well satisfied that this collection is a forgery, supposes that a large part of it was composed in the time of Adrian, about the year 150; that others were added in the time of the Antonines; and the whole work completed in the reign of Commodus. Dr. Prideaux says, that this collection must have been made between the year of our Lord 138, and the year 167. It could not be earlier, for mention is made of the next successor of Adrian, i.e. Antoninus Pius, who did not succeed him till the year 138; and it could not be later, because Justin Martyr, in his writings, often quotes it, and appeals to it; and he did not outlive the year 167. Fabricius supposes that this collection does not contain all the Sibylline oracles which were used by the ancient fathers; and that the most ancient Christia
Christian writers, who have quoted the Sibylline oracles, had only a part of the collection which is transmitted down to us. Some of the fathers, not apprized of the imposture, have often cited the books of the Sibyls in favour of the Christian religion; and hence Celsus takes occasion to call the Christians Sibyllists. It must be allowed that St. Clement, St. Theophilus, and some other Greek fathers of the second century, had a much greater respect for the Sibyls than they deserved; for Dr. Lardner says, that he is well satisfied that the Sibylline veres quoted by them are the forgeries of some Christian. The ancient Sibylline veres did not recommend the worship of the one God, condemning all manner of idolatry, as though which are cited by Justin, Theophilus, and Clement. It must be owned, however, that Clement calls the Sibyl a prophetess, and seems to quote her veres as Scripture, in the strictest sense of the word, together with the Scriptures of the Old Testament; so that if there be any books improperly advanced by him into the rank of sacred Scripture, they are the Sibylline books; but Dr. Lardner does not think that he esteemed them of equal authority with the books of the Jewish canon. It is a circumstance that deserves to be mentioned, that the Heathen people knew nothing of thefe Sibylline veres till they were found out, or rather forged, by some Christian, and then incautiously and imprudently recommended by others. Justin Martyr seems to have been the first Christian writer who quoted the collection now existing of Sibylline oracles, or any Sibylline veres whatever, containing the peculiar doctrines of Christianity. The more ancient writers preceding him, who have mentioned the Sibyls, have quoted nothing but what might be found in Sibylline writings among the Heathens. In the collection above-mentioned, which appears, for the chief part of it, to have been a work of the second century, we have many unquestionable evidences that the writer, who calls himself a Christian, was acquainted with the New Testament, and that in several places he recites the same facts in the same or familiar language. The pretended prophecies of this collection are undeniably taken from the New Testament. Whatever was the particular view of the author in composing this work, says Dr. Lardner, and however improperly some ancient writers have produced testimonies from it in their defences of the Christian religion, it is now of use to us, as it affords an argument that our gospels were extant, and in much repute, in the author's time. See farther on this subject, Prideaux's Conn. vol. iv. p. 885, &c. Lardner's Credib. of the Gospel Hist. vol. iv. book i. cap. 29, or Works, vol. ii.

SICAB, in Geography, a town on the north-west coast of the island of Negros. N. lat. 11° 26'. E. long. 123° 2'.

SICAE, in Ancient Geography, a town of Thrace, called in the time of Steph. Byz. Justinian.—Alfo, a town of Afa, in Cilicia.—Alfo, the name of a place in the vicinity of the town of Alexandria.

SICAL, or SISAI, in Geography, a town of Mexico, on the north coast of the province of Yucatan; 60 miles N.W. of Merida.

SICAMUMIN, in Ancient Geography. See CAIPHA.

SICAN, in Geography, a town of Peru, in Khorafian; 15 miles S.W. of Zawian.

SICANDERAB, a town of Hindooftan, in Doob; 36 miles W.N.W. of Pattiyan.

SICANE, in Ancient Geography, a town of Spain. Steph. Byz.—Alfo, a river of Sicily, which runs near Agrigentum.

SICANUS, a town of Spain, according to Thucydides.

SICAPHA, a town of Africa Proper, being one of those which were situated between the two Syrtes. Ptol.

SICARD, CLAUDE, in Biography, a Jesuit missionary, was born at Aubergue, near Marillees, in 1677. He entered into the society of Jesus in the year 1699, and for seven years taught the classics and rhetoric in their schools. He was at length sent on a mission to Syria, and thence to Egypt, where he died at Cairo in 1726. He was a man of deep as well as extensive learning, and an exact observer of what was remarkable in the countries he visited. His first publication was "An easy Method of learning Greek," translated into French from the Latin of Peter Gras, with additions. When abroad, he sent home several curious letters, which were published in the "Nouveaux Memoires de l'Academie de Jesus dans le Levant," in which are likewise published his "Plan of a Work on Egypt, ancient and modern," and a "Dissertation on the Psalms of the Red Sea, and Journey of the Israelites."

SICARI, in Ancient History, a Sibyl of Judea, who went about the country for the accomplishment of their nefarious purposes, with short swords concealed under their clothes. Josphus has described them in the most odious colours. Eleazar, he says, the chief man among them, was a descendant of Judas, who had perfidious not a few of the Jews not to enrol themselves, when Cyrenius the censor was sent into Judea. For then the Sicarii confpired against all who were willing to submit to the Romans. They treated all such as public enemies. But other pretences were professed, in order to cover their cruelty and avarice. These hypocritical villains were hired to murder Jonathan, the high priest, at the instigation of Felix. Accordingly, some of the sicarii, coming up to Jerusalem, with an apparent purpose of worshipping God, and having short swords under their coats, mixed themselves with the multitude, and killed Jonathan. This murder palling unpunished, the robbers afterwards attended the feasts without any seeming concern, and carrying, as before, swords under their clothes, and mixing with the multitudes, killed several people, some of whom they reckoned their enemies, and some whom they were hired by others to destroy. This they did, not only in other parts of the city, but within the bounds of the temple itself. Joseph. De Bell. Jud. i. vii. c. 8. § 1. 5.

SICASICA, or CIASICA, in Geography, a town of South America, and chief place of a jurisdiction of the same name, in the government of Buenos Ayres, 240 miles in extent; 40 miles N.N.W. of Oroiro.

SICAYAP Point, a cape on the north-west coast of Mindanao. N. lat. 8°. E. long. 123° 30'.

SICCA, a town on the north coast of the island of Sumatra. N. lat. 1° 32'. E. long. 110° 40'.

SICCA, La, a small island in the Mediterranean, near the coast of Naples. N. lat. 39° 58'. E. long. 13° 52'.

SICACCOLUM, a city of Hindooftan, in the circle of Condapilly, on the Kithna; 35 miles S.S.W. of Ellore.

SICCAPILLYO, a town of Hindooftan, in Myfre; 25 miles N.N.W. of Chinna Balabaram.

SICCA-VENEREA, KEFF, in Ancient Geography, a town of Africa, situated about five leagues S.W. of Laribus Colonia, and 25 leagues W.S.W. of Tunis. It was built upon the declivity of a hill. Valerius Maximus says, that it had a temple of Venus, at which young females prostituted themselves, in order to obtain a portion that might enable them to marry.

SICCHASIA,
SICCHASIA, a word used by some writers to express that unbelief at the fomach, and loathing of food, which women are often affected with in their pregnancy.

SICCHOS, in Geography, a town of South America, in the audience of Quito; 20 miles W. of Latacunga.

SICCINNIS, in Antiquity, a mixed kind of dance.

SICERA, in the Jews Antiquity. The Hellenistic Jews give this name to a very melancholy liquor. St. Chrysostom, Theodoret, and Theophilus of Antioch, who were Syrians, and who therefore ought to know the signification and nature of ficera, assure us, that it properly signifies palm-wine.

Pliny acknowledges, that the wine of the palm-tree was very well known throughout all the East, and that it was made by taking a bullet of the dates of the palm-tree, and throwing them into three gallons of water; then squeezing out the juice, it would intoxicate like wine.

The wine of the palm-tree is white; when it is drank new, it has the taste of the cocoa, and is sweet as honey; when it is kept longer, it grows strong, and intoxicates. After long keeping, it becomes vinegar.

SICCHAR, in Ancient Geography. See the next article.

SICHEM, or Sichem, called also Neapolis, Siciar, or Sychar, and Mashartha, a town of Judea, in the tribe of Ephraim, which took up the tenth share of Samaria. This town was situated on the summit of a mountain, and became one of the strongest and most celebrated towns of this tribe. It was at this place that Abraham lodged, on his way to Canaan (Gen. xii. 6.); and it afterwards became the abode of Jacob, who bought a field in its vicinity, which he gave to his son Joseph, who was buried there. (Gen. xlvi. 21.) Near the same city was Jacob's well or fountain, at which Jesus dined with the woman of Samaria. (John. iv. 7.) Joshua gave it to the Levites of the tribe of Ephraim, who belonged to the family of Kishath, the first of the Levites; and it was appointed to be one of the six cities of refuge. (Josh. xxvii.) It was at Sichem that Joshua assembled the tribes of Israel (Josh. xvii. 1.), to renew their engagement of fidelity to God. Sichem was destroyed by Abimelech; but it appears to have been afterwards re-established, because it is said (1 Kings. xii. 2.) that Rehoboam came hither, after the death of Solomon his father; and it was fortified and inhabited by Jeroboam. (1 Kings. xii. 25.) After the ruins of Samaria by Shalmaneser, Sichem was the capital of the Samaritans; and Josephus says (Antiq. lib. xi. cap. 8.), that it was in the time of Alexander the Great. It was dilapidated, according to Eusebius and Jerome, 10 or 12 miles from Shiloah, 40 from Jerusalem, and 52 from Jericho. Jerome says, that Paula visited the church built on Jacob's fountain; and others, who wrote in the eighth century, speak of this building; but it is not mentioned by Plutarch, who wrote in the twelfth century. Sichem or Sichar is now Naplofle, or Nebulus; which see.

SICHES, or Siben, in Geography, a town of France, in the department of the Dyle, on the Dreme; 30 miles N.E. of Brussels.

SICHERFREUTH, a town of Germany, in the principality of Bayreuth; 3 miles S.E. of Bayreuth.

SICHILL. See Schilli.

SICILIAN, a river of Ruffia, which runs into the Ochotkoi sea, N. lat. 52° 28'. E. long. 152° 14'.

SICHOU-LO-HOTUN, a town of Corea, in the sea of Japan. N. lat. 42° 20'. E. long. 130° 27'.

SICHROW, a town of Bohemia, in the circle of Boletlaw; 3 miles N.N.W. of Tarnau.

SICHTELLEN. See Sichtellen.

SICHU, a town of Mexico, in the province of Mexico; 15 miles N.N.E. of Mexico. - Also, a town of Mexico, in the province of Guatemala; 15 miles W. of Panama.

SICIGNANO, a town of Naples, in Provincia Cuma; 10 miles W. of Cagnano.

SICILIAN Mignara, Sic., and Vesper. See the last mention.

SICILIANA, in Exodus, a name given by Deodorus, and some other authors, to the great Archelais, called Tarquin, and part-heirs.

SICILIANA, a pastoral movement in a flow metre of 3; The character of this movement requires a point to the foot note of almost every triplet. Nothing is more pleasing than the Sicilian strains of great masters. Handel hardly ever fails rendering them characteristic, touching, and pleasing; such as, "He shall feed the Flock like a Shepherd;" "Let me wander not unseen," etc.

SICILIANE, or PASTORALI, a kind of simple rural music, refounding in Christmas time through all quarters of Naples, and executed by Abruzzole or Calabrian shepherds, upon 2 species of bag-pipes, called in Abruzze zampogna, and ciamemell in Calabria. The tunes vary, according to the provinces: in the south, they have three different airs; the northern shepherds have only two, to which they add any variations which the bolder of their own genius inspires. The boys learn of their fathers to play upon this instrument, as the means of subsistence. The waits, fill kept up in the pay of some corporations in England, are counterparts of these shepherds.

SICILICUM, the name of a weight in use among the ancients; which, some say, was equal to three drachmas of our weight; others say only to two.

SICILY, in Ancient and Modern Geography, an island in the Mediterranean, the largest of all the islands in this sea, being about 150 British miles in length, and 70 in mediad breadth. Swinburne reckons its greatest length at 340 miles, and breadth 133; and places it between N. lat. 36° 25' and 38° 25', and E. long. 12° 50' and 16° 5'. Sicily is separated from the continent by the straits of Messina, which, in some parts, are about four miles broad. (See CHARYBDIS, MESSINA, and SCYLLA.) At Messina, and at the mouth of the straits from the promontories of Pelorus in Sicily and the Lode di Volpa, or Forest Tail, in Calabria, is nearly a mile. Many of the ancient historians and poets have rated this island as formerly joined to the continent, and severed from it, at an unknown period, by some extraordinary convulsion; nor is this opinion at all improbable. Accordingly Pomponius Mela observes, "Sicilia, ut ferunt, aliquando atra Brutto adnexa." To the same purpose Virgil (Aen. i. v. 414.) says:

"Hae loca vi quondam, et falsa convulsa ruina
Diffiliulis ferunt, cum protinus utraque Tellus
Unea fuerat. Venit medio vi pontus et udis
Hesperium ficto latus abscidit.

"Situs Italicus details this event more at large (lib. xiv.):

"Aurorius pars magna jacet Trinacria Tellus
Ut femel expugnata nata, et vallentibus undis
Acceptit freta carules propulsa tridentes,
Namque per occultum caeca vi turbinis olim
Impactuum Pelagos lacerae vestrae terrae
Difciit, et medio pertussus arva profundo,
Cum populus pariter convulsa transubti urbem.

"Claudian affirms positively,

"Trinacria quondam Italica pars fuit."

Pliny,
Pliny, Strabo, Diodorus, and many others, both historians and philosophers, are of the same sentiments, and pretend that the strata on the opposite sides of the straits agree perfectly; and some imagine, that this separation is recorded in the name given to Rhegium, a town of Bruttium. With regard to the breadth of the strait that separates Sicily from Italy, Silius says, ubi supra:

"Sed fpantium, quod difficiat conforia terre,
Latras fama eft (fic arca intervenit unda),
Et matutinos voluere tranfmittere cantus."

And some persons have even affirmed, that not only the crowing of a cock might be heard from one shore to another, but that a strong voice might be heard through this distance. Mariners have asserted that this canal is not two miles broad.

Sicily, on account of its somewhat triangular form, has been called Trinacria, or Trinacia, and Trinquetra. Its ancient name was Sicania, derived from its inhabitants the Sicani; but when the Siculi took possession of the greatest part of the island, it assumed the name of Sicilia. The interior of Sicily is full of mountains. The ancients, proceeding from the west to the east, enumerated the following: viz. Eryx, near the sea and Drepanum, celebrated for a temple of Venus; Crates, towards the north, in which are the sources of the Eleutherus and Himera, and thofe of Hypsa, which flowed towards the south; the Gemelli collas, more fouthward than the chain of Crates, in which is the source of the Camicus, and of other rivers; the Nebrodes, northwards and efl of the preceding; Maro, still more to the efl; the Herce, from south to north, between the sources of the Himera to the west, and thofe of Simethus to the efl; and also the famous mountain Aetna; which fee. Among the rivers of Sicily noticed by the ancients, we may enumerate, on the eastern coaft, the Simethus, which rifes well of Aetna, and fouth of the town called Engyum, runs towards the fouth-eft, receiving in its course the Chryfas, and ditches itself into the sea near to and north of Murgentium; and the Mela, south of the preceding, and running in a ftraight direction from west to efl; and on the fouthern coaft, the Himera, which had its source in mount Artheinus, in the environs of Enna, and flowed into the sea at Phylilia; and the Hypsa, which proceeding from the interior of the island, flowed into the sea near to and eft of Selinus.

The principal places in ancient Sicily are enumerated and briefly described under their appropriate names in different parts of the Cyclopaedia.

Sicily was celebrated among the ancients for its extraordinary fertility. Its mines of lead, copper, and silver, and its variety of stones and volcanic productions, have been recorded by ancient and modern writers; and it has been observed, that the summits of its highest mountains have furnished a great number of different marine productions.

This island has undergone a variety of revolutions: it has been denominated, in very remote times, the island of the Sun, and the land of the Cyclops, and of the Leprygons. It was afterwards called Sicania and Sicily, from the names of its possessors. The Phoenicians also had establishments in this island, and carried on with it a considerable commerce, in the advantages of which the Trojans are said to have participated. The Greeks established themselves in Sicily for the first time after the siege of Troy, and kept possession of it for a long period, forming different republics, and transporting hither their manners and arts, and different opinions, and erecting temples of stone of the Doric order; and in process of time they shared the government of it with the Carthaginians. These new conquerors, who about 510 years B.C. gained possession of it, brought with them their commerce, their arms, and their gods. They occupied the western and northern shores, whilst the Siculi retained the midland country; and the southern and eastern coasts were inhabited by the Greeks. The Mamertines arriving hither from Italy took possession of Messina, and called over the Romans, who, urged by their ambition, wanted only a pretext of taking up arms against the Carthaginians. After a variety of successive contests, they took possession of the island. The Romans occupied themselves for some years in establishing peace, abundance, and even splendour; and they erected during the time of the republic superb edifices of marble; their power and ambition letting no limits to their magnificence. Under their dominion Sicily became more flourishing than it had been in the time of the Greeks, when it was considered as free. The Sicilians, under the government of the Romans, lost their military genius, and these mutual jealousies which served only to accelerate their own destruction. When the Romans made themselves masters of Sicily, they permitted the inhabitants to retain the temples, the deities, and the forms of worship which the Greeks and other nations had established among them, and till the division of the Roman empire, they maintained a certain character of elegance and refinement. But at this period the monuments of antiquity funk into neglect; the arts were no longer held in estimation; and talents disappeared on the accses of ignorance and barbarism. Towards the end of the fourth century, Syracuse was the first town of Sicily that received Christianity, and soon after other towns and the whole country followed its example; and this event was followed by a neglect of their temples and public monuments. The ignorance of the priests, no less notorious than the fervour of their zeal, induced them to make war against the sciences and the arts, that they might thus the more effectually and speedily destroy Paganism, which cultivated them.

The Sicilians, having relinquished all martial ideas during a long series of generations, turned their attention solely to the arts of peace, and the labours of agriculture. Their position in the centre of the empire preferred them from both civil and foreign foes, except in two instances of a servile war. But the rapacity of their governors was a more constant and insupportable evil. In this state of apathy and opulence, Sicily remained till the seventh century of our era, when the Saracens began to disturb its tranquillity. The barbarous nations of the North had previously invaded and ravaged its coasts, but had not long kept possession. The Saracens, however, were more fortunate. In the year 827 they availed themselves of quarrels among the Sicilians to subdue the country; and they chose Palermo for their capital. The Standard of Mahomet triumphed about 1000 years. In 1038 George Maniaries was sent by the Greek emperor with a great army to attack Sicily. He made good his landing, and pushed his conquests with vigour, and, aided by the valour of some Norman troops, with success. Maniaries repaid them with ingratitude; and by his conduct allowed the Mussulmen an interval of tranquillity, and the Normans an opportunity and pretext of invading the imperial dominions in Italy. Robert and Roger of Hauteville afterwards conquered Sicily on their own account. After a struggle of ten years, the Saracens, in 1172, as Swinburne says, surrendered the rich prize; though others say, that they left the possession of it A.D. 1038. Robert ceded it to his brother Roger, who assumed the title of great Earl of Sicily. This first sovereign swayed the sceptre with wisdom and glory, and deferredly ranks among the greatest charac-
The climate of Sicily is very hot; the thermometer at Palermo varying in June and July from 75° to 80°, and when the frosts wind blows, rising suddenly to 112°. March is the only month in which any chilling winds are felt, and even in the beginning of January the trade is still retreating. The appearance of winter is only felt in the snow that falls on the summits of Mount Etna. (See that article.) Although the island has, in many parts of it, the aspect of a rock, the soil is of a warbler's nest, and it is built up on the same rock, is that which is used for the production of wine. The crops of wheat are still found abundant, notwithstanding the oppression of the government, as not only to supply the wants of its own inhabitants, but also to afford a large surplus for exportation; and it is still enjoyed by the Queen of a free government, it might become one of the richest and most flourishing in the world; for even in its present wretched state of cultivation, one good crop, pays Bryan, would be sufficient to maintain the island for seven years; but when he visited the island, the exportation of this commodity had been prohibited for seven years past, or, at least, to all such as were not able to pay most excoriated for that privilege. The sugar-cane was formerly very much cultivated in this island, but the duties imposed were so enormous, that it has been almost totally abandoned. Silk afforded formerly a profitable branch of trade, but this has very much declined. Besides wheat, which has at all times constituted the riches of this island, they cultivate many other branches of commerce, though none that could bear any proportion to this, were it under a free government, and exportation allowed. Their grapes are also cultivated, by excluding the air and keeping the prize dry, as to preserve it for many years. Large quantities of hay and pulp grow in Sicily, but very little ever moist. Cash- bird feed is exported to a large amount, and is almost peculiar to this island. Large quantities of silk are exported from place to place, the finest part of the island. Water bread is exported in great abundance; and the wines are very val-

SICILY.
kind for building their ships and houses, but likewise an inexhaustible store of the most excellent fuel; and as the third region, with its ice and snow, keeps them fresh and cool during the heat of summer, so this contributes equally to keep them warm and comfortable during the cold of winter.

The principal trade of this island is carried on at Palermo and Messina; the former consumes of imports four or five times more than the latter; but on account of lighter duties, Messina exports a greater quantity of silk, and supplies the inland towns with more commodities. The business of other places on the coast consists solely in shipping corn, wine, salt, &c. Trapani, on account of its famous salt-pan and the shipping belonging to it, is one of the busiest commercial towns in the island.

According to the enumerations made in 1714, says Swinburne, Sicily contained 1,133,163 inhabitants, including 45,000 ecclesiastics, and 110,000 inhabitants of Palermo. In 1615 it contained 1,107,234, and in 1805, 488,500, without reckoning the inhabitants of Palermo or Messina.

When Mr. Brydone visited the island in the year 1779, he says that the inhabitants, by the last enumeration, amounted to 1,125,163, of which number there were about 50,000 that belonged to the different monasteries and religious orders; the inhabitants of Palermo were computed at 150,000. The number of houses in the island were estimated at 268,120; so that allowing the enumeration and the estimate to be just, the number to a house appears to have been between five and six. The vicissitudes and commotions that have more recently occurred have not been favourable to an increase, but must rather have contributed to a diminution of the population.

The provinces in this island are three: viz. Val di Noto, 260 miles in circumference; Val di Mazara, 302 miles in circumference; and Val Demone, 315 miles in circumference; they contain 42 towns belonging to the demeane, and 310 baronial.

Sicily is governed by a viceroy, in whose absence the archbishop of Palermo is regent. The general assembly of parliament is composed of 66 archbishops, bishops, abbots and priors, which form the brazchio ecclesiastico: 58 princes, 27 dukes, 37 marquises, 27 counts, 1 viscount, and 79 barons, form the military, and the demanial consorts of 43 representatives of free towns. Out of each brazchio four deputies are chosen to conduct public business; but the viceroy, the prince of Butera, and the prator of Palermo, are always the three first. N.B. There are many titled persons that have no seat in the assembly, viz. 62 princes, 55 dukes, 87 marquises, 1 count, and 282 other feudatories.

The ecclesiastical government consists of three archbishoprics and seven bishoprics.

The following tables shew the coins, weights, and measures of Sicily.

### TABLES OF SICILIAN COINS.

<table>
<thead>
<tr>
<th>Gold Coins</th>
<th>Silver Coins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Piece of 6 ducats, or doubloon ounce</td>
<td>1. Ducat, equal to 12 taris.</td>
</tr>
<tr>
<td>2. Piece of three ducats, or onza</td>
<td>2. Ducat, equal to 10 taris.</td>
</tr>
<tr>
<td>4. Piece of one ducat and a half</td>
<td>4. Terzo di scudo, equal to 4 taris.</td>
</tr>
<tr>
<td></td>
<td>5. Piece of three taris, equal to 3 taris of Naples.</td>
</tr>
<tr>
<td></td>
<td>6. Of two taris, equal to the tari of Naples.</td>
</tr>
<tr>
<td></td>
<td>The tari, equal to the carlini of Naples.</td>
</tr>
</tbody>
</table>

### Weights and Measures.

There are two sorts of weights used in Sicily.

1. **Grande.**

- 1 Cantaro contains 110 rotoli
- 1 Rotolo = 33 ounces
- 1 Pound = 12 ounces
- 1 Ounce = 30 trapioli

This cantaro is equal to 215 pounds avoirdupois weight.

2. **Common.**

- 1 Cantaro contains 100 rotoli
- 1 Rotolo = 30 ounces

This cantaro is equal to 178 pounds weight avoirdupois.

### Dry Measure—Corn.

- 1 Salma generale contains 16 tomoli = equal to 20 Winchester bushels, used in measuring wheat.

### Liquid Measure—Oil.

- 1 Caffi weighs 18 pounds avoirdupois.

### Wine.

- 1 Salma contains 8 quartari
- 1 Quart contains 12 quartuci.

### Linear Measure.

- 12 Oncie make 1 palmo, equal to 10 inches
- 8 Palmi make 1 cenna, equal to 6 feet

Besides the obligations which the Romans had to the Etruscans and Greeks for their trade and knowledge in the fine arts, the conquest of Sicily 200 years before the Christian era, contributed greatly to their acquaintance with them. Indeed, there was no rate of Greece which produced men of more eminence in all the arts and sciences than Sicily, which was a part of Magna Graecia, and which has been peopled 719 years B.C. by a colony of Greeks from Corinth, their descendants long after cherished and cultivated science of all kinds, in which they greatly distinguished themselves, even under all the tyranny of government with which they were oppressed. Fabricius gives a list of seventy Sicilians who have been celebrated in antiquity for learning and genius, among whom we find the well-known names of Eichyclus, Diodorus Siculus, Empedocles, Gorgias, Euclid, Archimedes, Eparchamus, and Theocritus. To the Sicilians is given not only the invention of pastoral poetry, but of the wind instruments with which the shepherds and cowherds used to accompany their rural songs.

After the conquest of Greece, the Romans had the taste to admire and adopt the Grecian arts. And the president Montesquieu remarks, with respect to the military art, that one of the chief causes of the Roman grandeur, was their method
There is considerable variation in the construction of the tools which are employed for work in different places; and which, in fact, are converted into the blades or like tools, from which they are also used in one part of the country, and from which the common names are wholly unknown in others.

The common fiddle is a sort of circular piece of wood, not much furred with reed, which, in general, is from about twenty to thirty inches in length, and about half an inch in breadth, having a sharp and thished edge cut in the head, part, from twenty six to thirty teeth being formed in every inch in length. The teeth all incline towards the handle of the tool, so that it only cuts when it is drawn towards the person using it, and not when it is introduced through the standing corn, as the act of reaping. The Furnes fiddle, a valuable tool of this kind, made use of in a district of that name in the northern part of Lancashire, has a blade two feet six inches long, edged with nineteen teeth in every inch, and in the form of its curvature, measures two feet from the heel to the point. It is a powerful tool, and capable of doing much work in a given time when in good hands, as seen below.

The French-edged fiddle, or reape-hook, has a shape and length which are much the same as those in the common fiddle, only a little broader; but the edge is sharp and without teeth.

The Lancashire tagging fiddle or hook is a tool of the same kind, but which is a great deal larger and heavier, as well as broader at the point. It can, however, be used with great effect and expedition by those who are accustomed to this mode of reaping.

The fiddle-hook is also another tool of the nature which is made use of in some districts. It is only turned from the middle to the point end, by which the wale of grain in cutting is said to be prevented.

By much the most ancient of these tools is the common fiddle, and it is probably, on the whole, the best of them, though it is getting much out of use in many parts of the country, being now ever so rarely known or employed in the counties of Devon, Cornwall, and Suffolk, and in many other places in the more western parts of the kingdom, having long since taken place to the hook, the reason of which seems to be the greater ease of performing the work by them, as is commonly supposed, but by no means. The fiddle is by far the most frugal and economical tool for accomplishing the work with, in cutting the harvest of grain. Tools made with the fiddle and the reape-hook, have indeed shown that the latter tools are more expedient, but at the same time that the use of grains for

get, has, in a great measure, the use of the instruments of the world of agriculture.

The corn of the period to be produced by the harvester must have been cut with a tool adapted to the purpose, but it is difficult to determine the kind. It is evident that, in cutting the grain, the tool must be pointed and narrow, and also heavy, when it is worked by the hand, the tool on the ground has, as it were, the work of a tool, but it has more to do, and the tool is the part to be cut. The fiddle, therefore, will cut with more facility, when it works near the face, the tool will probably be too small, and even the larger parts of the grain, as well as the Indian, when it works with the hand, in the same way as it does in the field.

It is necessary to the latter to be aware of the use of the different tools of the field, as the looks are fixed during the day to the one or even the other part of the kingdom, as well as to the Indian, where they are highly unknown, and are used in many other places.

In the above districts of Furness, the reaper is weekly and most excelsently performed by the tool. As an early rate of working, three men and a half with the tool, will cut a customary acre of five yards and a half to pole or perch, or long, light, slender corn, in the course of a day, or less; and a larger head and five men with such tools will perform the same quantity of work in a field of the strongest corn, where there has been much entangled. By hard labour from hoist to dark, in this way it is with this kind of tool will reap, bird, and flesh shows a customary acre of any kind of grain. See HARVESTER AND REAPER OF CORN.

Sickle-Fish. See Falk.
Sickle-Wire. See Botany. See Cereals.
SICKLUPEN, in Geography, a town of Prussia, in the province of Samland; 5 miles N. of Gdansk. SICKNESS. See Disease.
SICKNESS, Fasting. See Fasting.
SICKNESS, Green. See Chlorosis.
SICKNESS, Sweating. See Sweating.
SICKREE, in Geography, a town of Bengal; 26 miles N.W. of Rangpur.
SICLOS, a town of Hungary, having a castle on a mountain, in which the emperor Sigismund was imprisoned; 64 miles S.E. of Castile.
SICLYGULLY, a town of Bengal; 15 miles S. of Rajmahal.
SICON, a town of the island of Cuba; 125 miles W.S.W. of Havana.
SICULI, or Sicily, in Ancient Geography, a people originally of Dalmatia, who established themselves in Italy about the 16th century B.C. They formed a numerous nation, and had possession of a considerable extent of country, as they peopled Umbria, Sabina, Latium, and all the country of the occupants of which were afterwards known under the name of Opus. The Siculi pulled into Sicily, and gave it their name. This event is said to have taken place, according to Heliodorus of Lebeou, 50 years before the first of Tyrant, or 764 years B.C., according to the chronology of Tacitus, who are said. The name of Siculi, which seems to have been given to the people who diffused themselves from the Tiber to the eastern

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extensively...
extremity of Italy, the country occupied by the Liburni excepted, was gradually abolished by the separate leagues and dispositions of the Sabines, Latins, Samnites, Oceanians, and Italians. Herodotus, Thucydides, Plato, and Aristotle, mention these people.

SICULIANA, in Geography, a town on the S. coast of Sicily, containing 5000 persons, and belonging to the prince of La Catholica, to whom it yields an annual income of 14,000 crowns. It is remarkable for not having a single convent within its precincts, owing either to the danger of a visit from the Mahometans, or to the recent foundation of the town. The ignorance of the inhabitants, at least with regard to philosophy, is remarkably evinced by an anecdote mentioned by Strabo. On the wall of his apartment he found notice of a thief to be maintained in the schools of Girgenti by a native of Siculiana; in which he undertakes to prove, "that the Copernican system is impious, absurd, and contradictory to Holy Writ, from which it is evident, that the earth stands still, and the sun moves round it, like the sails of a windmill round the pivot." Siculiana is pleasantly situated on two hills joined together by a long street; the vale below being full of orange and other fruit-trees, and the view of the sea very extensive; 12 miles N.W. of Girgenti.

SICULONES, in Ancient Geography, a people who inhabited the Cimbic peninsula, according to Ptolemy.

SICULOTÆ, a people of Dalmatia, who, according to Ptolemy, were divided into 24 decuriae.

SICUM, a town of Ilyria, on the coast of Dalmatia, between Scardona and Salone, according to Ptolemy and Pliny. The latter says, that the emperor Claudius sent his veteran cohorts.

SICUS, in Ichthyology, a name used by some authors to express that species of coregonus, called by the generality of authors Albus nobilis. This, in the Linnean system, is a species of Salmo.

SICUT ALIAS, in Law, a writ sent out in the second place, where the first was not executed.

It is thus called from its beginning, which is in this form: "Georgius, D. C. &c. Vicecomiti Hercul. faltem. Precipitus faltem tibi (sicut alias) praecipitem," &c.

SICYANA. See Guard Worm.

SICYEDON, from cuminum, a cucumber, in Surgery, a transfère fracture.

SICYON, in Ancient Geography, a town of Greece, and capital of a small state in the gulf of Corinth, and not far distant from it. It was anciently called Ἑγίαλες, from Ἑγίαλος, its supposed founder and first monarch. It is not certain whether the whole kingdom, or only its metropolis, was called by that name, but it was exchanged for Ἀπία, from Ἀπία its fourth king; and in process of time it acquired that of Sicyon, who was the 19th monarch. He reigned about 740 years after its supposed foundation; and from that time not only the kingdom, but the whole peninsula of Peloponnesus, was called Sicyonia until its dissolution.

This little kingdom lay on the N. part of the Peloponnesus, since called the bay of Corinth. On the west it had the province of Achaea, and on the east the Ilissus, which joins the peninsula to the continent of Greece. Its extent has not been ascertained. Its capital is supposed to have been situated upon the river Ἀθώ, having the bay of Corinth on the north, and the rest of the Peloponnesus at the three other points. Strabo and Livy say, that it was parted from the kingdom of Corinth by the river Nemia; and Ptolemy adds that it was first called Micon, and afterwards Ἑγίαλες; he gave it two cities, Platthis and Sicyon, both of which he placed at some distance from the sea.

The territory of this small state was rich, abounding with corn, vines, olive-trees, and other commodities, besides some iron mines. Its metropolis was, in process of time, very much adorned by Sicyon and its successors, with temples, altars, monuments, and statues of all its gods and ancient monarchs. This would be fully deemed the most ancient monarchy in the world, not excepting those of Egypt and Assyria, if it were true that its founder lived about 150 years after the flood, or about 200 years before Noah's death; as some have computed it from Eusebius, who affirms this monarchy to have been founded 1313 years before the first Olympiad, or 2089 B.C. But other chronologicalists have corrected this mistake, and made him contemporary with Terah, Abraham's father, and dated the commencement of his reign about the year of the world 1915, or even later, about A.M. 1256; by which computation it is brought somewhat lower than the year of the flood 2920. This kingdom is said to have had, during an interval of 962 years, a succession of 26 kings, but their reigns are distinguished by no memorable action or conquest. The first king was Ἑγίαλες, and the last Zeuxippus or Deuxippus; but in Baur's chronology the last king is Charidemus, with whom they end, 1859 years B.C. or 15 years after the return of the Heraclides into Peloponnesus. In the list of kings, the most remarkable is Sicyon, who gave name to the state, and who is supposed to have built, or at least enlarged, the metropolis of the kingdom, and to have called it by his own name. Accordingly it was not only one of the noblest cities in Greece, on account both of its magnificent edifices and ingenious workmen, but it was a considerable place when the Venetians were masters of the Morea, under the new name of "Baflica," though it has been for near the two last centuries reduced to a heap of ruins, containing only three Turkish, and about as many Christian families. The town was situated on the top of a hill, about three miles from the gulf of Lepanto; and has still several monuments of its ancient as well as modern grandeur, particularly the walls of its famous citadel, of some fine churches and mosques, and a large ancient edifice, called the royal palace, with aqueducts to supply it with water, all which, with other old remains were described by Sir George Wheeler, Voy.

After the death of Zeuxippus, the last king of Sicyon, this state is said to have been governed by the priests of Apollo Carneus, five of whom held the sovereignty only during one year each; after which the Amphictyons sware the spute nine years successively, and Charidemus, the last of them, continued in it 18 years. After this hierarchy had lasted 32 years, the Heraclides, who were at that time returned from Peloponnesus, became masters of it, or according to Paufanias, the kingdom was incorporated with the Diores, and became subject to that of Argos, the next kingdom to that of Sicyon in respect of antiquity. Anc. Un. Hill. vol. v.

SICYONE, a word used by Hippocrates to express coloysth, and by others for a species of hard-helled gourd, in the shape of a pear, and by some for a cupping-glafs.

SICYONEUM OLEUM, a word used by the ancients to express a medicinal oil, of which there were among them three kinds in use. The first was called ficoeum simplicis. This was composed of two ounces of the root of the wild cucumber, boiled several hours in a pint of oil. The second was called the compound ficoeum, and was made of the root of the ficoeum, and many other ingredients. The third was another compound kind, made not with an infusion of the root, but with the juice of the fruit of the wild cucumber.

SICYONI, among the Romans, were shoes of a more delicate

The root is annual. Stem branched, hairy, waxy, climbing by means of long, spirally divided tendrils. Leaves alternate, on long flasts, pointed, more or less toothed, minutely rough, three or four inches broad. Flowers whitish, marked with green lines, axillary; the male one racemose, on a long flast; female on a much shorter flast, and capitate. Fruit ovate, pale, spiny, half an inch long, about eight to ten together in a round head. Seed large, ovate, fleshy.

2. S. carnea. Small-flowered Single-fed Cucumber. Willd. n. 2. "Leaves five-angled, minutely toothed, smooth; heart-shaped, with a round thick finus, at the base."—Native of Mexico. Communicated to professor Willdewill, now, by the celebrated baron Humboldt, from whole seeds, it was reared at Berlin. Annual, like the leaf, and much resembling it, but the leaves are not rough, nor is their finus an obtuse angle, but round. The male flowers are not more than one tenth to large as in S. angulata; the female ones about a quarter the size of the species. The fruit however is but little smaller. Wildemarz.
in Europe, though S. Abutilon is reported to grow in Siberia and Switzerland, where it may perhaps have been naturalized; as has happened to various tropical annuals in colder climates than what is natural to them. Abutilina has afforded one new species to our gardens; besides which, 34, exclusive of the Nopes, are enumerated in Mr. Aiton's valuable work.

The habit of all is more or less shrubby, though several have annual roots. The leaves are alternate, flaked, simple; either entire, notched, or lobed. Indecorence mostly axillary. Flowers yellow, reddish, or white. The species are disposed in sections, according to the shape of the foliage. We shall give various examples.

Sect. 1. **Leaves lanceolate, more or less narrowly, oblong, or ovate.** Seventeen species.


S. flavoja. Prickly Sida. Linn. Sp. Pl. 960. Willd. n. 6. Ait. n. 2. Pursh n. 1. Cavan. Diff. 11. t. 1. f. 9. (Alcea carpini folio, americana frutescens, florulis luteis, femea duplici rostro donato; Comm. Hort. v. 1. 3. t. 2.) — Leaves ovato-lanceolate, serrated; somewhat heart-shaped at the base. Stipulas lanceate, with axillary spines. Flower-flanks simple, mostly solitary. Capsules with beaked valves.—Native of the East and West Indies, Senegal, Arabia Felix, and North America. Mr. Pursh says it is found among rubioids, and by road-sides, from Pennsylvania to Carolina, flowering in July and August. This was one of the earliest species cultivated in England, but rather for curiosity than beauty. The broader leaves principally distinguished it from the former, for their flowers are nearly finer. The root is annual or biennial.

S. bifida. Hifpad Sida. Pursh n. 2. — "Rough with bristly hairs. Leaves lanceolate, serrated. Flower-flanks axillary, the length of the footstalks. Outer calyx thread-shaped."—Decribed by the above author, from the herbarium of Mr. Lyon, who is said to have met with this plant in the sandy plains of Georgia in North America. The flowers are yellow. If they have really an external calyx, the plant can be no Sida; but perhaps a simple fetaeous bractea is all that is meant by the above definition. We have seen no specimen.

S. carpiniifolia. Hornbeam-leaved Sida. Linn. Suppl. 307. Willd. n. 8. Ait. n. 3. Jacq. 1c. rar. t. 135. Cavan. Diff. 274. t. 134. f. 1. — Leaves ovato-oblong, smooth, closely serrated. Stalks axillary, about four-flowered. Capsule with beaked valves. — Mr. Maillon met with this shrub in the garden of a French convent, in Madeira, and sent it to Kew garden in 1774, where it is treated as a green-hone plant, flowering most part of the summer. The native country has not been ascertained. The branches are hairy, spreading, like the leaves, in two directions. The latter are two or three inches long, and nearly half as broad, smooth, with crowded, acute, somewhat unequal, or doubled, serratures, each tipped with a bristle, as in the genus Cappus. Calyx smooth. Petals yellow, oblique, and partly notched. Capsule of eight cells, each having two spinous beaks.

S. flanaticus, Cavan. Diff. 24. t. 3. f. 11, is acknowledged by that writer himself to be the same plant in a young or imperfect condition.


S. fiberofa. Corky Sida. L'Herit. Stirp. 113. t. 54. Willd. n. 13. Ait. n. 4. — Leaves ovate, strongly serrated, hairy. Stalks axillary, single-flowered, twice the length of the footstalks. Capsule with beaked valves. Stem corky at the base.—Native of Hiipanilla. Introduced to the flowers at Kew in 1798, by Sir Jefley Green, bart., but it has not yet flowered. The stem is one or two feet high, branched, the bark of the lower part corky, and full of figures; branches hairy. Leaves more oval than in S. carpiniifolia, pale and hairy. Flowers an inch broad, orange-coloured, with a purple central ring, their flalks and calyx hairy. Capsule small, of nine, slightly connected, cells. The corky bark, which L'Heritier compares to that of Paffiflora saberoif, is suppofed peculiar to the present species.

Sect. 2. **Leaves wedge-shaped at the base.**

S. rhombifolia. Rhomb-leafed Sida. Linn. Sp. Pl. 961. Willd. n. 18. Ait. n. 5. Pursh n. 3. Cavan. Diff. 23 and 48. t. 3. f. 12. (Malvina minor fupina, betonicae folio, foci flore coccoineo, feminibus aperis; Sloane Jarn. v. 1. 217. t. 137. f. 212.) — Leaves oblong-lanceolate, acute, serrated, wedge-shaped and entire at the base. Flower-flanks shorter than the leaves. Stipulas fetaeous, with axillary spines.—Native of both Indies and of North America. Cultivated in curious flowers, where it blooms in former; but the small yellow flowers have less beauty to boast than most of the preceding, with which the plant agrees in habit, except the tapering entire base of its leaves, whose under side is a little glaucous.

S. cigaris. Ciliated Sida. Linn. Sp. Pl. 961. Willd. n. 22. Ait. n. 7. Cavan. Diff. 211. t. 3. f. 9, and 275. t. 127. f. 2. (Malva minor eupina, betonicae folio, foci flore coccoineo, feminibus aperis; Sloane Jarn. v. 1. 217. t. 137. f. 2.) — Leaves oval, abrupt, serrated; entire and somewhat wedge-shaped at the base. Stipulas linear, fringed, longer than the foliar, nearly fiddle, flowers. Capsules prickly, not beaked.—Native of dry gravelly places in Jamaica, and other parts of the West Indies, flowering after rains. A small, procumbent, rather shrubby species, whose leaves are scarcely an inch in length, and whose long fringed stipulas are very remarkable. The flowers are crimson. Seeds, as well as capsules, rough with minute hairs.

Sect. 3. **Leaves heart-shaped, entire, or nearly so.**

S. periploca. Great Bind-weed-leaved Sida. Linn. Sp. Pl. 962. Willd. n. 23. Ait. n. 8. Cavan. Diff. 26. t. 5. f. 2. (Abutilon periploca acutissimum, fructu fllato; Diff. Eith. 4. t. 3.) — Leaves heart-shaped, entire; elongated at the point; downy beneath. Flower-flanks axillary and terminal, somewhat panicked, much longer than the footstalks. Capsule with five awoed cells. — Native of both Indies; long known in our gardens, where it proves annual or biennial only, even in the flower, flowering in summer. Dillenius fuppotes it to be perennial and shrubby in its native country. The stem with us is three or four feet high. The entire pale or hoary leaves bear some resemblance to those of Cympnham acutum, though
S. inaequa. L'Herit. in Sida. Cavan. Dill. t. 36 and 175. t. 135. f. 2. (Abutilon americanum, fruticu subrotundu pendulo, e capulis foveosis crisps conflato; Mart. Cent. t. 29. f. 29. A. veicarium crisps, floribus minutis; A. adulis veicarium, floribus luteis, minus; Plm. l. 15. t. 25.*).—Leaves heart-shaped, pointed, crenate, downy. Flower-flasks axillary, flattened, deciduous, with pubescent fruitlets; fruit held long after the leaves fall.

S. scaberrima. Cavan. Dill. t. 36 and 175. t. 135. f. 2. (Abutilon mexicanum, floribus glabris, foliis oblongis, petalis ciliatis, fructibus linearibus, urceolatis, foliis pubescentibus; Mart. Cent. t. 30. f. 29. A. veicarium, floribus luteis, minus; Plm. l. 15. t. 25.*).—Leaves oblong, pubescent, petioles ciliate, flowers yellowish white, fruit linear, urceolate, pubescent.


Sida.

Inscriptions, instead of the repetitions, so juifully complained of, in the generality of those works. Haller records, after Linder, that the seeds of S. Abutilon, taken to the amount of an ounce, have been found powerfully soporific.

Sec. 5. Leaves heart-shaped, indented. Stalks many-flowered or racemose.


—Leaves roundish-heart-shaped, toothed, somewhat angular, rather downy. Stalks umbellate, axillary and pinnicated. Capsules with double-awned seeds. —Native of both sides, somewhat angular; the upper ones hardly-shaped. Panicle racemose. Petals emarginate, nearly erect, shorter than the flaments. Capsule without beaks. —Supposed to be a native of Mexico. It flowers nearly throughout the year, in the collection of John Walker, cfq. of Arno's grove, Southgate; but we are not informed whether it is a greenhouse or flore-plant. The stem is tall and shrubby, with round biparad branches. Leaves green, alternate, flaked, distinct; the upper ones elongated, and deeply lobed. Flowers elegant, bright scarlet, near an inch long, of a flutelock conformation, as the inerfely heart-shaped, oblong petas spread but very little. The column of flaments rises considerably above them.

S. hojata. Halberd-leaved Mexican Sida. Willd. n. 89. Ait. n. 33. Andr. Repof. 538. Curt. Mag. t. 1541. (S. crifata; Linn. Sp. Pl. 964. Anuda hojata; Cavan. Diff. 38. t. 11. f. 2.) —Leaves lower heart-shaped, lobed; upper hojata. Stalks axillary, solitary, fingle-flowered, longer than the leaves. Petals obovate, spreading, entire. Native of Mexico. Its seeds were brought from Spain by the late marchonofe of Bute. An annual or biennial flore plant, which may be raised on a hot-bed early in the spring, and planted out in the open border. It is scarcely however likely to be added to the list of tropical annuals, generally so cultivated, being much inferior in beauty to many other plants, of the Mallow tribe, that are quite Hardy. Its flowers are light purplish-blue, about an inch wide, on long, fraggling stalks. The divisions and shape of the leaves vary greatly. The valves of the capsule have no beaks.

S. crifata. Crested Sida. Linn. Sp. Pl. 964. Willd. n. 90. Curt. Mag. t. 330. (Anuda crifata; Cavan. Diff. 39 and 55. t. 10. f. 3.) —Leaves crested, pointed; the lower ones angular; upper hojata. Stalks axillary, solitary, fingle-flowered, longer than the leaves. Petals inerfely heart-shaped, thrice the length of the calyx. —Native of Mexico; long since known in our gardens. We have however ascertained the synonymy of Cavanilles, by seeds received from himself, and raised by the late lady Amelia Hume, in whole fofe this plant flowered in July 1806. It may probably succeed, as Mr. Curtis observes, if raised on a hot-bed and planted out in a flower-border. This is distinguished from the last by its very large crimfon flowers, rendering it far more worthy of cultivation. Few plants vary more in the shape of their foliage, so that we are satisfied of the S. Dillemiana, Willd. n. 91. Ait. n. 34, figured in Cavanilles, t. 111. f. 1, and in Dill. Hort. Elrh. t. 2, being a mere variety; so little defined indeed that we can hardly distinguish it as such.

Sec. 7. Leaves lobed, palmate, or compound.


—Leaves heart-shaped, toothed, with three or five lobes; the middle one longest and sharpest. Stalks axillary, foliary.
tary, single-flowered, lower than the leaves. Lobe of the capsule obtuse. — Nature of the Cape of Good Hope. — The flowers are in showy, much-branched, widely spreading, leaves terminal, and a flower or two each wide. From 2 to 6 feet high, with slender branches to the base of the flower. — Gathered by Thunberg at the Cape. We have seen no specimen; but by the above flax's natural habit, it would seem to differ from the last much at the Cape. L. n. 35. 1. 2. — Leaves with three deep, obtuse, free lobes. Peduncle much branched. Cells of the capsule numerous, long Armed with a double membranous wing. — Gathered by Dombev, in sandy ground at Lima. It was rattled at Paris, but not required. The seed is annual. Stem prostrate, much branched, a foot long, or more; finely branched with hairy hairs. Leaves on long stalks, deeply divided, pinnatifid or divided, with rounded lobes and segments. Flowers small, white, in terminal, peduncled, rather hairy, spiny, a flower on a long stalk, and turned downwards. Capsule very peculiar, on account of the numerous, double, membranous, rounded wings, which form an orbicular cedron on its summit. 3. p. 6. S. s. 1. 2. — Leaves in pairs, with deep, acute, pinnatifid lobes. Pedicel many-flowered, hairy. Cells of the capsule without awns. — Nature of Lima and Peru. Sent to Kew in 1787 by M. Thouin. An annual flowery plant, flowering in August, and distinguished by the deep lobes of its leaves, with variously and deeply divided, pinnatifid, or with the leaf, a flower on a long stalk, and turned downwards. Capsule very peculiar, resembling that of the Gagea, to which genus we suspect this species may naturally belong; for L. Heritier speaks of the seeds as separating with difficulty from their cells. We are puzzled by his account of these cells being armed in the wild plant, but not in the cultivated one. But this difficulty may be solved by his having, like Cavallini, originally confounded the perfect species with that he afterwards called 3. ricinoides, in which the valves of the cells are strongly armed. We have a specimen of the 3. ricinoides from L. Heritier himself, marked 3. ricinoides. Yet the two are very distinct in their foliage as well as fruit.

Sidr, in Gardening, contains plants of the exotic, tender, herbaceous, perennial kind, of which the species chiefly cultivated are; the rhomb-leaved 3. (S. rhombifolia); the great bindweed-leaved 3. (S. periploca); the triangular-leafed 3. (S. triquetera); the broad-leaved 3. (S. abutilon); the white-flowered 3. (S. alba); and the heart-leaved 3. (S. cordifolia).

Method of Culture.—These plants may be increased by seeds, which should be sown upon a moderate hot-bed in the early spring, or in pots deposited in them. In the first case, when the plants have attained some growth, they should be removed to another hot-bed, and be let out four inches apart each way, or into separate pots, replanting them in the hot-bed, being shaded till they have taken new root; and a large proportion of fire earth being admitted in fine weather, and also frequent waterings: they should afterwards be gradually hardened to bear the open air in the summer season.
inclose them on the right and left, from the gorge to the head.

**Side. Rights, in Coins. See Latius Reatum.**

**Side, Transferre. See Latius Transferium.**

Side of a Ship, are distinguished into the **starboard** and **larboard**; that is, into the right and left-hand side, when standing with the face towards the head of the vessel. See Starboard and Larboard.

**Side, Broad, in Sea Language, is to fire all the guns on one side of the ship.**

**Side-Wind. See Wind.**

**Side-Graving. See Engraving.**

**Side-Lays is a term made use of by huntsmen, when dogs are placed in the way, to be let slip at a deer, as he gallops by.**

**Side-Saddle Flower. See Hollow-leaved Sea Lavender.**

Side-Cuts, are the short lengths of canal by the sides of rivers, for conducting the navigation by mills, shalloWS, &c.

**Side-Laying Ground, is that whole surface, as A E L (Plate I. Canals, figs. 1, 2 and 3) is lower on one side of the canal than on the other.**

Side locks, or Side-ponds, are reservoirs or excavations by the side of a canal or lock, for retaining water. See Canal.

**Side-Puddle is often used to express the puddle-ditches, gullies or gutters that are formed like a wall within a canal-bank, for preventing breaks from the fame.**

**SIDELING Hills, in Geography, a range of hills in America, on the N.W. part of the state of Maryland.**

**SIDEINA, in Ancient Geography, a town of Asia Minor, in Lydia. Steph. Byz.**

**SIDEINA, or Sidiaina, a very fertile country of Asia, on the sea-coast, in the kingdom of Pontus, in which, according to Strabo, were some strong places, besides a town of the same name.—Allo, a town of Asia Minor, in the Troade, upon the Græcuses; which was ruined in the time of Strabo.**

**SIDEINIA, a people of Germany, who occupied the banks of the Oder.—Allo, a people of Arabia Felix. Ptol.**

**SIDEINA Sinus, a gulf of Asia Minor, upon the Thracian Bosphorus, near the Euxine sea. This gulf was formed by the promontory Ancyrum and by that of Pönion.**

**SIDEINIA, in Geography, a town of Sweden, in Ang/elianland, 40 miles N. of Hernofand.**

**SIDEPATTY, a town of Bengal; 12 miles N.W. of Madinapour.**

**SIDEARIO, in Medicine, from sidus, a planet, because violent and sudden maladies were ascribed to the influence of the stars, a term which has been applied to several diseases of that character. It has been principally used to signify apoplexy, or a sudden palsy; but it has been applied by others to mortification, or sphecules of a limb; and by some to erysipelis of a limb, which is vulgarly called a blight.**

**SIDERATION, the blighting or blighting of trees, plants, &c. by eastern winds, excessive heat, drought, or the like caues. See Blight.**

**SIDERIA, in Natural History, the name of a genus of crystal. The word is derived from the Greek σίδερος, iron, and is used to express crystals alter'd in their figure by particles of that metal. There are of a rhombohedral form, composed only of six planes. Of this genus there are four known species. 1. A colourless, pellucid, and thin one, found in considerable quantities among the iron ores of the forest of Dean, in Gloucester, and in other the like places. 2. A dull, thick, and brown one, not uncommon in the same places with the former. And, 3. A black and very glossy kind, a foil of very great beauty, found in the same place with the others, as also in Leicestherihire and Suffolk. Hill.**

**SIDERAL Year. See Year.**

**SIDERAL DAY is the time in which any star revolves from the meridian to the meridian again; viz. 23 hours, 56 minutes, 4 seconds, 6 thirds of mean solar time. There are 366 sidereal days in a year, or in the time of 366 diurnal revolutions of the sun. The first column of the following table is the number of revolutions of the stars; the others next are the times in which these revolutions are made, as shown by a well-regulated clock; and those on the right hand shew the daily accelerations of the stars, that is, how much any star gains upon the time shown by such a clock, in each revolution.**

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This table will not differ the 279,936,000,000th part of a second of time.

If the equinoctial points were at rest in the heavens, there would be exactly 366 revolutions of the stars from the meridian.
an to the meridian again in 365 days. But the equal no- 
points go backward, with respect to the stars, at the rate 
of fifty seconds of a degree in a Julian year; which causeth 
the stars to have an apparent progressive motion earthward 
fifty seconds in that time. And, as the sun's mean motion 
in the ecliptic is only 14 sign 20 degrees 48 minutes 40. 
seconds 15 thirds, in 365 days, it is plain, that at the end 
of that time he will be 14 minutes 15 seconds 45 thirds thirti 
of that point of the ecliptic from which he set out at the 
beginning; and the stars will be advanced 50 seconds of a 
degree with respect to that point.

Consequently, if the sun's centre be on the meridian 
with any star on any given day of the year, that star will 
be 14° 19′ 47″ + 50″, or 15° 0′ 45″ east of the sun's centre, 
365th day afterward, when the sun's centre is on the 
meridian; and therefore that star will not come to 
the meridian on that day till the sun's centre has pilled it 
by 1 minute 0 second 38 thirds 57 fourths of mean solar 
time; for the sun takes so much time to go through an arc of 
15° 0′ 45″; and then, in 365 days 0 hour 1 minute 0 second 
38 thirds 57 fourths, the star will have just completed its 
365th revolution to the meridian.

This table was calculated by Mr. Ferguson; and it is 
the only table of the kind in which the recollection of the 
equinocial points has been taken into the calculation.

SIDERITIS, in Botany, supposed to be the 
species of the Greeks, of which Dioscorides describes three species, 
all celebrated for launcing blood, and healing wounds. 
The first quality they might very well possess, being, ac-
cording to his account, rough herbs, akin to Marrubium, 
in which also there might be somewhat of an affirgent or 
tonic quality. They answer indeed to the general idea of 
the genus to which modern botanists have applied the name, 
whole etymology is to be sought in calyx, iron; but 
whether it alludes to that metal as the caule of wounds, to 
the ruly utilty of the flowers, as De Thes imagines, or to 
any other circumstance, nothing but conjecture can be of-
Tourn. t. 90. Lamark Illustr. t. 505.—Clas and order, 
114, Jull.

Gen. Ch. Cal. Persian inferior, of one leaf, tabular, 
oblong, cut nearly half way down into five acute, almost 
equal, segments. Cor. of one petal, nearly equal; tube 
 cylindric, oblong; throat oblong, somewhat cylindrical; 
upper lip erect, narrow, divided; lower in three segments, 
of which the lateral ones are more acute, and feebly so 
large as the upper lip, the middle one roundish. Stam. 
Filaments four, within the tube of the corolla, and shorter 
than the throat, to two of them smaller than the rest; anthers 
roundish, two of them with two distinct lobes. Py. Ger-
man four-cleft; flyle thread-shaped, rather larger than the 
flamens; ligulas two; the uppermost cylindrical, concave, 
abrupt; the lower membranous, thinnest, flattening the other. Peric. none, the seeds being lodged in the bate of the 
calyx. Seeds four.

Ell. Ch. Calyx five-cleft. Corolla rinvet; its upper 
lip erect, divided; lower deeply three-cleft. Stamens 
within the tube of the coroll. One stigma water, 
the other.

18. (Exotic in Holland 1613.) Cultivar in 
Shrubby 2. without. Linn. 18. All. 
Rakk. Sp. 204. Willd. n. 2; exclud.
ning the synonyn.—Shrubby and 
downy. Leaves densly downy, oratusgeate, taper-
pointed; heart-shaped at the base; snow-white beneath. 
Spikes compound. Seeds remote, each of about eight 
flowers. Calyx, obtuse, pointed.—Native of Made 
ria now, as well as in Holland, flowering from 
Spring to summer, and frequent in the green-
house in winter, with moderate supplier of water.

Wild. n. 2; excluding the synonyn.—Shrubby and 
downy. Leaves densely downy, oratusgeate, taper-
pointed; heart-shaped at the base; snow-white beneath. 
Spikes compound. Seeds remote, each of about eight 
flowers. Calyx, obtuse, pointed.—Native of Made 
ria of Multan, or in the garden of England, as well as in Holland, 
flowering from April to July. They therefore follow Linnaeus 
in applying that synonyn to the following species; though not quite without a suspicion of its really 
belonging to S. canariensis.

excluding the reference to Tournefort. Willd. n. 3. 
(Stachys canariensis frutescens, verticis folia; Commes.
Hort. v. 2. 197, 197; 197.)—Shrubby and downy. 
Leaves densly downy, heart-shaped, bluish, broadly crenate, 
long hawks; snow-white beneath. Spikes sinque, 
whorled. Calyx obtuse, pointed.—Native of Crete and Greece.
This has the very dense white pubescence of the leaf specie, 
but differs in its larger, blunter, more strongly crenate 
leave, and especially its solitary unbranched leaflets. The 
whorls confine each of eight or more flowers, while 
calyx, though less woolly, nearly agree with the preceding, 
being totally unlike the spoon-pointed calyx of S. canarien-
sis. If Commelins's plate had been executed with any 
care, this circumstance would have determined the synonyn, 
which certainly belongs either to our first or third species, 
and not to the second.

Willd. n. 7. Att. n. 6. Sm. Fl. Græc. Sibth. t. 550, 
unpublished. (S. cribba tombetica candidaflora; Borea 
lueto; Tourn. Cor. 12 Stachys; Ge'om. 175. S. 
lychnoides incana angulifolia, Incana; italica; Barre. 
fc. t. 1187.)—Shrubby, clothed with woolly down. Leaves 
eliptic-lanceolate, nearly entire. Whorl axillary, many-
flowered. Calyx acute, without awns.—Native of Italy, 
Crete, and various parts of the Levant. The leaf is per-
1 P 2
remial and woody. *Stems* erect, mostly simple, herbaceous, a foot high, clothed, like the whole of the herbage, with long, soft, silky, dense, white wool. The radical and lower *fleshy-leaves* are oblong, or elliptic-lanceolate, obscurely crenate; those which accompany the flowers are generally much shorter, ovate, and acute; sometimes they nearly resemble the rile of the foliage, evincing that they are not *bracteas*, but *bracteoles*.

*Whorls* about eight, a little dainty, each of six bright yellow *flowers*. *Calyx* obvex, densely woolly, with five sharp teeth, but no awns or points. *Corolla* twice as long, contracted at the mouth, downy externally, its segments acute, all entire.

5. *S. taurica*. Tartarian Iron-wort. Willd. n. 8. (*S. syriaca; Pallis Nov. Act. Petrop. v. 10. 312.*)—Somewhat shrubby, downy. Leaves lanceolate, crenate. *Whorls* crowded. Floral leaves heart-shaped, pointed, reticulated with elevated veins.—Native of Tartary. The *branched* are a foot long, subdivided, clothed with white down. Radical leaves flaked, *fleshy-leaves* fiddle, all crenate, rugged with veins, and covered with fine woolliness; the floral ones roundish-ovate, pointed, ribbed, reticulated, shorter than the *calyxes*; woolly, like the other leaves, till the flowers are palt, when they become nearly smooth, except the edges. *Corolla* yellow. *Willd.*

6. *S. diffusa*. Distant-whorled Iron-wort. Willd. n. 9.—Somewhat shrubby, hoary. Leaves lanceolate, acute, entire. *Whorls* distant. Floral leaves heart-shaped, sharp-pointed, reticulated with elevated veins.?—Supposed to be a native of the Levant. Willdow obtained it from some old herbarium, with the name of *Sideritis folia conjugatia amblystachen rigida*. He describes it as like the former, but different, having acute, entire, leafy downy leaves, the *fleshy* alone being villous. *Whorls* very distant, accompanied by nearly smooth leaves, with sharp points. Tube of the *corolla* longer than the *calyx*; the middle segment of its lower lip obtuse, but not emarginate. We are unacquainted with anything answerable to this description.

7. *S. persilifolia*. Perfoliate Iron-wort. Linn. Sp. Pl. 802. Willd. n. 10. Art. n. 7. Prodr. Fl. Græc. n. 1330. (*S. orientalis, plomadis folio; Tourn. Cor. 12.*)—Herbaceous, rough with brilly hairs. Upper leaves ovate-lanceolate, obscurely toothed, clasping the stem; floral ones heart-shaped, sharp-pointed, reticulated, fringed.—Native of the Levant. Dr. Sibthorp gathered it in some part of Greece, or the neighbouring islands, but omitted to mark the precise spot. No figure is extant of this species. The *herbage* is green, hairy, and brilly, not downy. *Leaves* reticulated with copious veins; the floral ones crowded, short, and broad, with fimbrious points, their dill pale, and semi-pellucid. *Flowers* six in a whorl. *Calyx* tubular, round, without angles, glandular and hairy; its teeth long, erect, ribbed, fimbrious. *Linnæus* says the *corolla* is white, with some reddish veins.


10. *S. romana*. Simple-beaked Iron-wort. Linn. Sp. Pl. 802. Willd. n. 6. Art. n. 5. Cavan. Isc. v. 2. 69. t. 187. Sm. Fl. Græc. Sibth. t. 552. unpublished. (*Sideritis genus spinosa verticellis; Bauh. Hill. v. 3. 428.*)—Herbaceous, downy, hairy. *Calyx*-teeth fimbrious; the uppermost large, foliary, ovate.—Gathered by Cherel first near Rome, whence the specific name. It has however been found in fields and walk ground in many other parts of the south of Europe. Dr. Sibthorp observed this plant to be common in Greece and the isles of the Archipelago, and we have suspected it might be the real *cyanus* of Dioscorides, to whose description, as far as any thing can thence be determined, it answers well. The *habit* of the plant is much like the last, but the *leaves* are more noted, shorter and broader. Tube and upper lip of the *corolla* pale red; lower lip white, dilated as in the larger-flowered variety of the preceding. The most striking difference is found in the *calyx*, whose upper lip is erect, large, and ovate, the lower of four slender teeth, spreading downward.

11. *S. linata*. Dark-flowered Iron-wort. Linn. Sp. Pl. 804. Willd. n. 20. Prodr. Fl. Græc. n. 1333. (*S. elegans; Murray in Comm. Gott. for 1778. 92. t. 4. Wild. n. 5. S. nigricans; Lamarc Dict. v. 2. 168.*)—Herbaceous, diffuse, hairy. Leaves elliptical, obtuse, cre- nate, without spines. *Calyx*-teeth spreading, fimbrious, hairy, nearly uniform.—Native of Egypt, Cordia, and Palestine. Murray first described it at Gottenburg, from garden speci- mens, without knowing whence they came. Nor was he blameless for not discovering his plant to be *S. linata* of Linnæus, whose specific character, made from a flared wild specimen, is calculated to mislead those who had no other guide. Yet the great Swedish botanist appears, by his herbarium, to have rightly understood the cultivated plant of Murray, of which he Destroyed a very old and luxurious morf, apparently from some Dutch collection. This species is undoubtedly most akin to *montana* and *romana*, nor has it any real *bracteas*. The *auberts*, as in theb, are all axillar, fix-flowered. *Calyx* involved all over with long silky hairs, its teeth tipped with spines, the upper one rather longer than the others, but all nearly equal in breadth. *Corolla* with a white tube; the front of the limb dark purplish-brown, nearly black, of a very striking appearance;
its upper segment close; lower in three rounded lobes. The flowers very greatly in size, but are rounded, pointed, and slightly inferior; the lower ones blunted.


(1) H. verticillata major; Barcel. Ic. 1. 2292. H. verticillata minor; Barcel. Mt. 277. 1795 f. 722. The same (treated from f. 281. 2. 2.)—Rather shrubby, downy, hoary. Leaves laterally alternate, entire. Base ovate, palmate, with a few sp. —Native of Spain. Cultivated by Mill. 1 July, being generally hardy, flowering in July and August. The habit of the plant is much like Lavandula. Wherever two or three in each spike, with a pair of clafe, firm, ribbed, with rough bracteas, cut into many spinous segments, under every whorl. Calyx clothed with white cottons down; its teeth erect, 2-3 or nearly equal. Caulis twice as long as the calyx, yellow, white, or pale blue; both its end dilated and spreading.


feels the very same plant, not even a variety. We venture to remove Barrelier's name, cited by Defontaines, to the following, as Willd. has done.


14. S. becciai. Hydropike-leaved Iron-wort. Linn. Sp. Pl. 503. Wildl. n. 15. Att. n. 18. (S. alpina; Villars. Dauph. v. 2. 227; S. alpina hypposphila; Ger. Em. 1606. S. montana, &c.; Barcel. Ic. 1. 1711. 1725.)—Leaves lanceolate, smooth, nearly entire. Bracteas wedge-shaped, palmate, (spiny).—Native of the mountains of Switzerland, Dauphiny, Italy, and the Pyrenees. Cultivated by Gerard in his garden, and still preferred in curious or general collections, being a hardy perennial, flowering throughout the summer and autumn. The stem are somewhat woody, throwing up many leafy squarish branches, a span high, hairy at the two opposite sides, in lines crossing each other at every joint. Leaves numerous, opposite, filked, green, elliptic-lanceolate, two or three of the upper ones only occasionally toothed. Heads more or less crowded into an impenetrable, or oblong, foliary, terminal, small, perigonal or frutescens, each whorl accompanied by the long, reticulated, hairy bracteas, with fringed spiny ferratures. Calyx-teeth long, spiny, erect, nearly equal. Corolla yellowish-white, with two dilated lips, larger than the calyx.


16. S. spinosa. Spinous-leaved Iron-wort. Vahl. Symb. v. 1. 41. Wildl. n. 17. Lamarck Dec. v. 2. 1795. (S. subspinosa; Cavan. Ic. v. 3. 3. 289.)—Leaves lanceolate, pointed, with long spiny teeth, as well as the reticulated heart-shaped bracteas. Stem equally hairy on all sides.—Native of France.

17. S. bipinnata. Harry-leaved Iron-wort. Linnae. Sp. Pl. 82. Wildl. n. 2. 1795. Att. n. 11. (S. tenuis; Chit. Hc. v. 3. 246. Tette. by the name; Barcel. Ic. 1. 2292. Hier. Ic. v. 3. 246; Ger. Em. 1606.)—Leaves oblong, obtuse, strongly toothed, Bracteas with spinous teeth. Stems have 4 rays, and are about at the base. —Native of Spain. It is the third of France.—Very much akin to the three last in its flowers, bracteas, &c., but more hairy. The form and teeth of the leaves agree with S. spinosa, a hairy variety of which, we suspect, is sometimes taken for the true S. spinosa. The latter however appear exclusively to differ, in having the conspicuous hairs on its stem equally divided all round, not collected into decussating lines. The stems very much in being crowded or remote, and are very much crowded together, and it is not certain that the species are not the same. S. spinosa, however, is native of Perú. It is cultivated in the gardens of Madrid, in July. The stem is fibrous and perennial. Stems feebly a foot high, square, slightly hairy. Leaves about one inch long, on stalks about the same length; rough on the upper side, with hairs proceeding from minute tubercles; smooth and tinged beneath. Spike terminal, about three inches long, quadrangular. Bracteas crowded, in four rows, entire, acute, rigid, spreading, beet with long spiny ferratures. Flowers fix in a whorl, three to each bractea. Calyx with five slender, short, nearly equal teeth. Corolla yellowish-white; its upper lip entire, lower three-lobed, the middle lobe three-lobed.

SILDENII, in Gardening, contains plants of the underbrushy, and shrubby exotic kind, of which the species cultivated are, the Casab iron-wort (S. canariensis); the Cretan iron-wort (S. cretica); and the fage-leaved iron-wort (S. lyrica). But there are other species that may be cultivated for the sake of variety.

Method of Culture. These plants may be increased by seeds, cuttings, and layers. The seeds should be sown in pots in the spring, placing them in a moderate hot-bed; when the plants have had some growth, they should be removed into separate small pots, filled with light, sallow mould, being afterwards treated as other shrubby greenhouse plants. The cuttings and layers may be planted out, or laid down in the frame before they are sufficiently rooted to be managed as the other sorts. In all, the third sort may be increased by planting the trimmed heads, either in pots or in a sandy bed, to be afterwards removed into pots for protection in the winter in a frame.

They afford variety in greenhouse collections, among other evergreen potted plants of similar growths.

SIDERO, or Geographia, a town of Naples, in Calabria Ultra; 48 miles S of Catanzaro.
SIDERO-CAPSA, a town of European Turkey, in Macedonia; 32 miles E.S.E. of Saloniki.

SIDEROCHITA, in Natural History, a class of cruf- tated ferruginous bodies, of a moderately firm and compact texture, composed of ferruginous mixed with earthy matter, and formed of repeated incrustations, making to many coats or crusts round a softer or harder nucleus, or round loofe earths, or an aqueous fluid.

Under this class are comprehended the empherepyra, heteropyra, geodes, and cubarid.

SIDERODENDRUM, in Botany, from σιδερον, iron, and δέντρον, a tree, a name given by Schreber to the Sideroxylon of Jacquin, which the latter had so called for a while only, till he should be more certain of the genus, by ascer taining the true nature of the fruit. This Schreber has determined; and the name he has chosen alludes to the hardness of the wood, known to the French in Martinico by the appellation of Rois de fer, or Iron-wood. The analogy of the neighbouring genus Sideroxyllum is also thus kept in mind.—Schreb. Gen. 71. Willd. Sp. Pl. v. i. 612. Mart. Mill. Dict. v. A. J. Hort. Kew. v. i. 245. (Sideroxyloides; Jacq. Amer. 19.)—Clasfs and order, Tetrandria Monogynia. Nat. Ord. Dumofé, Linn. Sapotes, Jull.

Gen. Ch. Cal. Perianth superior, of one leaf, minute, with four acute teeth. Cor. of one petal; tube cylindrical, incurved, many times longer than the calyx; limb in four oblong, obtuse, flat, reflexed segments, half the length of the tube. Stam. Filaments four, very short, inserted under the divions of the limb; anthers oblong, erect. Pet. Germin roundish, inferior; style thread-shaped, the length of the tube of the corolla; stigma oblong, obtuse, thickish. Berries two-loded, crowned with the calyx, two-celled, with a tranverse partition. Seeds solitary, convex and rugged at the outer side, flat on the inner, bordered, attached to the partition.


1. S. triflorum. Three-flowered Iron-tree. Willd. n. 1. Ait. n. 1. (Sideroxyloides ferrucum; Jacq. Amer. 19. t. 175. f. 9.) Sideroxyllum americanum, five ligulare dictate ferrum silicaceum; Pluk. Almag. 346. Phyto. t. 224. f. 2.)—Native of mountainous woods, in the islands of Martinico, Martinique, Barbadoes, &c. A tall branching tree. Leaves opposite, flaked, ovato-lanceolate, acute, entire, shining, six inches long. Flower-flakes axillary, very short, sparsely three-flowered, chiefly on the older and leafless branches. Flowers small and slender, about half an inch long, rofection at the outside, white within.—Mr. Ryan observed the corolla to be often changed, probably by the attack of some insect, into an oblong, hollow, rhythm bag, pointed at the top, almost an inch in length, resembling a fruit.

SIDEROMANTIA, σιδερομαντία, in Antiquity, a kind of divination performed with a red-hot iron, upon which they laid an odd number of straws, and observed what figures, bending, sparks, &c. they made in burning.


Gen. Ch. Cal. Perianth inferior, small, erect, in five segments, permanent. Cor. of one petal, wheel-shaped, in five concave, erect, roundish segments, with a little pointed infulled scale, at the base of each segment. Stam. Filaments five, awl-shaped, the length of the corolla, into which they are inserted alternately with the scales; anthers oblong, incumbent. Pet. Germin roundish, superior; style awl-shaped, the length of the stamens; stigma simple, obtuse. Berries roundish, pointed, of one cell. Seed. Nut ovate, large, of one cell.


Of M. SERALISIA of Mr. Brown, see that article, differs in having a berry, with from one to five seeds; but in the former case we know not how to distinguid it from the present genus. Sideroxylum jasobium, Linn. Sp. Pl. 279, according to Mr. Brown, constitutes a very distinct genus of the same natural order.

1. S. muta. Harmless Iron-wood. Linn. Synt. Nat. ed. 12. v. 2. 178. Willd. n. 1. Jacq. Coll. v. i. 245. (S. muta inerm.) Mill. i. c. 299.)—Thorns none. Leaves acute.—Native of Africa. Jacquin describes his plant, which appears to be the same with Miller’s, as an elegant evergreen tree from the Cape of Good Hope, flowering abroad in summer, sheltered in the greenhouse in winter. The leaves are scattered, flaked, lanceolate, pointed, entire, coriaceous, smooth; at a shining deep green above; paler beneath. Flower-flakes short, purple. Flowers white, on simple or branched axillary flages. We know nothing of this species but from the above authors. Linnaeus describes his plant as having filifer flowers, but we find no specimen in his herbarium to ascertain what he meant.

2. S. inerm. Smooth Iron-wood. Linn. Sp. Pl. 278. Willd. n. 2. Ait. n. 1. Jacq. Coll. v. 2. 250. (Sideroxyllum jasobium, dein corior inordinem nomine data arbor; Dill. Elth. 357. f. 267 f. 344.)—Thorns none. Leaves obovate, obtuse. Flower-flakes simple, round.—Native of the Cape of Good Hope. This Sideroxyllum has long been known in the greenhouses of Europe, but has no beauty to boast, at least in its flowers, which are small and inconspicuous, growing on short, cylindrical, simple, axillary, generally aggregate flakes. The leaves are thick and coriaceous; rounded at the end, and often emarginate; somewhat tapering at the base; two or three inches long.

3. S. melangobium. Laurel-leaved Iron-wood. Linn. Mapt. 48. Willd. n. 3. Ait. n. 2. Jacq. Hort. Vind. v. 1. 29. t. 71. (Padus folius oblongus, fructu foliario; Burm. Acr. 238. t. 84. f. 2. Laurifolium africana; Comm. Hort. v. 1. 95. f. 100.)—Thorns none. Leaves lanceolate. Flower-flakes simple, angular.—Native of the Cape of Good Hope. Communicated to Linnaeus in 1761, by the late professor David Van Royen; and sent to Kew in 1783, by Mr. Greffier. This has dark purplish branches, and elliptic-lanceolate leaves, longer and more acute than the last. The flowers and their flakes are altogether of a palish red hue. Linnaeus says the scales between the stamens are wanting, which Jacquin seems to confirm. The fruit is blue, the faze of a pea.


5. S. ferricum. Silky Iron-wood. Ait. n. 3. Willd. n. 5. (Seralfia ferricea; Brown Prod. Nov. Holl. v. 1. 530.)—
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511) - Thorns none. Leaves ovate, obtuse; downy, like the calyx and flower-flanks, beneath. Corolla viscid externally. Gathered by Mr. Brown, in the tropical part of New Holland; and by Mr. Joseph Banks, who sent it to Kew in 1773, to New South Wales. The flower slender, hairy at the base.

6. S. lamarckii. Obvate iron-wood. (Serrata obvata; Brown tab. 14.) Leaves ovate; four, what tapering at the base; feebly filiky beneath. Calyx nearly smooth Corolla smooth. Style very short. Gathered by Mr. Joseph Banks, in the tropical part of New Holland. In both these the distance between the flowers is incalculable.


8. S. tonentum. Downy Iron-wood. Roxb. Com. v. 28. t. 28. Willd. n. 9. - Thorns none. Leaves elliptic-oblong, with a blunt point; downy when young. Flowers downy, axillary, aggregated, the length of the footstalks. Found chiefly on the tops of the mountains in Hindustan, flowering during the hot season. This is a small tree. The leaves, three inches long and one broad, are smooth when full grown, but in a young state are covered with rusty down. Flowers numerous, of a dirty white. Fruit yellow, the base of a small cherry. Dr. Roxburgh says there are rudiments of five seeds, though only one or two come to perfection. He here seems that the generic character, in that respect, is but precarious.


5. S. decandrum. Linn. Mant. 45. Willd. n. 9. Thorns axillary. Leaves elliptical, deciduous. - Native of North America. In shady woods from Carolina to Georgia, flowering in July and August. A small tree, with minute greenish flowers. Pursh. The branches are round, minutely warty, with ilown, spreading, tapering, axillary, foliaceous thorns, three quarters of an inch long, accompanying the flowers, on the lower part of each branch. Leaves alternate, flaked, elliptic-oblong, about three inches in length, and more than one in breadth, entire, formed flat pointed, smooth, light green, finely reticulatcd with veins, deciduous. Flower-flanks axillary, several together, simple, about the length of the flowers, and rather longer than the footstalks. Segments of the calyx deep, oval, concave, smooth, obtuse, unequal, folding over each other Corolla twice as long as the calyx, but little spreading. We are unable to find any distinction between S. ipomoides and decandrum. A specimen in the Linnean herbarium from Kalm, under the latter name, has a pentapetalous flower, and is otherwise totally different from the species in question. Our description is taken from the specimen sent by Baron Munchhausen to Linneus, and marked jipooides by the latter, though described in his "Enumerations under the appellation of decandrum."

10. S. ipomoides. Thorny Iron-wood, or Argan. Linn. Sp. Pl. 279, excluding the synonym. Dryand. in Am. Hort. Kew. n. 5. (Elphodendrum Argan; Willd. Sp. Pl. v. 1. 1143.) - Thorns lateral. Leaves obtusely blong, deciduous. - Native of Morocco. This has strong, almost conical, thorns. Leaves aggregate, flaked, epivive, simple, entire, smooth, about an inch long. Flowers axillary tufts, nearly sessile. Rhunamus fuscus periodatus, Bocc. Spec. v. 8. t. 211, must be a very different plant, having really five leaflets on a common stalk, as Mr. Dryand remarks. Fr. Linn. Soc. v. 2. 225. This I read with particular remarks, that many East India sailors have erroneously been referred by Linnmusis to the Silius species, but he errs respecting the specimen under the name of a Linnmus herbaceous, which is evidently the plant belonging to this synonomy, though not to the supposed iron-wood character, being Flora Arsania, Willd. Sp. Pl. v. 4. 831. Rosk. Com. v. 1. 177.

The reader will perceive that there is considerable uncertainty about the league of the genus; and these is least certainty respecting its generic character, which is not yet clearly described with that of Bumelia; for that reason.

Hindostan, in Geography, a town of Hindostan, in Baglana; 50 miles E. N. E. of Bifleen.

SIDI, in Hindostan Mythology, is the name of one of the
two wives of Ganesa or Polkar, the god of prudence and policy. (See Polkar.) The name of the other was Budhi, and both were daughters of Vijjauvanga; which see. Their names occur but seldom in Hindoo writings.

SIDI Ben Tub, in Geography, a town of Algiers; 30 miles E.S.E. of Meliana.

SIDI Efsa, a town of Algiers; 30 miles S. of Bougieh.

SIDI Gazi, a town of Afstatic Turkey, in Natolia; 4 miles N.E. of Kintaja.

SIDI Ibrahim, a town of Algiers; 30 miles W. of Tubnalis.

SIDI Mebbab, a town of Africa, in Tunis; 20 miles N. of Gabs.

SIDI Shebri, a town of Afstatic Turkey, in Caramania, on a lake; 6 miles E. of Beihheiri.

SIDIALI Eli, a town of Nubia; 55 miles N. of Senmaar.

SIDIBISCHIR, a town of Africa, in the county of Fezzan; 16 miles E. of Mourzouk.

SIDIN, or VATINA, a river of Afstatic Turkey, which runs into the Black sea, at Vatilia.

SIDLA, SIDLAW, or Sudlaw Hills, a range of mountains in the counties of Perth and Angus, Scotland, which form the southern boundary of the great valley of Strathmore, whence they derive their name; Sudlaws signifying, in Erk, the fourth hills. This ridge commences on the west, in the vicinity of the town of Perth, and extends in a north-westerly direction to Redhead, a promontory on the coast of the German ocean, between Aberbrothick and Montrose. The mountains which compose it vary considerably in elevation; some of them not exceeding 800 feet in height above the level of the sea, while others are upwards of 1400 feet high. The following are the heights of several of the principal of them, as ascertained by barometrical measurement: Sidlaw hill, 1406 feet; Kingseat, 1238; Kipurnie hill, noted for an ancient tower on its summit, 1151; and Dunfinnan hill, 1024. The last mentioned hill is remarkable for being on that on the utterpart and tyrant, Macbeth, built a castle, with a view to secure his life against any attempt which might be made to murder him. Sinclair's Statistical Account of Scotland, vol. i. 1791.

SIDMOUTH, a market-town in the hundred of Earl Budleigh, and county of Devon, England, is seated in a valley on the banks of the river Sid, between high hills, at the distance of 145 miles S.E. of Exeter, and 158 miles S.W. of London. Sidmouth was formerly a sea-port of some consequence; but the harbour has been so clogged with sand and pebbles, that pleasure-boats and fishing smacks are the only vessels which can now approach the shore. Of late years the buildings and population have increased, in consequence of the number of persons who frequent the place in the summer, for the purposes of bathing and recreation. Good accommodations have consequently been provided, and a ball-room, billiard-room, and tea-room, erected for the convenience of the visitors. According to the population report in the year 1811, the number of houses in the parish was 349, inhabited by 1688 persons. A weekly market is held on Saturdays, and two fairs annually. Near the beach is an ancient stone building, with very thick walls firmly cemented, traditionally said to have been a chapel of ease, when Otterton was the mothers-church; and in a path leading from Sidmouth to Otterton, called Go-Church, is an ancient stone cross. At Sidmouth was formerly an alien priory, a cell to Mountbrow in Normandy, or rather to St. Michael in Per cubo Maris; for to this last mentioned monastery the manor was given by king William the Conqueror. It was sometimes reckoned as a part of Otterton priory, and, with that, after the dissolution of the foreign houses, was given to Sion abbey; and at the time of the surrender, devoted to the crown. The scenery on this coast, between Sidmouth and Seaton, is grand and romantic; presenting a succession of lofty cliffs, floping ridges, and narrow valleys. In some places the cliffs are composed of sand, tinged by a red oxyd of iron, and is partly calcareous. On the edge of a hill, north-west of Sidmouth, is an ancient encampment, called Woodbury castle, which is of an irregular form, with deep ditches: at some places the fos is double. Observations on the Western Counties, by George Maton, M.D. 2 vols. 8vo. The History of Devonshire, by the Rev. Richard Pole- wheel, 3 vols. fol. 1797. The Chorographical Description, or Survey of the County of Devon, by Triffram Ridfon, 8vo. 1714, 2d edit. 1811. Beauties of England and Wales, vol. iv. 1803, by J. Britton and E. W. Brayley.

SIDNA-BINES, a town of Fez, near the sea-coast.

SIDNEY, PHILIP, in Biography. See SYDNEY.

SIDNEY, ALGERNON. See SYDNEY.

SIDNEY, in Geography, a town on the island of Cape Breton; 20 miles N. of Louisburg.—Allo, a town of New York, on the Susquehanna; 50 miles W. of Hadon.—Allo, a post-town of the province of Maine, on the Kennebeck; 30 miles N.E. of Portland, situated in the county of Kennebec; and containing 1558 inhabitants.

SIDNEY CREE, See SYDNEY.

SIDODOÑA, in Ancient Geography, a barren place on the coast of Carmania, in the Persian gulf, where Nearchus is said to have refreshed himself, in his voyage from the island of Oaraetas to that of Cara, according to his journal of the navigation.

SIDOLOUCUM, or SODELOECUM, a town of Gallia Lycynensis, on the route from Lugdunum to Gefforiacum, between Augulo to dunum and Abellone, according to the Itinerary of Antonine.

SIDON, a town of Phoenicia, 30 miles from Berytus, according to the Itinerary of Antonine. This town was for a long time the metropolis of Phoenicia, till Tyre became more powerful, and contended with it this dignity. Jutin says, that the Phoenicians, being obliged to abandon their country on account of an earthquake, established themselves in the vicinity of the lake of Afylla, which they afterwards deserted, and established themselves on the neighbouring coast of the sea, where they built the town, which they called Sidon. Moles informs us that this town had been built by Sidon, the eldest son of Caman, the father and founder of the Phoenicians. Josina (ch. ii. v. 8) says, that the town of Sidon was rich and powerful when the Israelites took possession of the land of Canaan. St. Jerom says, that it fell to the lot of the tribe of Asher. In the year 1015, Sidon was dependent on Tyre, for Solomon induced Hiram, king of Tyre, to give orders to the Sidonians to procure from Libanus the wood which he wanted for the temple at Jerusalem, which he proposed to build. The Sidonians shook off the yoke of the Tyrians 720 years B.C. and surrendered themselves to Salmanazar, when this prince entered into Phoenicia. Josephus (Antiq.) relates, that about 150 years afterwards, Apries, king of Egypt, invaded Phoenicia with powerful armies, took Sidon by force, which event was followed by the submersion of all the other towns of Phoenicia to the conqueror. Cyrus conquered this city, but the Sidonians obtained permission of the Persians to have their own kings; and they took part in all the expeditions of their new masters, according to Herodotus (i. iii.) and in the war of Xerxes against the Greeks, the king of Sidon, according to Diodorus Siculus (i. xiv.) commanded...
SIDONEY, a town of Hud. in Onde; 42 miles from Karabag.

SIDONIUS, CALIS, SEBIES At Pinym, in Brevet, was born at Lyons about the year 372. He seems to have been of a distinguished family, his father and grandfather having been occupied in the office of procurator-prefect in Gaul. He was liberally educated, and obtained a great reputation for his literary talents, and especially in the practical art of the law.

Coming to the capital he was raised to the highest office by several successive emperors. He married Paparida, daughter of the emperor Augustus, whose favour he obtained by a long period of veracity, which was rewarded by a brass statue of him placed in the portico of Trajan. On the deposition of that prince, he was made a prisoner at Lyons by the emperor Maximian, whose favour he afterwards obtained by a new presentation. He was now employed by Maximian to conclude a treaty with the king of the Vandals, of whose person and manners he has left us a curious description. For this service he was rewarded with the title of count. Under Severus Reimer he defended with the most complete success the honour of the ancients against the incursions of the barbarians. On the accession of Antoninus he was ready with another presentation, and was in this required by the government of Rome, and the dignity of patrician was conferred upon him. In the year 472 he renounced all his secular employments, and became a bishop. He is said to have conducted himself with singular piety in his new office, to have been exemplary for charity, and all the episcopal virtues, and to have fed 4000 Burgundians, when under the perplexity of famine. He was a great sufferer at the siege of Constantinople, and was forced to fly at its surrender, but was very soon restored to his see. He afterwards endured some trouble from two fictitious priests, who contrived with him the government of the church, and also from some who were deemed by him heretics; and to this latter has been ascribed his death, in 487, which has been called a martyrdom. Of the writings of Sidonius, there are extant twenty-four pieces in verse, marked with the debased character of the age, and nine books of Epistles, containing much curious information relative to the learning and history of his times. The best editions of his works are those by Savatier in 1629, and by Simmond in 1652. Maseri, Gibbon, vol. vi.

Vol. XXXII.

SIELOW, in Gresle, a town of Hertford, in Buck. 1

SIELEN, in Hochvogel, a town of Stidz, in the county of Lez. 1434, 4 miles N. of Freising.

SIELENKES, John Philip, Hieroglyphs, professor of philosophy and the Oriental languages at the university of Altdorf, and member of the Society of Jesus, at Veleti, was born in 1739 at Nurnberg, where his father was organist to one of the churches. Being invited for the church, he was initiated in the Latin and Greek languages under very able masters, and he applied himself with great diligence to the Hebrew and Chaldee. In the year 1754 he repaired to the university of Altdorf, where he began to lectures on the holy scriptures, and where, in conversation with some of the other students, he established a private literary society, the first-fruits of which was a dissertation on the relations of the ancient Germans, and other Northern people. The piece was published in 1751, and was so highly esteemed by Errell, that he added it to his translation of Tacitus "De Moribus Germanorum," which was published in 1791. He now became the tutor to some young people, and he not only performed the duties attached to the office for six years with high reputation, but was able by diligence and anxiety to apply himself, at the same time, to researches in the literature, history, and arts of the ancients. He collected materials to compose memoirs of the life of Bianca Capelle de Meide, grand-duches of Tuscany, which was published in one volume octavo at Gotha, in the year 1789. But the chief part of his attention was directed to the MS. treasures contained in the library of St. Mark, from which so many of the classical authors have been printed and improved. His researches here were much facilitated by Morelli, the librarian, who supplied him greatly in the art of deciphering and reading manuscripts, with which he had been unaccustomed. Here he examined with great attention the valuable manuscripts of Strabo; and studied with the utmost care the two celebrated manuscripts of the Iliad, of which, before the appearance of Vallois' edition, he gave a circuit of about 200 in the German work entitled "Biblischen der Atn in Literatur und Kunst." In the same work he published a fragment from the Christ-mathas of Porphyry, collated from MSS. of Helvoct, and worked the same from the printed folio to Plato and other authors. With the same care, and with the same acumen of ancient authors preserved in different collections at Venice. In 1738 he quitted Venice, and made a tour through many parts of Italy, and at Rome he remained fifteen months, entirely occupied in studying the works of art, or in visiting the manuscripts in different
 libraries; and here he was much indebted to Reggio, the learned librarian of the Vatican, who allowed him the use of all those highly valued manuscripts, the greater part of which has been, since that, carried to Paris by the French. From thence, Siebenkees made copious extracts for the improvement of Strabo and other ancient authors; and here he transcribed the Vatican MS. of the characters of Theophratus, which is reckoned the complete and most perfect in existence. He collected likewise from this library a large mass of critical matter for the illustration of the classics, in extracts, fragments, and observations. Cardinal Borghini interested himself very much in favour of Siebenkees, and allowed him the free use of his museum at Velletri, where he wrote an explanation of a "Tellera Hospitalis," preserved in it, which was published with the following title: "Expositio Tabulae Hospitalis in Libro Verrilis afteravit." For this work, which was considered as extremely ingenious, he was elected a member of the learned society of Velletri. On his return to his native country, he visited the most celebrated libraries at Augsburg and Memingen, as well as in various monasteries in Swabia, and formed an acquaintance with many of the German literati. In the year 1755, he returned to Nurnberg, and in the following year he was appointed extraordinary professor of philosophy and of the Oriental languages at Altdorf; after this he was made regular professor of philosophy and history. Between the years 1751 and 1756, besides giving academic lectures on the Oriental as well as the Greek and Latin languages, the history of literature and of the German empire, he founded a periodical publication called "Strabon's Rerum Geographiarum Libri XVII. Graeca ad Opt. Codd. MSS. recensuit var. lect. ad notatiorumque illustrat Xylandri Veronem emendavit I. P. Siebenkees." He contributed to many periodical works, such as "Journal des Luxus," in which he published a picture of Venice; Harles' edition of "Fabrici Bibliotheca Graeca," &c. He died in 1796. He was not distinguished by any uncommon strength of genius; but extraordinary diligence, and a most ardent attachment to literary pursuits, enabled him to acquire a very extensive knowledge of languages and literature in general. He was an excellent draughtsman, and this talent was of great assistance to him in his archaeological researches in Italy. His writing, in his own language, was exceedingly elegant, but his Latin is neither pure nor correct. His service to literature would have been more important had he lived to finish his Strabo, a great part of the second volume of which was left unprinted at the time of his death. Some other works, on which he had been employed, were also left incomplete, viz. an edition of Theophratus, from a MS. copy in the Vatican, and his valuable "Anecdota Graeca," selected from the best MSS. in the Italian libraries. Both these works were completed after his death, and published at Nurnberg in 1798. 

SIEBADAB, a town of Hindooftan, in Benares, on the Ganges: 15 miles N.E. of Benares.

SIEDE, a small river of Germany, which runs into the Wefer, 2 miles S. of Hoyla.

SIEDENBERG, a town of Germany, in the county of Hoyla; 9 miles S.S.W. of Hoyla.

SIEG, a river of Germany, which rises in the eait part of Naffau-Siegen, passes by Siegen, Blankenberg, Siegberg, &c. and runs into the Rhine, two miles below Bonn.

SIEGBERG, a town of the duchy of Berg; 14 miles S.E. of Cologne. N. lat. 50° 58'. E. long. 7° 18'.

SIEGBURG. See SYBERG.

SIEGE, in War, the encampment of an army around a place, with defign to take it, either in the way of dillrecr and famine, by making lines all around it, to prevent any relief from without; or by main force, as by digging trenches, and making formal attacks.

The word is French, and signifies, literally, feast; al-leeding to the army's taking its feat before a town, till the reduction of the place.

The most celebrated sieges of antiquity are those of Troy, Tyre, Alexandria, and Numantium; and, among the moderns, those of Offend, Candia, Grave, Bergen-op-zoom, Gibraltar, &c. See LINE, in Fortification.

SIEG, To raise a, is to give over the attack of a place, quit the works thrown up against it, and the posts formed about it.

SIEG, To turn a, into a blockade, see BLOCKADE.

SIEG-Pieces, in Coinage, a division of modern coins, consisting of those that have been issued upon urgent necessity, during a siege, by any city or town. Patin has published a remarkable one of thick paper or parchment, struck at Leyden in 1754, when that place was besieged by the Spaniards. It has a lion rampant, PUGNO PRO PATRIA; and on the reverse this inscription, LIBERUM BATAVORUM. Various siege-pieces of gold and silver were issued in the reign of Charles I.; some of the latter being too large to be of 20l. value.

SIEGEN, in Geography, a town of Germany, which gives name to a branch of the house of Naffau, in the vicinity of which are some confiderable iron-mines and forges; 37 miles E. of Bonn. N. lat. 50° 48'. E. long. 8° 8'.

SIEGENBURG, a town of Bavaria; 20 miles E. of Ingolstadt.

SIEGES, LEs, a town of France, in the department of the Yonne; 24 miles W.S.W. of Troyes.

SIEGSTADT, a town of Norway, in the province of Agderhus; 58 miles N. of Christiana.

SIELE, a town of Lithuania, in the palatinate of Brazil; 56 miles N.E. of Brazil.

SIELUB, a town of Lithuania; 8 miles N. of Novogrodek.

SIEMIECZOW, a town of Lithuania; 15 miles W. of Sluck.

SIENAGE, a town of South America, in the province of Tacuman; 150 miles N. of St. Miguel de Tacuman.

SIENI, in Ancient Geography, a town of Egypt, situated, according to Piny, in a peninsula, on the western bank of the Nile, in which was a Roman garrison. See SYENE.

SIENITE, Granitelle of Sauffure, in Geology, a rock nearly resembling granite, but composed of felsipar and hornblende, and occasionally containing quartz and mica. The name is derived from the city of Siena, in Upper Egypt, where immense quantities of this stone were worked by the Romans, and large blocks and columns were brought from thence to Rome. The Egyptian fienen is in fact a granite.
granite, intermixed with a small quantity of felspar. Some stones are entirely granite, containing large distinct crystals of red felspar; in other stones, the crystals are very minute, and the whole is greatly predisposed in the latter case, felspar passes into the rock which the Germans call granite, or greenstone. When the felspar is finely granular, but contains a large yield of felspar embedded, it is then designated granite porphyry. This rock frequently occurs in large continuous masses, lying over granite and slate rocks. It is sometimes divided into distinct layers, which, by the German geologists, have been called strata; in other instances, it assumes the prismatic or columnar form. Some mineralogists class all these granite forms with felspar, which contains a portion of hornblende; but this distinction appears useless, for the same mineralogists admit that hornblende is frequently a constituent part of green or flaky granite.

In the infancy of science, substances which are essentially different, are apt to be confounded together, if they possess certain points of resemblance, and in a state of premature state of information or discovery are essential the same, are often separated by artificial classification, into distinct orders or species, by those who are accustom to misrepresent the cabinets of collectors, and overlook the great features of nature. Thus much useless distinction has arisen with respect to certain rocks, whether they were to be classed with granite or felspar, &c. The operations of nature, in the deposition of the great rock formations, are not to be limited by the definitions of the mineralogist. Almost all rocks, with the exception of the calcaceous, pass by such indefatigable gradation into each other, that the most experienced eye would find it difficult to class them, from the insufficiency of detached specimens. Nor will this appear surprising, when we consider that felspar generally consists half or more of the substance of all rocks not calcaceous, whether simple or compound; and even the distinct combinations in compound rocks generally contain about the same proportion of felspar, except quartz, which is almost entirely formed of it. Even in common clay, though the properties of clay are concealed by a portion of aluminum, yet it is still the predominating part of the mass. Now whether rocks were consolidated from a solution, or from a state of igneous fusion, the felspar, or principal ingredient, as it became variously intermixed with the other earths, would be in combination, pass into a vast variety of forms. Where the solution or fusion continued for a longer time undisturbed, the laws of chemical affinity would have free action, and dispense the different elementary parts to form those distinct crystalline forms peculiar to certain combinations and proportions of the earths. Where, from change of temperature, or other causes, the play of chemical affinity was interrupted, the masses would become confusedly crystalline, and lose all appearance of crystallization; and between these extremes there might be every possible variety of graduation, such as we now find to exist.

Hornblende appears to be the substance which connects granite with rocks that have a very different external appearance. When hornblende exists in small quantities in granite, it does not change the character of the rock, where the three essential substances, felspar, quartz, and mica, form the prevailing part of the mass, for chlorite, hornblende, and other minerals, are intermixed in small quantities in the granite of the higher Alps. When the quantity of hornblende is increased, and that of the mica and quartz diminished, the rock is properly what mineralogists denominate felspar. When the hornblende and other minerals, except felspar, are so intimately mixed as to form one homogeneous pile, in which the crystals of felspar are so numerous, it is called a porphyry. When the crystals of felspar are greatly preponderating, with the mica and hornblende, it is termed granite. When the hornblende is more to be considered, it forms rocks to which the names of hornblende and hornblende gneiss have been given. (See Tephra.) Granite has been regarded as a crystalline variety, and hornblende as aony variety, of trap. The latter is abundant in the pyramids of Egypt, where the crystals of hornblende are large and perfect, and it is found in the most celebrated structures of which to test any trace of crystal casts can be seen.

Sienna is found in Cornwall, and the western parts of Wales, and at Chatsworth forest in Leicestershire. It is nearly the latter place it is left to London, and to Northumberland, cut into blocks for paving-places. A black green and red felspar is used in the hedges called Marblefield, which is described in Mr. Hakewell's Geography, covered with a felspar with pyramidal blocks of the stone, which is called the pyramids of Great Britain. Here, we believe, been applied to any other purposes than for paving-places. Many of the ancient tombs in Lower Egypt are formed of this stone; and it has been better observed, that it was brought in great quantities from this country by the Romans, on account of the vast column, on, which could be formed from a pale block. As a proof of its durability, it is flated by trowels that columns which the Romans left unfinished in the quarries of Sienna, many a thousand years since, preserve to the present day the impression of the tools as sharp and distinct as if they had been recently worked.

STEN-KU, in Geography, a town of China, of the third rank, in Teche-kang; it belongs W.S.W. of Tientsin.

SIENNA, or SIENNA, a city of Italy, and capital of a district, in Tuscany. This district, called Sienese, or Territorio di Siena, was once a free republic, conquered by the emperors Charles V, in the year 1554, whose son, Philip II, king of Spain, ceded all parts, except the State of the Priors, to Carlo I., Duke of Florence. The city is pleasingly built on three hills, in a healthy situation. The houses are of brick, and the streets paved with the same. It is nearly five miles in circumference, but not peopled in proportion to its size; the inhabitants scarcely exceeding 15,000. It is the seat of an archbishop, and the cathedral is a fine Gothic building, coated with white and black marble within and without. The great portal was begun in the year 1284, after the designs of Giovanni da Pisa, and finished in 1351, by Agostino and Amedeo, Sienese architects. The front is prodigiously loaded with ornaments. All the work of the inside is most highly finished, as the carving in wood of the choir; the sculpture in marble of the pulpit; and especially the historied engraving of the pavement, representing in charms the most remarkable stories of the Old and New Testament. From an aperture in the choir pavement may be seen St. John's church, which lies directly underneath. Its entrance is without, on the hill; and this one church must be said to stand on another. Near the cathedral is the archbishop's palace, and opposite to it a large and well-endowed hospital, founded by a hermit. Here are also many other churches and convents. The church of the Dominicans is remarkable for its ancient picture-woods, representing the Virgin with the infant Jesus in her arms, by Guido da Siena: it is dated 1221, and is in the Venetian chapel; though to
ancient, it is in good preservation. The university was founded by Charles V. The German students enjoy particular privileges, which they derive from the fame emperor.

In 15th century the academy of the Intronati was here founded. This city still retains some shadow of its former republican liberty, which may appear from the manner of electing its council, which consists of nine persons, styled Excellenze; but whose power the great duke very much curtailed. The castle, built at one end of the city, in order to curb the inhabitants, is of no great strength. Near it is the university's academy for martial exercises. Many nobility reside here, who have a campo or alicrim of both sexes; and it is generally allowed that the Italian language is in a part of Italy spoken with greater purity; 54 miles S. of Palencia. N. lat. 21°. E. long. 11° 16'.

**SIENNE, a river of France, which runs into the sea, near Havre.**

**SIENNOI, a town of Russia, in the government of Mogile; 60 miles N.N.W. of Mogilev. N. lat. 54° 30'. E. long. 29° 44'.**

**SIEN-TCHING, a town of Corea; 23 miles N.W. of Long-kouang.**

**SIEN-YEOU, a town of China, of the third rank, in Fo-kien; 22 miles N. of Sinen-techeon.**

**SIEU, a city of China, of the second rank, in Kiang-nan; 381 miles S. of Peking. N. lat. 33° 45'. E. long. 117° 32'.**

**SIEU-GIN, a town of China, of the third rank, in Quang-fi; 15 miles N.W. of Yong-nan.**

**SIEU-OU, a town of China, of the third rank, in Ho-nan; 36 miles S.W. of Hue-kiun.**

**SIEU-YUEN-HOTUN, a town of Cheinc Tartary; 330 miles E. of Peking. N. lat. 40° 18'. E. long. 122° 51'.**

**SIERPNOI-PESOK, a small sandy island of Russia, in the Frozen ocean. N. lat. 71° 30'. E. long. 166° 14'.**

**SIE, a river of France, which rives about five miles S.E. of Thonne, and runs into the Rhone, near Scillac.**

**SIEREAGE, a town of Hindooftan; 32 miles N.W. of Bavaro.**

**SIERCE, a town of France, in the department of the Moselle. In 1792, this town was taken by the duke of Brunswick; 9 miles N.N.E. of Thionville.**

**SIERMAH, a town of Bengal; 24 miles S. of Palamow.**

**SIERNDORF, a town of Austria; 7 miles N.W. of Korn-Neuburg.**

**SIERNING, a town of Austria; 12 miles S.W. of Ebenfurth.**

**SIERO, a town of Spain, in Asturia; 9 miles N.E. of Oviedo.**

**SIEROCK, a town of the duchy of Warfaw; 15 miles N. of Warfaw.**

**SIERRA, the eastern part of New Caftile, so called from its mountains. The word Sierra is a general name for mountain in Spain, and those distinctive appellations are often given from the neighbouring towns.**

**SIERRA d'Adriana, mountains of Spain, in Guipuzcoa, which took their name from the hermit Adrian. The road leading over it to Alaba and Old Caftile is very difficult to travellers. At the very beginning of it is a dark space, between 40 and 50 paces in length, cut through a rock; after which we ascend up a hill, which is reckoned the highest among the Pyrenees. These mountains are but little inhabited, a few shepherds' huts only being to be seen; 18 miles S. of Tolofa.**

**SIERRA de Bejer, a mountain of Spain, in the province of Leon; 20 miles N.N.E. of Plafencia.**

**SIERRA Cerver, a small rocky island, near the east coast of Sardinia. N. lat. 30° 40'. E. long. 10°.**

**SIERRA del Cid, a mountain of Spain, in Valencia; 14 miles N.W. of Alicante.**

**SIERRA de Cobos, a mountain of the island of Cuba; 15 miles W. of St. Jago.**

**SIERRA de Guadarama, a mountain of Spain, in the south part of Old Caftile; 15 miles S. of Segovia.**

**SIERRA de Gador, a mountain of Spain, in the kingdom of Grenada; composed of marble, of which they make excellent lime; 12 miles S. of Almeria.**

**SIERRA de Gredos, a mountain of Spain, in the province of Leon; 25 miles N.W. of Plafencia.**

**SIERRA Jalon, a mountain of Spain, in Estremadura; 20 miles N.N.W. of Coria.**

**SIERRA Leone, a country of Africa, in Upper Guinea; so called because it is mountainous, and the mountains abound in lions. It is composed of several states or kingdoms, and is well watered by a river of the same name, at the mouth of which an association of English gentlemen established a settlement, on land purchased of the prince of the country. This company was incorporated by act of parliament, in the year 1751. A considerable number of whites and free negroes were conveyed thither from Nova Scotia, besides many who went from England. At first the new settler seem to have suffered from the want of proper habitations during the rainy season, but subsequent accounts were more favourable. In the month of December 1793, the natives continued perfectly friendly; the neighbouring chiefs shewed every desire of being connected with the company; some had sent their children to be educated at Sierra Leone, and many others proposed to send them in the ensuing dry seafon. The rainy season had passed over without any considerable mortality; and the Nova Scotia colonists had maintained their health, and appeared to have become well insured to the climate. The trade was much more brisk; the cultivation was advancing, both in the colony and parts adjacent; and there appears to have been no difficulty in procuring the native labourers. The rice, cotton, and other articles in the company's plantation, had thrived exceedingly, the sugar-cane excepted, which had been hurt by the white ants. The school of the company contained between 300 and 400 children, chiefly Nova Scotians, who appear to have made full as much improvement as is common in European schools, under similar circumstances. The colony had gradually improved in order, and appeared to be advancing in every respect; but neither these appearances, nor several parliamentary aids, could support it sufficiently against new difficulties which continually occurred; and the company was dissolved in 1807. Sierra Leone river abounds in fish, but is much infested with alligators. The country adjacent produces abundance of millet and rice; and the woods are filled with parrots of various kinds, and other beautiful birds; serpents are found, some of a very large size; and numerous wild beasts, such as lions, tigers, elephants, wild boars, and monkees. The benevolent and laudable exertions of the African Inquisition, established since the abolition of the slave-trade, have very much contributed to the prosperity of the colony of Sierra Leone. The climate is much better for European constitutions than that of almost any other part of the coast. There are now 4000 houses within the walls of Freetown, containing 1917 inhabitants, besides about 2500 Negroes, freed by sentences of the admiralty-court, and residing there under the protection of the government. There is a considerable
SIE

Sierra Nevada, or Iberian, a lofty mountain of Spain, 14 miles inland from the coast of Mexico; 33 miles W. of Mexico City.

Sierra de Mics, a range of mountains of New Mexico, covering the point of Cabeza.

Sierra de Mesilla, 3 miles inland from the coast of Mexico. N. lat. 34° W., long. 30°.

Sierra Nevada, in lat. 42° of Spain; 10 miles E. of Guatemala.

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of Ruffia, called Cape Taimura by captain King. N. lat. 78°. E. long. 101° 14'.
SIEVERO-ZAPADNOI, a cape on the north coast of Ruffia. N lat. 77°. E. long. 94° 14'.
SIEUGUR, a town of Hindoollan, in Malwa; 9 miles S. of Pandia.
SIEVI, a town of Sweden, in the government of Ulea; 45 miles S. of Brahellation.
SIEUR, a title of honour, or quality among the French; chiefly used among the lawyers, and in public acts, and other writings of that kind.
The title sieur is also given by a superior to an inferior, in his letters and other private writings.
In this sense, authors sometimes use it, by way of modelly, in speaking of themselves; thus, at the heads of books, we lee Traduction du sieur d'Ablandart; Œuvres du sieur d'Epréaux, &c.
SIEUR is also a term expressing feigneurly, or lordship: as ecuyer or sieur of such a place.
SIFACE, Giovan Francesco, Detto, in Biography, a celebrated opera-finger in the service of the court of Modena, who obtained the title of Siface from his admirable performance of the part of Syphax, in the old opera of Mitridate, modernized by Metafello, and set by Porpora for Venice in 1730. Algarotti highly praises the pathetic manner in which he sung. Though it is confidently afferted, in the work of a late historian, that Siface had been in England as a finger in the chapel of king James II., yet we can trace no proof of this affertion.
In travelling from Ferrara to Modena, he miserably lost his life in a quarrel with an insolent and brutifli officer.
SIFANS, or Tou-fans, in Geography, subjects of the Chinefe empire, who inhabit to the west of China, and the provinces of Cheff-el and Se-tchuen. Their country is only a continued ridge of mountains, inclosed by the rivers Hoang-lo on the N., Ya-long on the W., and Yang-tie-king on the E., between the 30th and 35th degrees of north latitude. They are divided into two kinds of people; the one are called by the Chinefe black Si-fans, the other yellow, distinctions arising from the different colours of their tents. The black are the moft clownifli and wretched; they live in small families, and are governed by petty chiefs, who all depend upon a greater.
The yellow Si-fans are subject to families, the oldest of which becomes a lama, and allurnes the yellow drefs. These lama-princes, who command in their respective districts, have the power of trying caufes, and punifhing criminals; but their government is by no means burdenfome: provided certain honors are paid them, and they receive punctually the dues of the god Fo, which amount to very little, they molest none of their subjects. The greater part of the Si-fans live in tents; but some of them have howfes built of earth, and even brick. Their habitations are not contiguous; they form at mofl two hamlets, confifting of five or six families. They feed a great number of flocks, and are in no want of any of the neceffaries of life. The principal article of their trade is rhubarb, which their country produces in great abundance. Their horefes are small; but they are well-shaped, lively, and robust.
These people are of a proud and independent fpirit, and acknowledge with reluctance the fuperiority of the Chinefe government, to which they have been subjected: when they are fummoned by the mandarins, they rarely appear; but the government, for political reafons, fends to this contempt, and endeavours to keep thefè intracatable fubjects under mildnefs and moderation; it would, besides, be difficult to employ rigorous means in order to reduce them to perfect obedience—their wild and fchrought mountains (the tops of which are always covered with fnow, even in the month of July) would afford them places of shelter, from which they could never be driven by force.
The culmefs of these mountaineers are totally different from thofe of the Chinefe. It is, for example, an act of great politenefs among them to preferent a white handkerchief of taffety or linen, when they accoft any perfon whom they are defirous of honouring. All their religion conflits in their adoration of the god Fo, to whom they have a fingular attachment: their fuperficitious veneration extends even to his minifters, on whom they have confidered it as their duty to confer fupreme power, and the government of the nation.
Some of their rivers wash down gold mixed with their sands: they are acquainted with the art of applying it to life, and form it into vafes and small Statues, of which they often make offers to their idol; it even appears that the life of gold is very ancient among them; for Chinefe books relate, that under one of the emperors of the dynasty of Han, an officer having been fent to the Si-fans to complain of the ravages committed by some of their chiefs, they endeavoured to appeafe him by making him a present of a piece of gold plate, which the officer refufed, telling the Si-fans, that rice ferved up in golden dihes was to him infufible food.
These people have loft much of their ancient splendor; for the Si-fans, who at prefent are confined in a wild country, where they have not a single city, enjoyed formerly an ex-""
SIGA, a town of Aetos, Turkei, in Natisa, on the Tana; it belongs to the S.W. of Smyrna.

SIGA, in Ancient Geography, a town of India, on the Ganges, to which Ptolemy assigns its limits.

SIGARA, a town of Archelaus, Ptolemy's.

SIGARA, in Geography, a town of Hindostan, in Calcutta; 12 miles N. of Bahrein.

SIGATHA, in Ancient Geography, a town of Libya. Strabo.


SIGIAN, in Geography, a town of France, in the department of the Auvergne, near which Charles Martel defeated the Sarazens; 9 miles S. of Neuronne.

SIGEBERT I., in Geography, king of Austrasia, born about the year 555, was the son of Charles I., king of the Franks. At the death of that sovereign, in 562, his dominions were divided between his sons; and Austrasia, or the kingdom of Metz, fell to the lot of Sigebert. His territories were invaded, soon after his accession, by the Huns, whom he defeated and drove across the Elbe. During his absence, his brother Chilperic made an inroad into Austrasia, and took several places; but Sigebert returning with a victorious army, took Strassburg, Chilperic's capital, and defeated Chilperic himself in battle. He was, however, induced to grant him favourable terms, and to restore the conquests made upon him. Sigebert's reputation was now so high, that he obtained for a wife the famous Brunehaut, daughter of the Spanish king of the Visigoths, with a rich portion. The dominions of his brother Chilperic, at his death, were shared by the three survivors; but it was not possible for such a divided empire to continue long at peace. Chilperic had married Gislaundia, sister of Brunehaut, who was afterwards murdered at the instigation of her husband, Thibaud. Brunehaut married Sigebert; in consequence of his brother Chilperic, king of Burgundy, by order of this crime, and they overran a great part of his dominions.
fary to form an entire office to his honour. And this information is copied by Fabricius, De Script. Eeclelf. Arte Mufica Antipthonas et refponforia de fancius.

SIGENBURY, in Geography. See Siegenburg.

SIGENUS PORTUS, in Ancient Geography, a port of Africa, on the coast of Mauritania Caftariensis, between Siga and Camarata, according to the Itinerary of Antoninus.

SIGER, in Geography, a river of Silefia, which runs into the Oder, six miles below Beuthen.


Gen. Ch. Outer Common Calyx of five linear, cylindrically, widely spreading, permanent leaves, longer than the flower: inner somewhat five-angled, of several ovate, concave, obtuse, equal leaves. Cor. compound, with a half radius. Florets of the disk united, several, funnel-shaped, exceeding the calyx in length, with either five or three teeth; of the radius five, or not so many, all on one side of the flower, female, ligulate, broad, short, three-cleft. Stem. in the united florets, Filaments five or three, very short; anthers combined in a cylindrical tube. Pifl. in the united florets, Germs oblong, incurred, the fize of the calyx; fyle thread-shaped, the length of the lamens; stigma divided: in the females, Germs oblong, incurred, the fize of the calyx; fyle and stigma as in the united florets. Peris. none, the calyx remaining unchanged. Seads in the united florets foliate, oblong, bluntly quadrangular, thickened upwards, obtuse, naked; down none; in the female ones the fame. Recept. chaffy; scales very like the scales of the calyx, concave, embracing the seeds at one side, deciduous.

Eff. Ch. Receptacle chaffy. Seed-down none. Outer common calyx of five leaves; inner spreading. Radius all on one fide.

Obf. S. flofeufola of L'Heritier offers a fingular exception in this great natural clafs, with regard to number, having the florets of the disk three-cleft, and triandrous.

1. S. orientalis. Oriental Siegebeckia. Linn. Sp. Pl. 1269. Willd. n. 1. Ait. n. 1. (Siegebeckia; Linn. Hort. Cliffs. 412. t. 23. S. triangularis; Cavan. Ic. v. 37. t. 253. Cichoreo aflinnis, Lampiana finica, mentaltri folinis, calyce fimbrato hipidio, finici bi-bin-fiasco dicta; Pluk. Amath. 58. t. 308. f. 2.)—Leaves falked, ovate, unequally toothed; fomewhat angular at the bafe. Outer calyx twice as long as the inner.—Native of China and the Scaf. Indies; also, according to Cavannels, of Mexico. Thouin informed the younger Linneus that he had it from the Cape of Good Hope, and thetraits of Magelle. The plant has been known for near a century in the gardens of Holland and England, and is a tender annual, flowering in July and August, but with much more finguarity than beauty to commend it. The fluem is bulky, leafy, round, rough, three or four feet high. Leaves opposite, rough, two or three inches long, somewhat dilated and triangular at the bafe, tapering down into each fchool; the uppermost much smaller and more oblong. Flowers numerous, terminal, flaked, brownish-yellow, chiefly confpicious for the spreading outer leaves of their glandular vifcid calyx, each three-quarters of an inch long. We cannot agree with Willdenow in difcarding Pluknet's fynonym, which fully agrees better with this than with the following.

2. S. hifier. Georgian Siigebeckia. Willd. n. 2. (Bidenti fimillis, folii latifsimi ferrati; Buxb. Cent. 3. 29. t. 52.)—Leaves flaked, ovate, bluntly toothed; rounded at the bafe. Outer calyx the length of the inner.—Oberved by Buxbaum about villages in Media, flowering in July. Willdenow, who had been a dry fpecies, afferts this to be a very diftinct fpecies from the former, to which Lin- neus referred Buxbaum's fynonym. The leaes, in fomes, are neither triangular, nor cut at the bafe, but ftortly and bluntly toothed. The outer and inner calyces, being both of an equal length, feem to us a more certain dif- tinction.

3. S. flofeufola. Small-flowered Siegebeckia. L'Herit. Strips. 37. t. 19. Willd. n. 3. Ait. n. 2. Pursh n. 1. Ehrh. Exifcc. n. 79.—Leaves nearly fellige, ovate, toothed. Florets of the disk three-cleft, triandrous.—Native of Peru, from whence we believe its feeds were brought or fent by the unfortunate Domby. This has the habit of the ftrict fpecies, but the fluem is fmeother. The leaes, though taper- ing at their bafe, are fcarcely flaked, nor are they at all dilated, or angular. The gpateft peculiarity is found, as we have already faid, in the flowers, which are smaller and paler than thofe of S. orientalis, ufually, though we believe not always, deftiru of a radius, but fingularly remarkable for the florets of the disk having only three teeth and three flaments.


SIGET, in Geography, a town of Hungary, on the frontier of Poland, near the fource of the Teyffle; 50 miles E. of Munkaaz. See also Ziger.

SIGEUM, in Ancient Geography, a town and port of Asia Minor, in the Troade, at the dilance of 60 fladia from the town of Rhizeteum, and 100 fladia from Tenedos. Strabo reports that this town was ruined in his time. The Myli- tenians built it; but soon after the Athenians expelled them, which occasioned a long war between these two people; but at length, according to Herodotus (v. v.), having fubmitted it to the arbitrament of Periander, the fon of Cyppifie, this prince adjudged it to the Athenians, in the year 564 B.C. or, according to the computation of Ufer, in the year 589. The Athenians kept posffion of it till the time of Alexander. Under his succesfors it was defroyed by neigh- bouriing people. Pliny speaks of it as of a town which had long ago fubfifted: "quoadam Sigaeum oppido." Sigeam was re-establishied under the Christian emperors, and erected into a bifhopric dependent upon Cyccus. A fifeable village, which has been built upon its ruins, and which preffes a few vestiges of the ancient town, is called by the Turks "Yenitcher Keui," or village of the janizaries, and "Diguir- Keui," or village of the infidels, as it is no longer occupied except by Greeks. The curious go thither to admire a block of marble, eight or nine feet long, placed by the fide of the door of a church: it bears a Greek inscription, al- most entirely effaced, the words of which follow one another without interrupftion, i.e. that the firft runs, as among us, from left to right, and the fconf runs back from right to left, and so on to the end. (See Boutraphedon.) On the other fide of the door is feen a bas relief in marble, tolerably well wrought: it represents a woman feated, to whom other women appear to offer children in fwallding clothes; behind there is feen another woman, holding a box in one hand and a vafe in the other.

SIGEUM
...riddlr-ttring, guMUi Rome, I Ik with nay, larger but is i as. SiKkK, adults (J thrir the 65 in fpedicles l>ric-,.,, retain. kind entirely. and mile in li' thr haa ii not and It greatly. but never of is;, ''' plam, fmall mite EMrnt. »r timr, left a mitei, ..oo. thriltt and and Alkmti; 5 thrfe thr miiiiirr. it whi. vide idatioo; al the that the on It vK'iikltv retinal, it, eyi to the that this, and pupill we have, of every of this concur, of a farcely acquirrs, that it is extremely to see at all, or at best very imperfectly and slowly.

This imperfect vision may either owe its fault to the one of the humar, or to its parts; to, fey, or retin, or complexly in them all together. It is for to discover whether there be any imperfection in the retina in this state of life, that men are born ever, in new infants, tender and light like a puppy; if it be in any of the other parts that the imperfect is so, it must be either in their nature or extent. M. Petit, of the Academy of Sciences at Paris, determined to examine thoroughly into the cause of this, was at the pains of detecting the eyes of several inants which had died soon after their birth, and in three-fourths of them he found the vitreus, the crystalline, and the capsule, all greatly deficient in their transparency. The uvea appeared also more opaque in adults, and the pupil oveal; and that there was either more, or, at the utmost, very little of the aqueous humour; and of those eyes where the humours had not this opacity, they were all, as were also the membranes, of a redish colour; and this was observed in instances of seven and nine months old.

The cornea in these eyes was also remarkably thick, which is, in general, found to be the case in the eyes of all foetuses. The thickness and opacity in these corneas gradually diminsh in time, and that soon; so that the eyes of children appear much brighter at two or three months old than when new-born. The aqueous humour seems also, in all foetuses, to be wholly wanting; and where it is found, is ever greatly in an under proportion to the other humours.

It therefore appears, that the diminu and imperfection of light, in new-born infants, are owing to the over-thickness of the cornea, and to the too small portion of the aqueous or watery humour. It appears plainly also, from experience, that the eye is not able, in infants, to bear the light, till the pupil is greatly contracted; as is the case also, though in a less degree, in adults; and it is very probable, that the extreme softness of the retina in this state may make every ray of light affect it much more plainly than when grown more firm.

M. Petit having continued his examinations of the eyes of infants, up to the age of five or fix weeks, found in all his dissections, that the cornea daily grew more and more convex and glossy; and this may be rationally concluded to be owing to the daily increse of the aqueous humour, which must, by that accretion, throw it out into a greater convexity, and make it daily more and more thin and transparent. The uvea also acquires a greater extension, and its fibres become more moveable; whence the pupil acquires a power of enlarging or contracting itself, at the approach or absence of light, with much more ease and readiness than it could before. The humours thus all become capable of letting in a larger quantity of light; the retina is at the same time every day gaining a new firmness, and the pupil becomes capable of an easy dilatation, or refraction, for the letting in occasionally a greater or less number of rays, and the refractons are perfected by the augmentation of the aqueous humour. It is plain, therefore, that the clearness of vision mill every day increase. All this change comes on in infants only by time; and it may be judged of, as to its state, by inspection, by the brilliancy and convexity of the cornea, and by the manner of their turning their eyes towards objects, as before them; and this time is not cer-
tain, or limited, but differs greatly in different children, some being able to see clearly at the end of a month, others not till after many months.

At the time that this gentleman was disjecting the eyes of human foetuses and infants, he also curiously observed the eyes of young quadrupeds. The puppy, when newly brought forth, has always its eyes opaque; the kitten, on the contrary, has them clear, and every way like those of adults of the same species. In foetuses of other quadrupeds, the lamb has its cornea a little turbid and opaque; the calf and the pig have them more or less opaque, but the calf so much of all. Mem. de l'Acad. Par. 1737.

SIGHTS, in Botany, denote two thin pieces of brass, raised perpendicularly on the two extremes of an alidade or index of a theodolite, circumferentor, or other like instrument; each of which has an apature or slit up the middle, through which the visial rays pass to the eye, and distant objects are seen. Their use is, for the just direction of the index to the line of the object.

Sometimes the slits or apatures have glasss or leaffes fitted into them; in which case, they are called teleopic sights, by way of diminution from the former; which, in respect of the others, are denominated plain sights.

Mr. Flamsteed and Dr. Hooke absolutely exploded the use of plain sights in astrononimal observations. The errors in Tycho's latitudes of the stars Mr. Flamsteed ascribes wholly to his using plain sights; and inspects that Hevelius, using the same kind of sights, must fall into the like errors. Hevelius, on the contrary, in a paper in the Philosophical Transacions, vindicates the use of plain sights, and prefers them to teleopic ones: the main objection he makes to the latter is, that no observation can be safely taken with them, without first examining and rectifying them; in which examination, many and gross mistakes are likely to be committed. To which he adds, that in sextants, octants, aximuth quadrants, &c. he does not see how such examination can be made, at all times, without much loss of time.

SIGILLARIA, a solemn feast held among the ancient Romans; thus called from a custum which obtained therein, of sending little presents from one to another, confifting of seals, little figures, and sculptures, made of gold, silver, brass, or even earthenware, and of devoting them to Saturn, as an atonement for themselves and their friends.

The Sigillaria followed immediately after the Saturnalia, and held two days; which, with the five days of the Saturnalia, made a solemnity of seven days.

Some derive the origin of sigils and figures, in this solemnity, from the argel, or rather figures of men, thrown annually into the Tiber, from the Pons Sublicius, by the Veiltsa, on the ides of March. Vide Macrob. Saturn. lib. i. cap. 7, 10, and 11. See also AREGA.

SIGILLATA TERRA, a name given to several kinds of medicinal earths marked with seals, to express their being genuine. The principal is the Lemnian earth: this is a kind of earth, or bole, dug in the ile of Lemnos, and then also called Lemnian earth; of confiderable use in medicine.

It was anciently found in a mountain, in the neighbourhood of the city Phaethidia, where Dianas priests went, at certain times, with great ceremony, to dig it up. After a little preparation, they made it up into troches, and sealed them with Dianas seal; whence the appellation of sigillata, sealed.

SIGILLO, in Geography, a town of Italy, in Umbria; 12 miles N. of Nocera.

SIGILLUM, a seal, or signet.

SIGILLUM Marie, Lady's Seal, in Botany, a name by which some authors have called the bryonia nigra, or black bryony, a climbing plant, common in hedges.

SIGILMESSA, in Geography. See SUGULMESSA.

SIGINDUNUM, in Ancient Geography, a town of Upper Macedonia, on the banks of the Danube, according to Ptolemy.

The Itinerary of Antonine marks it on the route from Rimini to Byzantium, between Taururnum and the mount of Gold.

SIGINNI, a people of Asia, who, according to Strabo, had the same manners with the Persians.

SIGISA, a town of Hifpania, upon the Tader, N.W. of Vergilia.

SIGISMONDO, in Biography. See INDIA.

SIGISMUND, emperor of Germany, and king of Hungary and Bohemia, was the son of the emperor Charles IV. of the house of Luxemburg. He was born in the year 1366, and at an early age was sent to the court of Lewis, king of Hungary, to one of whose daughters he was betrothed, with the intention of making him successor to the throne. During his minority, a party of nobles conferred the crown on Charles, king of Naples, on which event Sigismund retired to Bohemia. Charles being afflicted by the contrivance of the queen-mother, who was put to death for the crime, Sigismund assembled an army, and entering Hungary, liberated his wife Mary, who had been imprisoned, and was crowned king when he was in the twentieth year of his age. He severely revenged the execution of his mother-in-law; and getting possession of the persons of the nobles who had invited Charles, he caused them all to be beheaded, to the number of thirty-two. The bloody act occasioned so much disaffection, that the Turkish emperor Bajazet determined upon taking the opportunity of invading Hungary, which he did with complete success; and Sigismund was dethroned. He however escaped, and retiring to Bohemia, levied troops, with which he recovered his crown, and being brought to reason by adversity, he thenceforth conducted himself so as to obtain the good-will of his people; and such was the reputation which he now acquired abroad, that he was elected emperor of Germany.

The first object of Sigismund in his new dignity, was to put an end to various disorders and divisions which prevailed in Germany. He held a conference with pope John XXIII. for the convoking of a council, the principle object of which was the termination of the schism in the papacy which had long divided the church. He engaged with great zeal in this matter, and at length effected the assembling of a council at Constance, in 1414, at which he himself was present. As the opposition of the Hufites to the doctrines of
of Rome was now making great progress, the emperor granted a safe-conduct to John Huts to come to the council, and defend the articles of his faith; and it was to be his everlasting disgrace, that he fulfilled the council to violate the protection he had solemnly given, and to bring this reformer to the stake. He now endeavored to restore peace among the Christian princes, that they might concert in a plan for re-forming the unity of the church: with this view he visited both France and England, then at war with each other, but with little success. The council, however, agreed in deploving the existing papacy, and electing a new one. Upon the death of his brother Wenceslaus, in 1419, Sigismund succeeded to the crown of Bohemia, which country was in a flame, from the revolt of the persecuted Hussites, under their leader the famous Ziska. He marched with an army into Bohemia, but was entirely defeated by Ziska, and the same fortune attended him a second time. After the death of that hero, a long term of bloody wars succeeded, which at last terminated in the submission of the Thaborites, as the insurgents were afterwards called, and Sigismund was crowned at Prague, in the next year, and reduced the whole kingdom to obedience. He had some years before this received the imperial crown both at Milan and at Rome. His bigotry urged him to tyrannical proceedings against his Bohemian subjects, which excited their animosity to such a degree, that he determined to leave the country. When he was just upon the point of putting this resolution into execution, he was seized with a mortification in his toes, which was the preface to approaching infirmity, and having publicly declared his fon-in-law, Albert, duke of Austria, the heir to his dominions, he died in December 1437, in the 71st year of his age, and the 27th of his imperial dignity. Sigismund is said to have had a fine person, and to have polished various accomplishments, especially an uncommon skill in the learned languages. He was, moreover, a patron of learned men, was liberal, brave, and active; but, on the other hand, he was cruel, vindictive, and superciliously devoted to the clergy. He was licentious in his conduct, the confeiscuifnes of which made him indulgent to the open and abandoned debauchery of his second wife, Barbara de Celley, denominated the Melfaina of Germany.

Sigismund I. king of Poland, surnamed the Great, was the son of Casimir IV. He succeeded his brother Alexander in 1507, and immediately applied himself to the remedying of abuses that had crept into the administration of public affairs. In this arduous task he was assisted by the able and faithful minister John Bonner, whose name is still held in veneration by the Poles. A rebellion in Lithuania, abetted by the tsar of Muscovy, joined to an incursion of the Walachians and Moldavians, obliged him to put himself at the head of the troops, and he completely succeeded against his enemies. The next antagonist with whom he had to contend, was the marquis of Brandenburgh, grand-master of the Teutonic order, who had refused to acknowledge the sovereignty of the king of Poland over the province of Prussia; in this dispute he was also successful, and obliged the marquis to grant him half the province of Prussia, as a barrier against the Teutonic knights. Sigismund now fat down the peaceful sovereign of Poland, Lithuania, the duchies of Smolensko and Severia, and considerable territories on the Euxine and Baltic, while his nephew Lewis was king of Hungary and Bohemia. This accumulation of power gave umbrage to the house of Austria, which, by its intrigues, incited the Walachians, Tartars, and Muscovites, to make new rooods. Thele, however, were soon driven back with great loss to their own countries, and Sigismund left again in peace. He died, after a wife, fortunate, and long reign, in the eighty-first year of his reign, in the year 1544.

Sigismund II. of Poland, king of Poland, one of the preceding, was elected to the crown when his father's death. He reduced the noble by marrying the widow of an obscure peer; and it is asserted, that, to recover from the knave, he permitted them to live in their houses for collection to the Prebendal universities of Germany, which was the means of introducing the opinion of Poland. He himself removed attached to the old religion, and by his prudent and moderate conduct kept out the kingdom those disorders which disturbed the peace of so many other European countries. He was extremely diligent in promoting the improvement of his states by wise laws and regulations, and the correction of abuses, which enabled him to maintain a powerful standing army without the addition of new taxes. This force he had occasion to employ as a auxiliary to his kinsman the archbishop of Riga, against an invasion of the Swedes. He made himself master of great part of Livonia, and forced the grand-master of the Teutonic order, who had called in the Russians, to rescind their alliance, and put the order under the protection of Poland. From this period Livonia was annexed to Poland, and the grand-master abdicating his dignity, received in compensation the duchies of Courland and Semgallia, which long remained in his family. The tsar, John Lazlovitz, made an irruption into Lithuanus, which occasioned much bloodshed and devastation, and Sigismund was glad to propose an armistice; and while this measure was in discussion, the king of Poland died in 1592, leaving only two daughters, and with him terminated the male line of the house of Jagellon. He left a high character for courage, ability, and every princely quality, but he is said to have been too much attached to the fair sex.

Sigismund III. king of Poland, surnamed De Vaio, was the son of John III. king of Sweden, and Catharina, daughter of Sigismund I. king of Poland. He was born in 1566, and in 1587 was elected to the crown of Poland, in competition with Maximilian of Austria. Through the exertions of Zamofki, the crown-general, after a civil war, in which Maximilian was defeated and taken prisoner, Sigismund was firmly seated on the throne. He governed successfully with the alliance of Zamofki, till the death of his father, in 1592, left him heir to the crown of Sweden. As he was a zealou Catholic, and the Swedes were friendly to the Reformation, they felt disinclined to come under his authority; besides that, the duties of a king of Sweden, and of a king of Poland, seemed to be quite incompatible. His uncle, duke Charles, who had been declared regent during Sigismund's absence, inflamed these dissensions. Sigismund having obtained permission from the Polish diet to visit his other kingdom, arrived in Sweden in 1591, accompanied by the pope's nuncio, and his proceedings soon proved how much the restoration of the Catholic religion was the object of his wishes. Violent dissensions arose between him and the states, and in 1595 he returned to Poland, leaving Sweden in the greatest disorder. In 1598, Sigismund again entered Sweden at the head of a foreign army, and a civil war ensued, which terminated in a pacification, and the king returned to Poland. Peace did not last long, and in 1604 the Swedes formally deposed him, and raised his uncle Charles to the throne. War succeeded between Poland and Sweden, which ended in the conquest of Livonia by the Polish general.

Ruffia, at this time, being thrown into confusion by a revolution, Sigismund took part in its disorders, and entering that country, in 1610, at the head of a numerous army,
gained in the outlet such advantages, that he was enabled to place his son Uladifan on the throne. He was, however, soon after dethroned, and all the conquests made by Sigismund were recovered by the Ruffians. During the remainder of his reign, the Poles were involved in wars with the Turks, and afterwards with the Swedes under Gustavus Adolphus. To the latter they were obliged to cede Livonia, Finland, and Prufiia; and the concluding years of Sigismund were clouded with disasters. He fell into a state of melancholy and diseafe, by which he was carried off, in the year 1669. His character has been thus drawn in very few words: "With some talents for government, his religious bigotry, and obstinacy of temper, precipitated him into errors which cost him one crown, and rendered the other a scourge of perpetual disquiet."

SIGIUS, in Ancient Geography, a town of Italy, on the coast of Aulonia, according to Appian.

SIGIUS Mons, or Setius, according to Ptolemy, a mountain of Gallia Narbonennis, on the coast of the Mediterranean sea. Strabo.

SIGMA, among the Romans, the name with the flibadium.

SIGMARI\NGEN, in Geography, a town and county of Germany, involved in the house of Hohenzollern, on the Danube; 44 miles E. of Stuttgart. N. lat. 48° 2'. E. long. 9° 16'.

SIGMOID, in Anatomy, an epithet applied to various parts of the body, from their figure being similar to that of the Greek letter ε. Thus, we have the sigmoid cavities of the uina (see Extremities); sigmoid flexure of the colon (see Intestine); and sigmoid valves of the aorta and pulmonary artery. See Heart.

SIGN, SIGNUM, a featable mark, or character, denoting something absent or invisible.

Anciently the monks, in all religious houses, were not allowed to speak, nor to express their minds, otherwise than by signs, which they learned in their noviciate. C. Rhodiginus and Porta have written of the ancient signs and cyphers used in speaking and writing. Sign, in Algebra, denotes a symbol, or character.

Signs, like, negative, and radical. See the adjectives.

Sign, in Medicine, any appearance in a disease which is cognizable by the senses, and from which some judgment may be formed respecting the nature of the disease, and its probable termination. It is now more commonly called a symptom; which see.

Sign, Antecedent. See Antecedent.

Sign, in Astronomy, a twelfth part of the eclipitic, or zodiac; or a portion, containing thirty degrees of it.

The zodiac was divided, by the ancients, into twelve segments, called signs; commencing from the point of intersection of the ecliptic and equinoctial; which signs they denominated from the twelve constellations, which, in Hipparchus's time, possessed those segments. But the constellations have since changed their places, by the precession of the equinox, that Aries is now got out of the sign called Aries, into Taurus, Taurus into Gemini, &c.

The names of the twelve signs, and their order, are as follow: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius, Pijces; each of which, with the flars thereof, see under its proper article, Aries, Taurus, &c.

The signs are distinguished, with regard to the seafon of the year when the sun is in them, into vernal, summer, autumnal, and brumal.

Signs, the vernal, or spring, are, Aries, Taurus, Gemini.

Signs, the afficial, or summer, are, Cancer, Leo, and Virgo.

Signs, the autumnal, are, Libra, Scorpio, and Sagittarius.

Signs, the brumal, or winter, are, Capricornus, Aquarius, and Pijces.

The vernal and summer signs are also called northern signs.

And the autumnal and brumal signs, southern signs.

Signs, Affixed. See Ascending.

Signs, Fixed. See Fixed.

Signs, Masculine. See Masculine.

Sign Manual, the setting one's hand and seal to a writing. See Signature.

The expression is used when any bill or writing is signed under the hand of the king, &c. Counterfeiting the sign manual, privy signet, or privy seal, is treason. 1 Mar. fl. 2. cap. 6. See Patents.

Among the Saxons, before the invention of seals, a + was a common sign, or segnum, prefixed to the names of moat subscribing witnesses in charters, and other deeds; as: + segnum Roberti Episcop. Lond. &c. See SEAL.

Sign of Reference, in Media, signa repetitio. See Segno.

Signs of Diffige in Horfe, the appearances which flew them to be out of order. The first sign of a horse's indisposition is, its loathing his food, especially when he has a wild and haggard look; as the eye of a horse is, as it were, a glass, through which may be discerned the inward disposition of his body: it should also be observed whether his ears be cold, his mouth hot or clammy, the hair of his flanks rough and flaming, and paler than usual about the ends; his dung hard, black, or greenish, and his urine clear like water. In this case his eyes are also subject to weep; his head is heavy and hanging down; he is apt to stumble as he walks; he is flow and dull, though he was vigorous before; he never minds other horses; contrary to his former custum, he rise and lies down often in the stable, looking towards his flanks, which are doubled and folded in; his heart beats quick; and he is also indifferent and unconcerned at what is done to him. These and many other signs are met with in horses which are not in a state of perfect health, and should be immediately attended to; and suitable remedies are applied. This is of much consequence to be taken care of in teams and other work horses belonging to farms, &c.

SIGNA, Standards, among the Romans, were of different sorts; on some of them the image of the emperor was represented, and they that carried them were called imaginiferi; others had a hand stretched out, as a symbol of concord; and these ensign-bearers were called signiferi; some had a silver eagle, the bearers of which were called aquiliferi; others had a dragon with a silver head, and the rest of his body of taffety, which was blown by the wind as if it had been a real dragon, and the bearers of this ensign were called draco\narii; lastly, the emperor's ensign was called labarum, and those that carried it labariferi, which they carried out when he went in perfon to the field; it was of a purple colour, befet with gold fringe, and adorned with precious flowers.

All these ensigns were sustained with a half-pike, sharp at the end, that it might be the more easily fixed in the ground.

SIGNAL, a certain sign agreed upon for the conveyance of intelligence to places to which the voice cannot reach.

Signals are given for the beginning of a battle, or an attack; usually with drums and trumpets; a call, they are given by cannon or musket-shot, by lights, flags, &c.

All signals may be reduced into three different kinds: viz., those which are made by the sound of particular instruments, as the trumpet, horn, or fife; to which may be added, striking
 SIGNALS.

striking the bell, or beating the drum; those which are made by displaying pendant, ensigns, and flags, of different colours; or by lowering or altering the position of the flag; and those which are executed by rockets of different kinds; by firing cannon or small arms; by artificial fire-works; and by lanthorns. See Telegraph.

The signals by the drum, made use of in military exercises, instead of the word of command, are as follows: a short roll, q. d. to caution; a roll, to perform any distinct operation; to arms, to form the line or battalion; the march, to advance, except when intended for a salute; the quick march, to advance quick; the point of war, to march and charge; the retreat, to retreat; drum ceasing, to halt; two short rolls, to perform the flank-firing; the dragon march, to open the battalion; the grenadier march, to form the column, the troop, to double divisions; the long roll, to form the square; the grenadier march, to reduce the square to the column; the preparative, to make ready and fire; the general, to cease firing; two long rolls, to bring or lodge the colours.

Signals have been in use in all ages: the ancients, who had no regular couriers, or posts, made use of them to convey intelligence of what passed at a great distance; for which purpose, they placed sentinels on the eminences, from space to space; some mention of which we find made by Homer himself, Iliad, v. 553. Sc. Odyssey, v. 261. Those people, thus disposed, lighted fires, or flambeaux, in the night-time. In the Agamemnon of Aeschylus, that prince, at his departure for Troy, promises Clytemnestra, that, the very day the city should be taken, he would appease her of his victory by fires, lighted express. He keeps his word, and tidings are brought the princes, that Troy is taken, and that Agamemnon's signals are seen.

Frontius observes they were in use among the Arabs; and Bonaventura Vulcanus, in his scholia on Aristotle's book De Mundo, adds, that, while the Moors were masters of the greatest part of Spain, they built on the tops of the mountains an infinity of turrets, or watch-houses, called, in the Arabic, alayayas, a word the Spaniards illll retain; whence, by fires, they could immediately alarm the whole kingdom. Indeed the custom was much more ancient than the Moors in Spain. Q. Curtius observes, it was very frequent among the Asiatics, in the time of Alexander: Livy and Cæsar, also, both mention it as usual among the Romans. Polydore Virgil shews it of great antiquity in England; and Boethius adds, that, in several places in England, there were the remains of huge poles that have served for this purpose.

Signals at Sea, are signs made by the admiral, or commander-in-chief of a squadron of ships, either in the day, or by night, whether for failing, for fighting, or for the better security of the merchant-ships under their convoy. See Engagement.

These signals are very numerous, and important; being all appointed and determined by order of the lord high-admiral, and lords of the admiralty, and communicated in the instructions sent to the commander of every ship of the fleet, or squadron, before their putting out to sea. It is by the combination of signals, previously known, that the admiral conveys orders to his fleet; every squadron, every division, and every ship of which has its particular signal. The instruction may, therefore, occasionally be given to the whole fleet, or to any of its squadrons, to any division of those squadrons, or to any ship of those divisions. Hence the signal of command may at the same time be displayed for three divisions, and for three ships of each division; or for three ships in each squadron, and for only nine ships in the whole fleet. For, the general signal of the fleet being given, if a particular pendant be also to whom it is to be known, the remarkable place on the main mast with the general signal, it was to indicate intelligence to use ships that were to receive it.

The preparatory signal given, by the admiral to the whole, or any part of his fleet, is immediately answered by those to whom it is directed; by lowering the same signal, to signify that they are ready to execute his orders. Having observed their answers, he will give the signal which is to direct their operations, as, to chai, to form the line, to begin the engagement, in board, to double upon the enemy, to rally, or return to action, to discontinue the fight, to retreat, and have themselves. The duplicity of working the ships in a fleet depends on the precise moment of executing these orders, and on the general harmony of their movements; a circumstance which evinces the utility of a signal of preparation.

As the extent of the line of battle, and the fire and smoke of the action, or other circumstances in navigation, will often prevent the admiral's signals from being seen throughout the fleet, they are always repeated by the officers next in command; by ships appointed to repeat signals; and, finally, by the ship or ships for which they are intended. The ship that repeats the signal, besides the chiefs of squadrons or divisions, are usually figues lying to windward or leeward of the line. These should be extremely vigilant to observe and repeat the signals, whether they are to transmit the orders of the commanders-in-chief, or his seconds, to any part of the fleet; or to report the fortunate or disfavourable situation of any part thereof. By this means, all the ships from the van to the rear will, unless disabled, be ready at a moment's warning to put the admiral's design in execution. To prefer order in the repetition of signals, and to favour their communication, without embarrassment, from the commander-in-chief to the ship far which they are designed, the commanders of the squadrons repeat after the admiral; the chiefs of the divisions, according to their order in the line, after the commanders of the squadrons; and the particular ships, after the chiefs of the divisions; and thence, in return, after the particular ships, vice versa, when the object is to convey any intelligence from the latter to the admiral. Besides the signals above-mentioned, there are others for different ranks of officers; as for captains, lieutenants, masters, &c. or for any of those officers of a peculiar ship. Falconer.

Signal-flags are hoisted at the mizen-peak, &c.; signal-flags are made by lanthorns, and are hoisted by the fame haliards as the flags. Since November 1805, the red flag at the main-mall has been the first in rank after the union flag. See Flag by Day. When the commander-in-chief would have them prepare for falling, he first hoists his fore-topgallant, and then the whole fleet is to do the same. When he would have them unmoor, he hoists his main-topgallant, and fires a gun, which, in the royal navy, is to be answered by every flag-ship. When he would have them weigh, he hoists his fore-topgallant, and fires a gun, and sometimes hauls home his ships; the gun is to be answered by every flag-ship, and every ship is to get to sea as soon as it can. If with the leeward-side, the foremost ship is to weigh first. When he would have the weather-mast and head-mast ships to tack first, he hoists the union-flag at the foremost-mast-head, and fires a gun, which each flag-ship answers; but if he would have the foremost-mast and leeward most ships to tack first, he hoists the union-flag at the mizen-topgallant-head, and fires a gun; and when he would have all the whole fleet tack, he hoists an union both on the fore and mizen-topgallant-heads, and fires a gun. When, in bad weather, he would
would have them wear, and bring to the other tack, he hoists a pendant on the ensign-staff, and fires a gun; and then the leeward-mast and mizen-mast ships are to wear first, and bring on the other tack, and lie by, or go on with an easy fail, till he comes a-head: every flag is to answer with the same signal. If they are lying by, or failing by a wind, and the admiral would have them bear up and fail before the wind, he hoists his ensign, and fires a gun, which the flags are to answer; and then the leeward-mast and mizen-mast ships are to bear up first, and to give room for the weather-mast to wear, and fail before the wind, with an easy fail, till the admiral comes a-head. But if it should happen, when the admiral hath occasion to wear and fail before the wind, that both jack and ensign be abroad, he will haul down the jack, before he fires the gun to wear, and keep it down till the fleet is before the wind. When they are failing before the wind, and he would have them bring-to, with the starboard tacks aboard, he hoists a red flag at the flag-staff, on the mizen-topmast-head, and fires a gun. But if they are to bring-to, with the larboard tacks, he hoists a blue flag at the same place, and fires a gun, and every ship is to answer the gun. When any ship discovers land, he is to hoist his jack and ensign, and keep it abroad, till the admiral or commander-in-chief answer him, by hoisting his; on sight of which, he is to haul down his ensign. If any discovers danger, he is to tack and bear up from it, and to hang his jack abroad from the main-topmast cross-trees, and to fire two guns; but if he should strike or flack fail, then, besides the same signal with his jack, he is to keep firing, till he sees all the fleet observe him, and endeavour to avoid the danger. When any fires a ship or ships more than the fleet, he is to put abroad his ensign, and there keep it, till the admiral's is out, and then to lower it, as often as he sees ships, and stand in with them, that so the admiral may know which way they are, and how many; but if he be at such a distance, that the ensign cannot well be discovered, he is then to lay his head toward the ship or ships so deserted, and to brail up his low fails, and continue hoisting and lowering his topmasts, and making a waft with his top-gallant sails, till he is perceived by the admiral. When the admiral would have the vice-admiral, or him that commands in the second part of the fleet, to send out ships to chafe, he hoists a flag, striped white and red on the flag-staff, at the fore-topmast-head, and fires a gun. But if he would have the rear-admiral do so, he then hoists the same signal on the flag-staff at the mizen-topmast-head, and fires a gun. When the admiral would have any ship to chafe to windward, he makes a signal for speaking with the captain, and he hoists a red flag in the mizen shrouds, and fires a gun; but if to chafe to leeward, a blue flag; and the same signal is made by the flag, in whose division that ship is. When he would have them give over chafe, he hoists a white flag on his flag-staff at the fore-topmast-head, and fires a gun; which signal is to be made also by that flag-ship which is nearest the ship that gives chafe, till the chaffing flag fires the signal. In case of springing a leak, or any other disater, that disables their ship from keeping company, they are to haul up their courses, and fire two guns. When any ship would speak with the admiral, he must spread an English ensign, from the head of his main or fore-topmast, downwards on the shrouds, lowering his main or fore-topmast, and continue firing guns, till the admiral observe him; and if any ship perceive this, and judgeth the admiral doth not, that ship must make the same signal, and make the best of his way to acquaint the admiral therewith. If the admiral don't answer by firing one gun, when the admiral would have the fleet to prepare to anchor, he hoists an ensign, striped red, blue, and white, on the ensign-staff, and fires a gun; and every flag-ship makes the same signal. If he would have the fleet moor, he hoists his mizen-topmast, with the clew-lines hauled up, and fires a gun. If he would have the fleet cut or slip, he looses both his topmasts, and fires two guns; and then the leeward ships are to cut or slip first, to give room to the weather-mast to come to fail. So if he would have any particular ship to cut or slip, and to chafe to windward, he makes the signal for speaking with that ship, hoists a red flag in the mizen-shrouds, and fires a gun; but if a ship is to chafe to leeward, he hoists a blue flag as before. If he would have the fleet exercise their small arms, he hoists a red flag on the ensign-staff, and fires a gun; but if the great guns, then he puts up the pendant over the red flag. Signals by night, to be observed at an anchor, weighing anchor, and failing, are as follow. When the admiral would have the fleet to unmoor, and ride short, he hangs out three lights, over one another in the main-topmasts, over the constant light in the main-top, and fires two guns, which are to be answered by the flag-ships; and each private ship hangs out a light in the mizen-shrouds. Note, that all guns, fired for signals in the night, must be fired on the same side, that they may make no alteration in the found. When he would have them weigh, he hangs a light in the main-topmast-shrouds, and fires a gun, which is to be answered by all the flags; and every private ship must hang out a light in his mizen-shrouds. When he would have them tack, he hoists two flags on the ensign-staff, over one another, above the constant light in his poop, and fires a gun, which is to be answered by all the flags; and every private ship must hang out a light in his mizen-shrouds. When he would have them tack, he hoists two flags on the ensign-staff, at the fore-topmast-head, and fires a gun. When the admiral would have any ship to chafe to windward, he makes a signal for speaking with the captain, and he hoists a red flag in the mizen shrouds, and fires a gun; but if to chafe to leeward, a blue flag; and the same signal is made by the flag-ship, in whose division that ship is. When he would have them give over chafe, he hoists a white flag on his flag-staff at the fore-topmast-head, and fires a gun; which signal is to be made also by that flag-ship which is nearest the ship that gives chafe, till the chaffing flag fires the signal. In case of springing a leak, or any other disaster, that disables their ship from keeping company, they are to haul up their courses, and fire two guns. When any ship would speak with the admiral, he must spread an English ensign, from the head of his main or fore-topmast, downwards on the shrouds, lowering his main or fore-topmast, and continue firing guns, till the admiral observe him; and if any ship perceive this, and judgeth the admiral doth not, that ship must make the same signal, and make the best of his way to acquaint the admiral therewith. 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Signals by night, to be observed at an anchor, weighing anchor, and failing, are as follow. When the admiral would have the fleet to unmoor, and ride short, he hangs out three lights, over one another in the main-topmasts, over the constant light in the main-top, and fires two guns, which are to be answered by the flag-ships; and each private ship hangs out a light in the mizen-shrouds. Note, that all guns, fired for signals in the night, must be fired on the same side, that they may make no alteration in the found. When he would have them weigh, he hangs a light in the main-topmast-shrouds, and fires a gun, which is to be answered by all the flags; and every private ship must hang out a light in his mizen-shrouds. When he would have them tack, he hoists two flags on the ensign-staff, over one another, above the constant light in his poop, and fires a gun, which is to be answered by all the flags; and every private ship must hang out a light in his mizen-shrouds. When he would have them tack, he hoists two flags on the ensign-staff, at the fore-topmast-head, and fires a gun. When the admiral would have any ship to chafe to windward, he makes a signal for speaking with the captain, and he hoists a red flag in the mizen shrouds, and fires a gun; but if to chafe to leeward, a blue flag; and the same signal is made by the flag-ship, in whose division that ship is. When he would have them give over chafe, he hoists a white flag on his flag-staff at the fore-topmast-head, and fires a gun; which signal is to be made also by that flag-ship which is nearest the ship that gives chafe, till the chaffing flag fires the signal. In case of springing a leak, or any other disaster, that disables their ship from keeping company, they are to haul up their courses, and fire two guns. When any ship would speak with the admiral, he must spread an English ensign, from the head of his main or fore-topmast, downwards on the shrouds, lowering his main or fore-topmast, and continue firing guns, till the admiral observe him; and if any ship perceive this, and judgeth the admiral doth not, that ship must make the same signal, and make the best of his way to acquaint the admiral therewith. If the admiral don't answer by firing one gun, when the admiral would have the fleet to prepare to anchor, he hoists an ensign, striped red, blue, and white, on the ensign-staff, and fires a gun; and every flag-ship makes the same signal. If he would have the fleet moor, he hoists his mizen-topmast, with the clew-lines hauled up, and fires a gun. If he would have the fleet cut or slip, he looses both his topmasts, and fires two guns; and then the leeward ships are to cut or slip first, to give room to the weather-mast to come to fail. So if he would have any particular ship to cut or slip, and to chafe to windward, he makes the signal for speaking with that ship, hoists a red flag in the mizen-shrouds, and fires a gun; but if a ship is to chafe to leeward, he hoists a blue flag as before. If he would have the fleet exercise their small arms, he hoists a red flag on the ensign-staff, and fires a gun; but if the great guns, then he puts up the pendant over the red flag. Signals by night, to be observed at an anchor, weighing anchor, and failing, are as follow.
by some ship of the fleet. If any one discovers a fleet, he is to fire guns, make false fires, put one light out on the main-top, three on the poop, to flee after them, and continue firing of guns, whilst the admiral call him off, by flinging the banners, and fires two or three guns, for then he must follow the admiral. When the admiral anchors, he fires two guns, a small space of time one from the other, which are to be answered by the flag-ships, and every private ship must answer these two lights. When the admiral would have the fleet to move, he puts a light on each top-mast-head, and fires a gun, which is to be answered by the flag-ships, and every private ship must answer one light. If he would have them lower their yards and topmasts, he hoists one light upon his ensign-staff, and fires one gun, which is to be answered by the flag-ships; and every private ship must shew one light. And when he would have them hoist their yards and topmasts, he puts out two lights, one under the other, in the mizen-topmasts, and fires one gun, which is to be answered by the flag-ships; and every private ship must shew one light. If any strange ship be discovered coming into the fleet, the next step is to endeavor to speak with her, and bring her to an anchor, and not suffer her to pass through the fleet. And if any one discovers a fleet, and it blows so hard that he cannot come to give the admiral timely notice, he is to hang out a great number of lights, and to continue firing guns after gun, till the admiral answers him with one. When the admiral would have the fleet to cut or ship, he hangs out four lights, one at each main-yard-arm, and at each fore-yard-arm, and fires two guns, which are to be answered by the flag-ships; and every private ship to shew one light.

Signals used when a Ship fails in a Fog. If the admiral would have them weigh, he fires ten guns; which every flag-signal is to answer. To make them tack, he fires four guns, which are to be answered by the flag-ships; and then the lead-water-now-mast and tern-mast ships must tack first, and after they are about, to go with the same sail they tackled with, and not to lie by, expecting the admiral to come ahead; and this is to avoid the danger of running one another in thick weather.

When the admiral brings-to, and lies with his head-fails to the main, if with the larboard tack aboard, he fires five guns; but if with the larboard tack, he fires eight guns, which the flag-ships are to answer. And after this, if he makes fail, he fires ten guns, which the flag-ships must answer, and then the lead-water-now-mast ships are to make fail first. If it grow thick and foggy, the admiral will continue sailing, with the same sail he tacked with, and not to lie by, expecting the admiral to come ahead; and this is to avoid the danger of running one another in thick weather.

When the admiral puts abroad an union-flag on the mizen-topmasts, and fires a gun, all the captains are to come aboard him; and if with the same light, they are to sail, and march with the admiral, then the lieutenant of each ship must aboard. If a ship be put aboard the admiral, all the masters of the ships of war are to come aboard the admiral. If a standard on the main-topmasts, and a gun fired, then all the flag-ships are to come aboard the admiral. If the Eng. flags are then a standard in the main-topmasts, and a gun fired, then the masters of his own squadron are to come aboard the admiral, and, if with the same signal, there be also a waft with the ensign, the lieutenant of each ship must come aboard. If he hoists a white flag, as before, then the vice-admiral, or he that commands in the fleet, and all the captains of his squadron, are to go on board the admiral; if a blue flag, &c. then the rear-admiral, and the captains of his squadron must come aboard, and if with a waft, as before, the lieutenants. When a standard is hoisted on the forecastle, and a gun fired, the vice and rear-admirals must come on board the admiral's ship. When the admiral would speak with the captains of his own division, he will hoist a pendant on the fore-topmasts, and a gun fired; and if with the lieutenants, a waft is made with the ensign, and the same signal; for whenever he would speak with the lieutenants of any particular ship, he makes the signal for the captain, and a waft also with the ensign. When the admiral would have all the tenders in the fleet come under his item, and speak with him, he hoists a flag, yellow and white, at the mizen-peak, and fires a gun. But if he would speak with any particular ship's tender, he makes a signal for speaking with the captain he tends upon, and a waft with the jack. If all the pinnaces and barges are to come on board, manned and armed, the signal is a pendant on the flagstaff, hunted on the fore-topmasts, and a gun fired; and if he would have them chase any ship, yellow, or blue, to be in view, he hoists the pendant, and fires two guns. The signal for the long-boats to come on board, manned and armed, is the pendant hoisted on the flagstaff, and the mizen-topmasts, and a gun fired; and if he would have them chase any ship, yellow, or blue, to be in view, he hoists his pendents, as before, and fires two guns. When the admiral would have all the boats in the fleet to come on board him, manned and armed, he hoists a pendant on the flagstaff, both on the fore-topmasts and mizen-topmasts, and a gun fired; and if he would have them chase, he hoists his pendents, as before, and fires two guns. When the admiral would speak with the victualler, or his agent, he puts an English ensign in the mizen-topmasts, and when with him that has the charge of the gunner's stores, he will spread an ensign at his main-topmast-yard-arm.

Signals for calling Officers on Board the Admiral. When the admiral puts abroad an union-flag on the mizen-topmasts, and fires a gun, all the captains are to come aboard him; and if with the same light, they are to sail, and march with the admiral, then the lieutenant of each ship must aboard. If a ship be put aboard the admiral, all the masters of the ships of war are to come aboard the admiral. If a standard on the main-topmasts, and a gun fired, then all the flag-ships are to come aboard the admiral. If the Eng. flags are then a standard in the main-topmasts, and a gun fired, then the masters of his own squadron are to come aboard the admiral, and, if with the same signal, there be also a waft with the ensign, the lieutenant of each ship must come aboard. If he hoists a white flag, as before, then the vice-admiral, or he that commands in the fleet, and all the captains of his squadron, are to go on board the admiral; if a blue flag, &c. then the rear-admiral, and the captains of his squadron must come aboard, and if with a waft, as before, the lieutenants. When a standard is hoisted on the forecastle, and a gun fired, the vice and rear-admirals must come on board the admiral's ship. When the admiral would speak with the captains of his own division, he will hoist a pendant on the fore-topmasts, and a gun fired; and if with the lieutenants, a waft is made with the ensign, and the same signal; for whenever he would speak with the lieutenants of any particular ship, he makes the signal for the captain, and a waft also with the ensign. When the admiral would have all the tenders in the fleet come under his item, and speak with him, he hoists a flag, yellow and white, at the mizen-peak, and fires a gun. But if he would speak with any particular ship's tender, he makes a signal for speaking with the captain he tends upon, and a waft with the jack. If all the pinnaces and barges are to come on board, manned and armed, the signal is a pendant on the flagstaff, hunted on the fore-topmasts, and a gun fired; and if he would have them chase any ship, yellow, or blue, to be in view, he hoists the pendant, and fires two guns. The signal for the long-boats to come on board, manned and armed, is the pendant hoisted on the flagstaff, and the mizen-topmasts, and a gun fired; and if he would have them chase any ship, yellow, or blue, to be in view, he hoists his pendents, as before, and fires two guns. When the admiral would have all the boats in the fleet to come on board him, manned and armed, he hoists a pendant on the flagstaff, both on the fore-topmasts and mizen-topmasts, and a gun fired; and if he would have them chase, he hoists his pendents, as before, and fires two guns. When the admiral would speak with the victualler, or his agent, he puts an English ensign in the mizen-topmasts, and when with him that has the charge of the gunner's stores, he will spread an ensign at his main-topmast-yard-arm.

Signals for managing a Sea-fight. When the admiral would have the fleet form a line of battle, he flings ahead of another, he hoists an union flag on the mizen-peak, and fires a gun; and every flag-ship does the like. But when they are to form a line of battle, one abreast of another, he hoists a pendant with the union flag, &c. When he would have the admiral at the white, or land that commands in the second part, to tack, and endeavor to gain the wind of the enemy, he flings a white flag under the flag on the main-topmasts, and fires a gun; and when he would have the vice admiral of the blue do so, he doth the same with the blue flag. If he would have the rear-admiral of the
the red do fo, he spreds a red flag from the cap, on the fore-topmast-head, downward on the back-flag; if the vice-admiral of the blue, he spreds a blue flag, &c. and fires a gun. If he would have the rear-admiral of the red do so, he hoists a red flag at the flag-staff, at the mizen-topmast-head; if the rear-admiral of the white, a white flag; if the rear-admiral of the yellow, a blue flag, and under it a pendant of the same colour, with a gun. If he be to leeward of the fleet, or any part of it, and he would have them bear down into his wake or grain, he hoists a blue flag at the mizen-peek, and fires a gun. If he would be to leeward of the enemy, and his fleet or any part of it be to leeward of him, in order to bring these ships into the line, he bears down with a blue flag at the mizen-peek, under the union-flag, (which is the signal for battle,) and fires a gun; and then those ships that are to leeward of him, must endeavour to get into his wake or grain, according to their station in the line of battle. When the fleet is failing before the wind, and he would have him, who commands in the second port, and the ship of the starboard quarter, to clap by the wind, and come to the starboard tack, he hoists a red flag at the mizen-topmast-head; but a blue one, if he would have ships of the starboard quarter come to the larboard tack, with a gun. If the van are to tack first, he spreds the union-flag at the flag-Staff, on the fore-topmast-head, and fires a gun, if the red flag be not on board; but if it be, then he lowers the fore-topmasts a little, and the union-flag is spread from the cap of the fore-topmast downward; and every flag-ship doth the same. If the rear be to tack first, he hoists the union-flag on the flag-Staff, at the mizen-topmast-head, and fires a gun; which all the flag-ships are to answer. If all the flag-ships are to come into his wake or grain, he hoists a red flag at his mizen-peek, and fires a gun; and all the flag-ships must do the same. If he would have him that commands in the second port of his squadron to make more fail, (though he himself shorten fail,) he hoists a white flag on the ensign-flag. But if he that commands in the third port be to do so, he hoists a blue flag, and fires a gun, and all the flag-ships must make the same signal. Whenever he hoists a red flag on the flag-Staff at the fore-topmast-head, and fires a gun, every ship in the fleet must use their utmost endeavour to engage the enemy, in the order prescribed them. When he hoists a white flag at his mizen-peek, and fires a gun, then all the small frigates of his squadron, that are not of the line of battle, are to come under the signal. If the fleet be failing by a wind in the line of battle, and the admiral would have them brace their head-fails to the main, he hoists up a yellow flag, on the flag-Staff, at the mizen-topmast-head, and fires a gun; which the flag-ships are to answer; and then the ships in the rear must brace first. After this, if he would have them fall their head-fails, and stand on, he hoists a yellow flag on the flag-Staff of the fore-topmast-head, and fires a gun, which the flag-ships must answer; and then the ships in the van must fall first, and stand on. If, when this signal is made, the red flag at the fore-topmast-head be abroad, he spreds the yellow flag under the red. If the fleets being near one another, the admiral would have all the ships to tack together, the sooner to lie in a portage to engage the enemy, he hoists an union-flag on the flag-Staffs at the fore and mizen-topmast-heads, and fires a gun; and all the flag-ships are to do the same. The fleet being in a line of battle, if he would have the ship that leads the van hoist, lower, fet, or haul up any of her fails, he spreds a yellow flag, under that at his main-topmast-head, and fires a gun, which signal the flag-ships are to answer; and the admiral will hoist, lower, set, or haul up the fail, which he would have the ship that leads the van do; which is to be anwered by the flag-ships of the fleet.

When the enemies run, and he would have the whole fleet follow them, he makes all the sail he can after them himself, takes down the signal for the line of battle, and fires two guns out of his fore-chaise, which the flag-ships answer; and then every ship is to endeavour to come up with and board the enemy. When he would have the chase given over, he hoists the white flag at the fore-topmast-head, and fires a gun. If he would have the red squadron draw into a line of battle, one abreast of another, he puts abroad a flag, striped red and white, on the flag-Staff at the main-topmast-head, with a pendant under it, and fires a gun; if the white or second squadron is to do so, the flag is striped red, white, and blue; if the blue or third squadron is to do so, the flag is a Genoese enign and pendant; but if they are to draw into a line of battle, one a-head of another, the same signals are made with a pendant. If they are to draw into the line of battle one a-head of another, with a large wind, and he would have the leaders go with the starboard tacks, aboard by the wind, he hoists a red and white flag at the mizen-peek, and fires a gun; but if they shou'd go with the board tacks abroad, by the wind, he hoists a Genoese flag at the same place; which signals, like others, must be anwered by the flag-ships.

SIGNATURES, among the Romans, witnesses who sealed wills and marriage contracts.

SIGNATURE, Signature, Signing, a subscription, or putting of one's name at the bottom of an act, or deed, in one's own hand-writing.

Anciently, when very few people could write, they dipped the tip of a spear into the ink, and scratched it on a copper plate to form a signature; and contented themselves with the party's seal. See DEED.

SIGNATURE of the Court of Rome, is a supplication answered by the pope, by which he grants a favour, dispensation, or collation to a benefice, by putting the fiat at the bottom of it, in his own hand; or the consessione wet written in his presence. This signature, at the bottom of the supplication, gives name to the whole instrument.

The signature contains the clauses, derogations, and dispensations, with which the pope grants the favour, or the benefice, with a commission for the execution of it, either in forma dignum, or in gracious form.

A signature of the pope's own hand, by which he answers, Fiat ut petitur, is preferred to another answered by the prefect, in his presence, in these words, Consessum uti peturum in presencia D. N. pape. Sometimes in signatures, with the fiat, the pope adds, proprio motu; which clause gives them still farther force.

There are three kinds of signatures: one in forma graiotia, dispatched on an attestation of the ordinary; another in forma dignum antiqua, dispatched for canonizations; the third in forma dignum nuncios, which is a kind of second signature, or executorial letter, granted where, upon the ordinary's falling to execute the fiat, within thirty days, the nearest ordinary is enjoined to execute it.

Signature, in Printing, denotes a mark at the bottom of each sheet, to regulate the gathering and binding of the book; and to shew the order and number of the sheets, in collating, to see if the book is perfect.

The signatures consist of the capital letters of the alphabet. If there be more sheets than letters in the alphabet, to the capital letter they add a small one of the same form; i.e. a little a after a great A, &c. which they repeat as often as is necessary.

Signature, Signature, is also used, by some naturalists, for the resemblance a vegetable or mineral bears to any part of the human body; this is, by some fantastical people,
SIGNAU, in Geography, is a town of Sentinella, and principal place of a district, in the canton of Basel; 12 miles E. of Basel.

SIGNES, a town of France, in the department of the Var; 18 miles S.W. of Marseille.

SIGNET, one of the knapsacks, used for sealing private letters, and being a gift, which is probably handed by hilt. For this it is termed "signet-Medal." It was always in the family of the kings and earls, and when the sovereigns became independent, it was given to the heads of the great houses, who were, in a certain sense, the lords of the realm.

The signet is always the emblem of the king's authorities, and is worn on the breast of the order of the Garter. The signet of King Henry VII. of England is in the form of a rose, with the legend "Hoc est Regnum." The signet of King Charles II. of England is in the form of a crown, with the legend "Hoc est Regnum." The signet of King George III. of England is in the form of a crown, with the legend "Hoc est Regnum.

SIGNIA, in Architecture, a town of Italy, in the Latium, at some distance from the river of the Tiber, and toward the S.W. of Rome. It was, in the time of Livy, that Tarquin the Proud built his city. Some remains of it are still visible.---Altus, in the province of Ancona, in the Greater Pergam, Livy says, that the town of Ancona was built on the site of the mountain.

SIGNIFER, among the Romans, an usher, or bearer, or the person who carries the standard, on which was represented a hand stretched out. See Signa.

SIGNIFICATION, the sense or meaning of a sign, word, phrasing, emblem, device, or the like; that is, the thing denoted by such symbols, word, figure, &c.

We are almost perfectly at a loss as to the signification of the hieroglyphic characters of the ancients.

SIGNIFICATION, in Latin, is the notification of an act, &c., made to the opposite party, by a copy, &c., of it, given and attested by a proper officer.

Some significations are to be made to the person himself; or at least, it is his house; for others, it is enough that they be made to the party’s attorney, or agent.

SIGNIFICAVIT. See EXCOMMUNICATUM CAPENDO.

SIGNING. See Signatures and Counter-signing.

SIGNINUM, among the Romans, a kind of pavement much esteemed; it was made of powdered shells mixed with lime.

SIGNORELLI, Luca, in Biography, was born at Coretta in 1493, and was a disciple of Pietro della Francesca. He was among the finest of the Italian artists who designed the naked figure with fidelity and accuracy; though Titian impeded by the quickness of his brush and finish, and too great care to make the figures perfect, is still poor in the rendering of nature. His greatest work is his celebrated fresco in the chapel of the Virgin in the cathedral of Orvieto, representing the final dissolution and judgment of the world; a work of extraordinary quality, in which variety and originality of ideas are rendered with force and effect. Vasari, who was related to Signorelli, says that Michael Angelo adopted, in his Last Judgment, many of the ideas of this artist; of which most probably he only took the characters of actions, and clutched them with his own emphatic style of design.

Though grace of form, and harmony of colouring, are not the most prominent features in the style of Signorelli, yet one of his works is extolled by Lami as possessing those qualities in a superior degree; i.e., his Commune of the Apostles, in the church of San Lorenzo in Florentia. He was invited to Rome to adorn in decorating the apartments of the Palazzo, where he painted the Journey of Moses and Zipporah, and the Promulgation of the Old Law; exhibiting a superior arrangement of composition. He painted at Urbino, Volterra, Arezzo, Sienna, and Florence, and established a name among the most eminent of the Florentine painters. He died in 1521, aged 82.

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country. He visited Rome in 1578, where he was honourably received by pope Gregory XIII., by whom he was engaged to compose an ecclesiastical history. Of this, however, he executed no more than some learned illustrations of Sulpicius Severus; for he died at Modena in the year 1584. He was a most able and successful elucidator of ancient history and antiquities. He was indefatigable in searching to the bottom all subjects which he undertook to examine, so that in many he left little to be added by later enquirers, and his works are all carefully composed in a pure, and even an elegant, Latin style. Besides the pieces already mentioned, he published many valuable tracts on the Roman laws and customs, also on the republics of the Hebrews, Athenians, and Lacedaemonians. He composed twenty books of a history relating to the western empire, from the time of Diocletian to its final destruction, and he performed the more arduous task of framing from the rude and obscure chronicles of the times, a history of the kingdom of Italy, from the arrival of the Lombards to the year 1286. Sigonio was involved in several controversies, in one of which he is supposed to have disgraced himself. About twelve months before he died, an intimate friend of his edited a pretended treatise of Cicero, entitled "Confutatio." Its authenticity was immediately impugned by critics, and there is now no doubt that it was not genuine; but Sigonio wrote so warmly in defence of it, that he is generally supposed to be the author. The works of this learned man were published collectively in 1752-3, by Argelati, at Milan, in six vols. fol. with his Life, by Muratori, prefixed.

SIGORUM, in Ancient Geography, a mountain of Ailia, in Mepotamia, in the vicinity of the town of Niphis, according to Sozomen.

SIGOULES, I.e., in Geography, a town of France, in the department of the Dordogne; 7 miles S. of Bergerac.

SIGRI, a town on the N.W. part of the island of Metelin, in the Grecian Archipelago.

SIGRANA, in Ancient Geography, a country of Ailia, in Media, according to Strabo.

SIGRANI, mountains of Ailia Minor, on the coast of the Propontid.

SIGRIUM, a promontory of the island of Lesbos, in the most westerly part of the island.

SIGRUM, a port of the island of Tenedos, in which was a stathe of Diana.

SIGTUNA, in Geography, a town of Sweden, in the province of Upland, situated on a creek of the Malar lake, anciently one of the chief cities of the kingdom. It is said to derive its name from the celebrated Odin, whose surname was Sigge: he came into the north before the Christian era, and had his residence, his temple, and his court of justice; others say the town was built by Odin. However that be, Sigtuna has undergone many changes; in the year 1088, it was plundered and burnt by Olof the Pious, king of Norway; in 1188, it was destroyed by the Carelians, Eltonians, and Ruffians. It recovered from these calamities, and flourished till the last increase of Stockholm gave it a blow, which it is not likely to recover; 10 miles N. of Stockholm.

SIGUA, in Ancient Geography, a town of Ailia, in the Greater Armenia. Ptolemy.

SIGUENCA, in Geography, a city of Spain, in Old Castile, situated on the edge of a mountain, near the source of the river Henares; the see of a bishop, suffragan of Toledo, with an university, founded in the year 1441, by cardinal Ximenes. It contains three churches, three convents, two hospitals, a strong castle, an arsenal, and between 700 and 800 houses. This town was anciently called Segontia. A battle was fought here between Pompey and Sertorius; and in the beginning of the seventh century, the Goths were defeated here by the Romans; 56 miles N. E. of Madrid. N. lat. 40° 58'. W. long. 2° 57'.

SIGUETTE, in the Mange, is a cavern of iron, with teeth or notches, that is, a ferricircle of hollow and vaulted iron, with teeth like a saw, consisting of two or three pieces joined with hinges, and mounted with a headfall and two ropes, as if they were the cavelions that in former times were wont to be put upon the nose of a fiery stiff-headed horse, in order to keep him subjection.

There is a sort of figure, that is, a round iron all of one piece, sewed under the nose-band of the bridge, that it may not be in view. This figure we employ with a martingale, when a horse beats upon the hand.

SIHASTRIA, in Geography, a town of Moldavia; 34 miles W. of Suzcava.

SIHAUL, a town on the W. coast of Sumatra. N. lat. 0° 23'. E. long. 110° 45'.

SI-HIAM, a town of China, of the third rank, in Chen-fi; 37 miles E.S.E. of Han-chong.

SI-HO, a town of China, of the third rank, in Chen-fi; 42 miles W. of Oei.

SI-HOA, a town of China, of the third rank, in Ho-nan; 32 miles E.S.E. of Hiu.

SIHON, or GHON, or Anu. See Jihon and Amu. Sihon, or Sharokit, a name given to the river Sirc, in its course.

SIHOR, a town of Hindooftan, in Guzerat; 25 miles W. of Gogo.

SIHUTLA, a town of Mexico, in the province of Mechoacan; 25 miles W. of Zacatula. N. lat. 18° 45'. W. long. 103° 26'.

SIKAJOCKI, a town of Sweden, in East Bothnia; 8 miles N. of Brahefled.

SIKE, in Rural Economy, a term provincially applied to a little rill, a water-furrow, and a gutter.

SIKEVI, in Geography, a town of Turkith Circassia, on the coast of the Black sea; 30 miles S.E. of Anapa.

SIKORD, a town of Sweden, in Well Bothnia; 18 miles N.W. of Pitea.

SIKHS, or Sikks, an appellation formed of the Sanscrit term Sikh, or Sigka, denoting a disciple or devoted follower, and in the Panjabi corrupted into Sakh, which is applicable to any person that follows a particular teacher, and hence used to denominate, in its primary use, a religious sect, which advanced, by successive gradations, from the humble condition of religiousists, to the rank of one of the most powerful states in Hindoostan. The founder of this sect was Nanac Shah, a native of a small village called Talwandi, in the district of Bhatti, in the province of Lahore, where he was born A.D. 1469. It is now become a town, and denominated Rayapour, and is situated on the banks of the Beyah or Hyphafis. Nanac's father, whose name was Calib, and who belonged to the Chatriya cast and Vedi tribe of Hindoos, wished to bring him up to trade, but Nanac himself was from his childhood inclined to devotion, and manifested an indifference to all worldly concerns. This disposition was cherished by his intercourse with the Fakirs, among whom and the poor he distributed a great part of his substance. It is needless to recite his trances and visions, and converse with the prophet Elias, and the auras which he practised at the commencement and in the progres of his religious career. Nor can we accompany him in his travels which he undertook with a view of reforming the worship of the
the true God, that had been degraded by the idolatry of the Hindoos and the arrogance of the Mahometans. It will be sufficient for us to observe, that after he had visited all the cities of India, and explored all ranks of the great doctrines of the unity and omniscience of God, he went to Mecca and Medina, where his actions, his miracles, and his dispute with the Mahometan priests and doctors, are most circumstantially recorded by his biographers. He stated, on this occasion, to have defended his own principles without offering or doing them to others: always professing humble the enemy of idolatry, and as having no object but to reconcile the two faiths of the Mahometans and Hindoos in one religion; which he endeavoured to do by recalling them to that great and original tenet, which both of them believed, the unity of God; and by explaining to them from the numerous errors into which they had fallen. During his travels, about the year 1575, Nanac was introduced to the emperor Baber, before whom he is said to have maintained his doctrine with great firmness and eloquence. Baber treated him kindly, and offered him an ample maintenance, which the Sikh poet refused, alleging, that he trusted in him who provided for all men, and from whom alone a man of virtue and religion would confer to receive favour or reward. The Hindoos zealously opposed him, more especially after he had lived three years habits of a Fakir: but he treated their opposition and reproaches with great contempt; and when they required him to exhibit some of his power, that might astonish them, he replied, "I have nothing to exhibit worthy of you to behold. A holy teacher has no defence but the purity of his doctrine; the world may change but the creator is unchangeable."Having migrated from Vatala to Multan, and from Multan to Kirtipur, on the banks of the Ravee or Hydravart, he there performed many miracles, as it is reported, threw off his earthly shape, and was buried near the bank of the river Ravee, which has since overflowed his tomb. Kirtipur continues to be a place of religious restor and worship; and a small piece of Nanac's garment is exhibited to pilgrims, as a sacred relic, at his Dharmafla, or temple. Nanac was unquestionably a man of more than common genius, which we may infer from the distinguished eminence to which he attained, and the success with which he combated the opposition that encountered him; whilst he laboured without intermission to recall both Mahometans and Hindoos to an exclusive attention to that sublime of all principles, which inculcates devotion to God and peace towards men. Although he left two sons, he did not deem either of them worthy of a succession to his spiritual functions; but he devised them upon a Chatriya of the Trehun tribe, called Lekha, whom he had initiated to the sacred mysteries of his sect, clothed in the holy mantle of a Fakir, and honoured with the name of Angad. Guru Angad was born at the village of Khindur, on the bank of the Beas or Phryphasis, in the province of Lahore. He taught the same doctrine as Nanac; and some of his writings, as well as those of Nanac, are contained in a book entitled "Granth." At his death, which happened A.D. 1552, he was succeeded by Ameera Das, a Chatriya of the tribe of B'halor, who had been a median soldier for twelve years. Ameera Das was active in propagating the tenets of Nana, and successful in gaining converts, by whole assistance he established a degree of temporal power. He had two sons, and a daughter, named N'hai, who was married to a young lad, whose name was Ram Das, a Chatriya, of a respectable family, of the Swhi tribe, and an inhabitant of the village of Gondawal. Upon the death of Ameera Das, A.D. 1574, was succeeded by his son-in-law, whom he had initiated to the mysteries of his holy profession, and who became famous for his party, and still more on account of the improvements he made at Aurngzebe, which was formerly called Rampur, or Rangpur, after him. These writers have erroneously supposed that the 1111. of this town, was founded long before his time; but, in fact, there was no town, but a fort, the residence of one of the Guides, which was called Aurngzebe, and the city of the Mahometans, and is now called by the name of Aurngzebe. After a life passed in the meditated propagation of his tenets, an explanation of which the writer of several books, Ram Das d. A.D. 1621, and left two sons, one of whom, viz. Arpumal, succeeded him, and rendered himself famous by compiling the Adjit Granth, containing ninety-two sections, part of which was composed by Nanac and his immediate successors, but arranged in its present form by Arpumal, who blended his own additions with the compositions of his predecessors. Arpumal, from this circumstance, is deemed the first who gave a distinct form and order to the religion of the Sikhs. Arpumal fell a sacrifice to the jealousy of the Mahometan government; and his death excited the indignation of the Sikhs, who, before this event, had been an obedient, peaceful sect; and they took up arms under Har Govind, the son of Arpumal, and wreaked their vengeance upon all whom they thought concerned in the murder of their revered profet. From all the remaining accounts of Har Govind's life, it appears to have been his anxious wish to inspire his followers with the most irreconcilable hatred of their oppressors. Govind, with this view, introduced some change in their diet, allowing them to eat the flesh of animals, that of the cow excepted; and by other regulations converted a race of peaceful subjects into an intractable band of soldiers. Govind died A.D. 1644, and was succeeded by his grandson Har Ray, whose reign was upon the whole tranquil, which was probably owing to the vigour of the Mahometan power in the early part of the reign of Aurngzebe. At his death, A.D. 1661, a violent contest arose among the Sikhs, concerning the succession to the business of spiritual leader for the temporal power of their ruler was, at this time, little more than nominal. The dispute was referred for decision, to Delhi, and by an imperial decree of Aurngzebe, the Sikhs were allowed to elect their own priest. They chose Har Culin, son (or grandson) of Har Ray, who died at Delhi A.D. 1604, and was succeeded by his uncle, Tegh Beladar. During his life, which terminated prematurely, by the violence of his rival, A.D. 1675, and also from the period of Godvind's death, the Mogul empire was in the zenith of its power under Aurngzebe; and the Sikhs, who had never attained any real strength, were rendered still weaker by their own dilutions. However, after the death of Tegh Beladar, the history of the Sikhs assumed a new aspect. Under Hau Govind the Sikhs had been initiated in arms, but they used them only in self-defence; but the plans of Govind's ambition were very different from those of his predecessor Nanac; and he wisely judged, that the only means by which he could ever hope to oppose the Mahometan government with success, were not only to admit converts from all tribes, but to break at once those rules by which the Hindoos had been so long chained—to arm, in short, the whole population of the country, and to make worldly wealth and rank an object to which Hindoos, of every class, might aspire. It was the object of Govind to make all Sikhs equal, and that their advancement should solely depend upon their merit, and not upon any ecclesiastic or regal order; it was to inspire men of a low race, and
and of grovelling minds, with pride in themselves, he changed the name of his followers from Sikh to Sinh or lion; thus giving to all his followers that honourable title which had been before exclusively assumed by the Rajputs, the first military clans of Hindoos; and every Sikh felt himself at once elevated, by this proud appellation, to a footing with the first clans. The disciples of Govind were required to devote themselves to arms; always to have fted about them in one shape or other; to wear a blue drefs; to allow their hair to grow; and to exclaim, when they met each other, “Wa! Guruji ka khalsa! Wa! Guruji ki futeh!” i.e. Success to the flate of the Guru! Victory attend the Guru! Guru Govind inculcated his tenets upon his followers by his preaching, his discourses, and his works. He is faid to have ftituted the Guru-mata, or flate council, among the Sikhs, which meet at Amritfar; by which institution he gave that form of a federal republic to the commonwealth of the Sikhs, which was moft calculated to rufe his followers from their indulent habits, and deep-rooted prejudices, by affigning to them a personal share in the government, and placing within the reach of every individual, the attainment of rank and influence in the flate. The emperor Aurungzebe, aided by the rajas who were hostile to Govind, purfued him and his followers to Chamkour, and encompassed it on all fides. The fief was carried on with great vigour; and though Govind manifested an invincible spirit, and performed prodigies of valour, he was at laft overpowered by numbers; and reduced to the necifity of making his efcap from Chamkour in a dark night, covering his face, as it is faid, from blame on his own dilgrife. After his flight, a fene of his misfortunes, and the lofs of his children, deprived him of his reafon, and he wandered about for a confiderable time in the moft deplorable condition. At length, having obtained from the emperor Behadur Shah a fmall military command in the Deccan, he was flabbed by a Patan foldier’s fon, and expired of his wounds, A.D. 1708, at Naced, a town fituated on the Caveriver, about 100 miles from Haiderabad. Guru Govind was the laft acknowledged religious ruler of the Sikhs. A prophecy had limited their spiritual guides to the number of ten; and their superifion, aided, without doubt, by the action of that fpirit of independence which his institutions had introduced, caufed its fulfilment. Banda, a devoted follower and friend of Guru Govind, elfalbified the union of the Sikhs under his banners; and his grief at the misfortune of his fpirit, is faid to have fettled after the death of Govind into a gloomy and desperate defire to avenge his wrongs. The confusion which took place on the death of Aurungzebe, which happened A.D. 1707, was favourable to his wishes. Having obtained a victory over the Mahometans in a bloody action, Banda, encouraging the Sikhs, and hardening them by his leifons to deeds of the moft horrid atrocity, subdued all the country between the Setlej and the Jumna, and croffing that river, made inroads into the province of Sharanpore, which lies a few miles to the N.E. of Delhi, between the rivers Jumna and the Ganges. The march of the Sikhs was attended with the exercife of the moft wanton barbarity; life was only granted to thofe who conformed to the religion, and adopted the habits and drefs of the Sikhs; and if Behadur Shah had not quitted the Deccan, which he did A.D. 1710, the whole of Hindooflan would probably have been fubdued by these merciless invaders. The firit chink which the Sikhs received was from an army under fultan Kuli Khan. They were afterwards defeated in a very delicate action by Abdal Samad Khan, an officer of the emperor Farakheefir, after which the Sikhs were never able to make a ftrand, but were hunted like wild beafts from one frong hold to another, by the army of the emperor, by whom their leader, Banda, and his moft devoted followers, were at laft taken, after having fuffered every extreme of hunger and fatigue. Great numbers of the Sikhs were put to death, after the surrender of Lohgad, a fortrefs 100 miles N.E. of Lahore; but Banda was fent, with the principal chiefs of the tribe, to Delhi, where, after having been treated with every kind of obloquy and infult, they were executed.

After the defeat and death of Banda, retlement prompted to every meafure that could be devised, not only to destroy the power, but to extirpate the race of the Sikhs. From the Mahometans they met with no quarter; and after the execution of their chief, a royal edict was iffued, ordering all who profefled the religion of Nanec to be taken and put to death wherever found; and by way of giving greater effect to this mandate, a reward was offered for the head of every Sikh. During the interval that elapsed between the defeat and death of Banda, and the invasion of India by Nadir Shah, a period of nearly 30 years, we hear nothing of the Sikhs; but when that event occurred, they are faid to have fallen upon the inhabitants of the Panjab, who fought fhelter in the hills, and to have plundered them of that property which they were endeavouring to secure from the rapacity of the Perisan invader. Enriched with these fpoils, fays the author whole account of them we are now citing, the Sikhs left the hills, and built the fort of Dalewal, on the Ravi, from whence they made predatory incursions, and are flated to have added, both to their wealth and reputation, by haraffing and plundering the rear of Nadir Shah’s army, which, when it returned to Peria, was encumbered with fpooil, and marched, from a contempt of its enemies, with a difregard to all order.

The weak state to which the empire of Hindooflan was reduced, and the confusion into which the provinces of Lahore and Cabul were thrown, by the death of Nadir, were events of too favourable a nature to the Sikhs to be neglected by that race, who became daily more bold, from their numbers being greatly increafed by the union of all thofe who had taken shelter in the mountains; the re-admission into the left of thofe who, to fave their lives, had abjured, for a period, their ufages; and the conversion of a number of profelytes, who harden’d to join a standand under which robberfy was made faered, and to plunder was to be pious.

Aided with thofe recruits, the Sikhs now extended their irritations over moft of the provinces of the Panjab; and though it was fome time before they repoffifed themselves of Amritfar, they began, immediately after they quitted their faltbefees, to flock to that holy city at the periods of their facred feas. Some performed this pilgrimage in fecret, and in difguife; but in general, according to a con temporary Mahometan author, the Sikh horfemen were feen riding, at full gallop, towards “their favourite fhrine of devotion. They were often feen in making this attempt, and sometimes taken prisoners; but they used, on fuch occasions, to feek, instead of avoiding, the crown of martyrdom;” and the fame authority fates, “that an infalute was never known of a Sikh, taken in his way to Amritfar, confenting to abjure his fpirit.”

Encouraged by this, a confufion which took place on the firt Afghan invasion, A.D. 1746, the Sikhs made themselves mailers of a confiderable part of the Doab of Ravi and Jalender, and the country between the rivers Ravi and Beyah, and that river and the Setlej, and extended their incursions to the neighbouring countries. But though they were feverely and repeatedly checked by Mir Manu, the governor of Lahore, yet, after his death, they availed themfelves of all the advantages which the local diftractions of a falling empire
purposed them to extend and establishing their power.

Their raids, under their most active leaders, plundered in every direction, and were successful in obtaining possession of several countries, from which they have never since been expelled; and their successes, at this period, was promoted, instead of being checked, by the appearance of their old friend, Adina Beg Khan, to Lahore; as that brave chief, resolved to defend his own government against the Afghans, immediately entered into a compact with the Sikhs, whom he encouraged to plunder the territories of Ahmed Shah Abdali.

The Afghan monarch, releasing this predatory warfare, in which the governor of Lahore was supported by the court of Delhi, determined upon invading India. Adina Beg, unable to apprise him, fled, and the Sikhs could only venture to plunder the baggage, and cut off the stragglers of the Afghan army, by which they intimidated Ahmed Shah, that he threatened them with punishment on his return; and when he marched to Cabul, he left his son Tamur Khan, and his vizir, Jehan Khan, at Lahore, with orders to take vengeance on the Sikhs for all the excels which they had committed. The first expedition of Tamur Khan was against their capital, Amritsar, which he destroyed, filling up their sacred tank, and polluting all their places of worship; by which act he provoked the whole race to such a degree, that they all assembled at Lahore, and not only attempted to cut off the communication between the fort and encampment, but collected the whole of the country, the towns and villages around it. Tamur Khan, enraged at this presumption, made several attacks upon them, but was constantly defeated; and, being at last reduced to the necessity of evacuating Lahore, and retreating to Cabul, the Sikhs, under one of their celebrated leaders, called Faza Sinh Calal, immediately took possession of the vacant soulah of Lahore, and ordered rupees to be coined, with an impression to the following import: "Comed by the grace of Khaleej ji, in the country of Ahmed, conquered by Faza Sinh Calal." Although they were afterwards expelled, together with the Afghans, from Lahore, yet after the death of Adina Beg Khan, the governor of this province, they eagerly seized the opportunity that was thus afforded them, of making themselves again masters of Lahore. Their successes was, however, soon checked by Ahmed Shah Abdali, who, irritated by their unshaded turbulences and intolerable intrepidity, made every effort (after he had gained the victory of Paupatip,' which established his supremacy at Delphi) to destroy their power; and, with this view, he entered the Panjab early in 1762, and overran the whole of the country, with a numerous army, defeating and dispersing the Sikhs in every direction. That fact, unable to make any stand against the army of the Abdali, pursued their old plan of retreated near the mountains; and collected a large force in the northern districts of Sirhind, a distance of above one hundred miles from Lahore, where the army of Ahmed Shah was encamped. Here they conceived themselves to be in perfect safety; but that prince made one of those rapid movements for which he was so celebrated, and reaching the Sikh army on the second day, completely surprized and defeated it with great slaughter. In this action, which was fought in February 1762, the Sikhs are said to have lost upwards of twenty thousand men; and the remainder fled into the hills, abandoning all the lower countries to the Afghans, who committed every ravage that a barbarous and savage enemy could devise. Amritsar was razed to the ground, and the sacred reservoir again choked with its ruins. Pyramids were erected, and covered with the heads of slaughtered Sikhs; and it is mentioned that Ahmed Shah caused the walls of those mosques which the Sikhs had polluted to be washed with their blood, that the exterior might be removed, and the infidt offered to the religion of Mahomet expiated.

This species of savage retaliation appears to have inspired instead of deterring the courage of the Sikhs, who, though they could not venture to meet Ahmed Shah's army, still handled it with an insolent and undaunted warlike spirit, and when that sovereign was old, by the combination of Afghans, to return to Cabul, they attacked and defeated the general he had left in Lahore, and made themselves masters of that city, in which they levelled with the ground those mosques which the Afghans had, a few months before, purified with the blood of their brethren.

When Ahmed Shah, after retaking Lahore, A.D. 1763, was obliged, in the ensuing year, to return to his own country, the Sikhs again expelled his parrain, and made themselves masters of the Panjab; and, from that period until his death, a constant war was maintained, in which the enterprise and courage of the Afghans gradually gave way before the alternating activity, and inexorable perseverance, of their enemies; who, if unable to hold a general action, retreated to impenetrable mountains, and the moment they saw an advantage, rushed again into the plains with renewed vigour and reënacted numbers. Several Sikh authors, treating of the events of this period, mention a great action having been fought by their countrymen, near Amritsar, against the whole army of Ahmed Shah, commanded by Ahmed Shah Abdali; but they differ with regard to the date of this battle, some fixing it in 1762, and others later. They pretend that the Sikhs, inspired by the sacres of the ground on which this action was fought, contended for victory against superior numbers with the most desperate fury, and that the battle terminated in both parties quitting the field, without either being able to claim the least advantage. The historians of Ahmed Shah are, however, silent regarding this action, which indeed, from all the events of his long contests with the Sikhs, appears unlikely to have occurred. It is possible the Sikhs fought at Amritsar with a division of the Afghan army, and that might have been commanded by the prince; but it is very improbable they had ever force to encounter the concentrated army of the Abdali, before which, while it remained in a body, they appear, from the first to the last of their contests with that prince, to have always retreated, or rather fled.

The Sikhs, when oppressed, became as formidable for their union, as for their determined courage and unconquerable spirit of resistance; but a state of persecution and distress was most favourable for a constitution like theirs, which required constant and great sacrifices of personal advantage to the public good; and such sacrifices can only be expected from men who act under the influence of that enthusiasm, which the fervour of a new religion, or a struggle for independence, only imparts, and which are always most readily made when it becomes obvious to all, that a complete union in the general cause is the only hope of individual safety.

The Sikhs may be reckoned the most western nation of Hindoostan: for the king of Candahar polishes but an insignificant extent of territory on the east of the Indus. Since the complete downfall of the Mogul empire, they have acquired very extensive domains. But major Renouf observes, that their power ought not to be estimated in the exact proportion to the extent of their population, since they do not form one entire state; but a number of small ones, independent of each other in their internal government, and only connected by a federal union. They have extended their territories on the south-east, that is, into the province of
of Delhii, very rapidly of late years; and perhaps, the Zendinars of that country may have found it convenient to place themselves under the protection of the Sikhs, in order to avoid the more oppressive government of their former masters. It is certain that the eastern boundary of the Sikhs' dominions has been advanced to the banks of the Jumnah river, above Delhi, and to the neighbourhood of that city; for the adjoining territory of Schaurunpun is subject to their depredations, if not actually tributary to them; and they make incursions even to the side of the Ganges. On the south, they are bounded by the northern extreme of the sandy desert of Regiftan, and on the south-west their boundary meets that of Sind, or Tatts, at the city of Behker or Bheker, on the Indus. On the west the Indus is their general boundary, as high up as the city of Attock; near to which begins the territories of the king of Candahar; and their northern boundary is the chain of mountains that lies towards Thubet and Cashmere. As this is the case, they will be found to possess the whole southah or province of Lahore, the principal part of Moultau, and the western part of Delhi; the dimensions of which tract are about 400 British miles from N. to S., and from 150 to 200 broad, in general; although in the part between Attock and Behker (that is, along the Indus) the extent cannot be less than 320. Their capital city is Lahore.

According to the statement of brigadier-general Malcolm, the country now possessed by the Sikhs, which reaches from N. lat. 28° 49' to beyond N. lat. 32°, and includes all the Panjab, a small part of Moultau, and most of that tract of country which lies between the Jumnah and the Setlej, is bounded, to the northward and westward, by the territories of the king of Cabul; to the southward, by the possessions of the mountainous rajas of Jammu, Namur, and Sirinagar; and to the southward, by the territories of the English government, and the sandy deserts of Jafaimer and Hary's Hifar. A general estimate of the value of the country possessed by the Sikhs may be formed, when it is stated, that it contains, besides other countries, the whole of the province of La-
hore; which, according to Mr. Bernier, produced in the reign of Auranzebe, 246 lacs and 95,000 rupees, or 2,460,950l. sterling. The Sikhs who inhabit the country between the Setlej and the Jumnah, are called Malwa-Sikhs, and we believe almost all converted from the Hindoo tribes of Jats and Gujaras. The country of the Malwa Sikhs is in some part fruitful; but those districts which border on Hariya and Carnul are very barren; being covered with low wood, and in many places almost delirious of water. Its former capital was Sirhind, but it is now a complete ruin. Patiala is now the largest and most flourishing town of this province, and next to it is T'hanesur, which is still held in high veneration by the Hindoos, who have also a high reverence for the river Serafetti, which flows through this province. The country of Janela Doob, which reaches from the mountains to the junction of the Setlej and the Beah, is the most fruitful of all the possessions of the Sikhs, and is perhaps excelled, in climate and vegetation, by no province in India. The soil is light, but very productive; the country, which is open and level, abounds in every kind of grain. The towns of Janela and Sultanpore are the principal in the Doob. The country between the Beah and River rivers is called Bari Doob, or Man'ja; and the Sikhs inhabiting it are called Man'ja Sikhs. The cities of Lahore and Amritsar are both in this province, and consequently it becomes the great centre of the power of the nation. The country of Bari is said to be fertile, particularly towards the mountains, than Janela, but lying on the same level, its climate and soil must be nearly the same. The inhabitants of the country between Ravi and Chandhan are called D'harpri Singh, from D'harpri, the name of the country; the D'hanigheb Singh are beyond the Chandhan, but within the Jelalun river. The Sind Singh is the term by which the inhabitants of the districts under the Sikhs bordering on the Sind are known; and Nakki Singh is the name given to the Sikhs who reside in Multan.

The government of the Sikhs may be termed a theocracy. Although they obey a temporal chief, that chief prefers his power and authority by professing himself the servant of the Khalifs, or government, which can only be said to act, in times of great public emergency, through the means of a national council, of which every chief is a member, and which is supposed to deliberate and resolve under the immediate inspiration and impulse of an invisible being; who, as they believe, always watches over the interests of the commonwealth. It is natural, however, to imagine that the power of this assembly should decline; and from Col. Malcolm's account, we may infer, that it is nearly destroyed. The last Guru-mata was called in 1805, when the British army pursuaded Halkar into the Panjab. The government is mild; but in their mode of making war the Sikhs are unquestionably savage and cruel. Among the Sikhs there is a class of devotees, called Acalis, or immortals, who, under the double character of fanatic priests and despot soldiers, have usurped the sole direction of all religious affairs at Amritsar; and who, of course, are leading men in a national council held at that sacred place, and which deliberates under all the influence of religious enthusiasm. This order of Sikhs was first founded by Guru Govind, and are distinguished by their drefs, as well as by their having almost the sole direction of the religious ceremonies at Amritsar. They have a place on the bank of the sacred reservoir of Am-
rifar, where they generally resort, but are individually possessed of property, though they affect poverty, and frugality on charity. The principal chiefs of the Sikhs are all descended from Hindoo tribes. The lower order of Sikhs, compared with the wretched Mahometans who are doomed to oppression and hard labour, are happy; they are protected from the tyranny and violence of the chiefs under whom they live by the precepts of their common religion, and by the condition of their country, which enables them to abandon, whenever they choose, a leader whom they dislike. The civil officers, to whom the chiefs entrust their accounts, and the management of their property and revenue concerns, as well as the conduct of their negociations, were in general Sikhs of the Khalafa cast, who, being followers of Nanak, and not of Guru Govind, are not devoted to arms, but educated for peaceful occupations, in which they often become very expert and intelligent. In the collection of the revenue of the Panjab, it is faid to be a general rule, that the chiefs to whom the territories belong should receive the half of the produce, grain paying in kind, but fugar, melons, &c. in cash, and the farmer the other: but the chief never levies the whole of his share; and in no country, perhaps, is the raja, or cultivator, treated with more indulgence. Commerce is rather restrained than encouraged by the heavy duties and the refracted rate of the country. However, a great part of the shawl trade now flows through the cities of Lahore, Amritsar, and Patiala, to Hindooftan. The ad-
miration of justice among the Sikhs is in a very rude and imperfect rate.

Their law is all unwritten. Nothing is configned to any express form of words. There is no definition of any thing. The custom of the country, the custom of the court, (that is to say, as far as the judge is pleased to be governed by those usages,) and the will of the judge—-are the
the circumstances which guide the decision. Among the Hindus some of the sacred books, among the Mahometans the Koran, are used as the books of law. Among the Sikhs there is no such reference to any sacred books; and their situation is, in all probability, so much the better: for the Koran or Hindoo books afford scarcely any rules or principles of law, which are not too vague to dispense with language which the interpreter chooses to give them; and while their authority is sufficient to supercede that of the natural dictates of justice and equity, which are the only guides of the Sikh judges, the Hindoo or Mahometan has only to find or to forge a principle of his book, which may enable him to decide as he pleases.

Trivial disputes about property are settled by the heads of the village, by arbitration, or by the chiefs. The court of arbitration is called patravat, or a court of five, the general number of arbitrators chosen to adjust differences and disputes. It is usual to assemble a pancharat, or a court of arbitration, in every part of India under a native government; and, as they are all chiefs chosen from men of the best reputation in the place where they meet, this court has a high character for justice. The decision obtained by either of these modes is final. If a theft occurs, the property is recovered, and the party punished, not with death, by the person from whose hands it was stolen, or by the inhabitants of the village, or his chief. Murder is sometimes punished by the chief; but more generally by the relatives of the deceased, who, in such cases, rigorously retaliate on the murderer, and sometimes on all who endeavour to protect him.

The character of the Sikhs, or rather Sinhs, which is the name by which the followers of Guru Govind, who are all devoted to arms, are distinguished, is very marked. They have, in general, the Hindoo cast of countenance, somewhat altered by their long beards, and are to the full as active as the Mahrattas, and much more robust, from their living fuller, and enjoying a better and colder climate. Their courage is equal at all times to that of any natives of India; and when wrought upon by prejudice or religion, is quite desperate. They are all horsemens, and have no infantry in their own country, except for the defence of their forts and villages, though they generally serve as infantry in foreign armies. They are bold, and rather rough in their addresses, which appears more to a stranger from their invariably speaking in a loud tone of voice; but this is quite a habit, and is alike used by them to express the sentiments of regard and hatred. The Sikhs have been reputed deceitful and cruel, but John Malcolm knew no grounds upon which they could be considered more so than the other tribes of India: they seemed to him, from all the intercourse he had with them, to be more open and sincere than the Mahrattas, and less rude and savage than the Afghans. They have, indeed, become, from national success, too proud of their own strength, and too irritable in their tempers, to have patience for the wishes of the former; and they retain, in spite of their change of manners and religion, too much of the original character of their Hindoo ancestors, (for the great majority are of the Hindoo race,) to have the constitutional ferocity of the latter. The Sikh soldier is, generally speaking, brave, active, and cheerful; without polish, but detestful neither of finery nor attachment; and, if he often appears wanting in humanity, it is not so much to be attributed to his national character, as to the habits of a life, which, from the condition of the society in which he is born, is generally pail in scenes of violence and rapine.

The Sikh merchant, or cultivator of the soil, if he is a Sinh, differs little in character from the soldier, except that his occupation renders him less profuse and boisterous.

He also wears arms, and, in, from education, prompt to use them, whether in his individual interest or in that of the community to which he belongs, requires him to do so. The general occupations of the Khalsa Sikh has been before described. Their character differs widely from that of the Sinh. Full of intrigue, lust, wanton, and voluptuous, they have all the arts of the lower classes of Hindoo, who are usually employed in theft,欺诈, and robbery; if, indeed, they have any distinction of chief, it is very difficult to determine with them.

The general character of the religious tribes of Acchs, Shahah, and Nurnah, is formed from their habits of life. The Acchs are the most violent, impetuous, and daring; they presume upon their descent from the Hinduss, and are the most active of this race. They keep up the old Hindoo laws, and the use of the Hindoo usages among them, which have not yet been abandoned by most of them. They are, however, greatly dominated by their kinsfolk, who hold it sacrilege to injure the race of their founder, and, under the advantages which this general veneration affords them, the Nurnahs have pursued their occupations, which, if they are not mendicants, are generally that of travelling merchants. They do not carry arms; and profess, agreeably to the doctrine of Nurnah, that it is at peace with all mankind.

The Sikh converts continue, after they have quitted their original religion, all those civil usages and customs of the tribes to which they belonged, that they can practicably live in. The first and most general of these usages is the Hindoo usage of distinguishing the castes of their tribe, every tribe intermarrying within itself. The Hindoo usage regarding diet, is also held equally sacred; no Sikh descended from a Hindoo family ever violating it, except upon particular occasions, such as a Gurnama, when they are obliged, by their tenets and institutions, to eat promiscuously. The strict observance of these usages has enabled many of the Sikhs, particularly of the Jat and Gujer tribes, which include almost all those settled to the south of the Setlej, to preserve an intimate intercourse with their original tribes; who, considering the Sikhs not as having lost caste, but as Hindoos that have joined a political association, which obliges them to conform to general rules established for its preservation, neither refuse to intermarry, nor to eat with them.

We shall here add, that the "Jatts" are Hindoos of a low tribe, who, taking advantage of the declining state of the Mogul empire, have, by their courage and enterprise, raised themselves to some consequence on the north-western parts of Hindoostan, and many of the strongest forts of that part of India are still in their possession. The "Gujar" are also Hindoos, and have raised themselves to power by means not dissimilar to those used by the Jats. Almost all the thieves in Hindoostan are of this tribe.

The higher class of Hindoos, such as Brahmins and Chatriya, who have become Sikhs, continue to intermarry with converts of their own tribes, but not with Hindoos of the cast they have abandoned, as they are polluted by eating unclean food, all kinds of which are lawful to Sikhs, except the cow, which it is held sacrilege to eat.
The Mahometans, who become Sikhs, intermarry with each other, but are allowed to preserve none of their usages, being obliged to eat hog’s flesh, and abstain from circumcision. The Sikhs are forbidden the use of tobacco, but allowed to indulge in spirituous liquors, which they almost all drink to excess; and it is rare to see a Sikh soldier, after a battle, quite sober. Their drink is an ardent spirit, made in the Punjab; but they have no objection to either the wine or spirits of Europe, when they can obtain them.

The use of opium to intoxicate is very common with the Sikhs, as with most of the military tribes of India. They also take b’hang (cannabis sativa), another intoxicating drug.

The conduct of the Sikhs to their women differs in no material respect from that of the tribes of Hindoos, or Mahometans, from whom they are descended: their moral character, with regard to women, and indeed in most other points, may, from the freedom of their habits, generally be considered as much more lax than that of their ancestors, who lived under the restraint of fewer restrictions, and whose fear of excommunication from their cast, at least obliged them to cover their fins with the veil of decency. This the emancipated Sikhs despise; and there is hardly an infamy which this debauched and dissolute race are not accutted, and with justice, as Sir John Malcolm believed, of committing in the most open and shameless manner.

The Sikhs are almost all horsemen, and they take great delight in riding. Their horses were formerly famous for their strength, temper, and activity; but they are now no better mounted than the Maharratts.

Their horsemen ufe swords and spears, and most of them now carry match-locks, though some still ufe the bow and arrow, a species of arms for excellence in the use of which their forefathers were celebrated, and which their descendents appear to abandon with great reluctance.

The education of the Sikhs renders them hardy, and capable of great fatigue; and the condition of the society in which they live, affords confiant exercise to that refined spirit of activity and enterprize which their religion has generated. Such a race cannot be epures; they appear, indeed, generally to despise luxury of diet, and pride themselves in their coarse fare. Their dress is also plain, not unlike the Hindoos, equally light, and divested of ornament. Some of the chiefs wear gold bangles, but this is rare; and the general characteristics of their dress and mode of living is simplicity.

The principal leaders among the Sikhs affect to be familiar and easy of intercourse with their inferiors, and to despise the pomp and state of the Mahometan chiefs; but their pride often counteracts this disposition; and they appear to have, in proportion to their rank and confluence, more state, and to maintain equal, if not more reverence and dignity with their followers, than is usual with the Maharratt chiefs.

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It would be difficult, if not impracticable, to ascertain the amount of the population of the Sikh territories, or even to compute the number of the armies which they could bring into action. They boast that they can raise more than a hundred thousand horse; and, if it were possible to assemble every Sikh horsemann, this statement might not be an exaggeration; but there is, perhaps, no chief among them, except Ranjit Sinh, of Lahore, that could bring an effective body of four thousand men into the field; and the force of Ranjit Sinh did not, in 1805, amount to eight thousand, and part of that was under chiefs who had been subdued from a state of independence, and whose turbulent minds ill-brooked an usurpation, which they deemed sub-
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SILAS, a river of India, which springing from a fountain of the same name, ran into the country of the Silasans, according to Arrian.

SILATUM, a word used by the ancient Romans to expels a morning's draught of wine. This was usually of a wine medicated with the plant sile, or silei, and thence had its name. It has always been the custom to medicate the morning draught of any strong liquors; we do it with wormwood, or the common bitter tincture; the Indians with ginger.

SILAVENO, in Geography, a town of Italy, in the Novara; 10 miles N.W. of Novara.

SILAUAM, in Botany, a name used by some authors for the Silybum marianum, or common dockbone.

SILAUNA, in Geography, a town of European Turky, in Bulgaria; 40 miles W. of Nicopol.

SILBACH, a village of Hamburgh, in the country of the Fools, on the Saepend. N. lat. 17° 54'.

SILBERBERG, a mine-town of Sileia, belonging to the principality of Berg, but inhabited in that of Magdeburg. N. lat. 50° 24'. E. long. 16° 26'.

SILBEREGG, a town of the duchy of Carnithia; 2 miles N.W. of Eberseifen.

SILBERMANN, Johann Andreas, in Biography, the most eminent and renowned organ-builder and maker of keyed-instruments in Germany. He was born at Strasbourg in 1712, and the first of a numerous and eminent family of that name, who have inherited his professional abilities and reputation. There is, in Gerber's Continuation of Walther's Musical Lexicon, a list of their several names and works; but old Silbermann was the Father Smith of Germany. His instruments are prized above all others for workmanship and tone. The Bach family have been always partial, not only to Silbermann's organs, but harpsichords and clavichords. When we heard Emanuel Bach perform at Hamburg, it was always on a favourite Silbermann clavichord; piano forts were not then brought to great perfection any where; but since that time we find that John Henry Silbermann is much celebrated for his piano forts.

SILBERSCHLAG, John Isaiah, a German mathematician and mechanist, was born in 1721. He studied at the college Klutterberge, near Magdeburg, and afterwards went through a course of theology at Halle, from which place he returned to the college at which he had been before, where he taught natural philosophy and mathematics for nine years. After this he became pastor of one of the churches at Berlin, and rector of the royal school. He was a member of the Academy of Sciences in that city; and, besides writing various works on mechanical and mathematical subjects, constructed a great many machines, instruments, and models, for the use of the students in the Seminary which had been placed under his care. He died
in November 1791. He left behind him a great number of works, among which are, “A Treatise on the warlike Machines of the Ancients”; “Letters on the Northern Lights”; “A Treatise on Hydraulic Architecture”; “The Chronology of the World rectified by the Scriptures.”


SILBERSTRASS, in Geography, a town of Saxony, in the circle of Erzgebirg; 4 miles S.S.E. of Zwickau.

SILBium, in Ancient Geography, a town of Italy, in Japygia.—Also, a town of Alia, in Greater Phrygia.

SILBDAL, in Geography, a town of Sweden, in the province of Warmeland; 35 miles W. of Carlstadt.

SILBOJOCK, a town of Sweden, in the Lapland of Pitea; 12 miles N. of Narva.

SILBURY, one of the largest barrows or tumuli in England, and probably in the world, is situated on the Marlborough Downs, about six miles west of the town of Marlborough, in Wiltshire. The origin, appropriation, and history of this extraordinary mound of earth, are alike unknown to the topographer and antiquary. In the vicinity of the immense druidical temple at Avebury, (see Avebury,) it is rationally supposed to have been originally connected with that structure; and as the most remote antiquities of this island, and of the civilized world, have given rise to much fabulous dissertation, and fanciful hypothesis, so the barrow now called Silbury Hill has been referred to various tribes of people, applied to different purposes, and attributed to the most remote origin. Dr. Stukeley was of opinion that its present name is of Saxon derivation, and signifies “the great or marvellous hill”; while others contend that it is either a corruption for Sil-barrow, which they translate “the peaceful grave;” or of Sel-barrow, meaning “the large or elevated barrow.” The most common supposition respecting its nature ranks it among the sepulchral claus of monuments. Stukeley calls it the tomb of Cunetha, whom he characterizes as a celebrated British king, who refided at Cunetia (then supposed to have been Marlborough), and gave his name to that town, and to the river Kennet, or Kunet. The Rev. Samuel Greathat, in a letter to Mr. Britton, printed in the account of Wiltshire, in the 15th volume of the “Beauties of England and Wales,” regards Silbury as the burial-place of Prydian, a late king of the Britons, to whom he ascribes the union of the British tribes under one monarchy, and the construction of Avebury, as a place of assembly for the chiefs and people on great national occasions. Another opinion respecting this tumulus is, that it was the mount on which the Druids lighted up fires, when they wished to give notice to the surrounding country of some intended religious ceremonial. This view of the subject is of course confined to those who consider Avebury as having been a druidical temple; among whom is the Rev. Edward Davies, author of “Celtic Researches,” and of “The Mythology and Rites of the British Druids.” To these opinions relative to Silbury Hill may be added a third, which may be regarded as equally probable with any of the conjectures above stated. It is, that, like the Tinwald of the Isle of Man, and the Moote-hill of Scone, it was the mount of justice, the eminence from the summit of which the king promulgated the laws enacted in the national assemblies, and on which he and his judges sat to decide all important causes, whether of a civil or criminal nature.

Silbury Hill is situated directly south from Avebury, and nearly in the centre between the extremities of the two avenues, which extended from the temple to the distance of a mile each way. At the base the hill is about 560 feet in diameter, or 1680 feet in circumference; at the top, 105 feet diameter, or 315 feet in circumference; and it rises 170 feet in perpendicular height. Stukeley estimates its solid contents at 13,556,809 cubic feet, and highly praised the choice of the ground, and the symmetrical proportions of the sstructure itself. In digging here in 1723, a human skeleton, with the bit of a bridle, deer’s horns, and an iron knife, were discovered, which Dr. Stukeley confidently believed to have belonged to the person for whom he supposed the mount was raised; but the posture of the skeleton near the surface and on a declivity would render such a conclusion extremely improbable, even though it were undoubted that Silbury is of sepulchral origin. Stukeley’s Abury, folio, 1743. Beauties of England and Wales, by J. Britton, F.S.A. 8vo. 1814. SILCHESTER, a parish in Hampshire, England, at the northern extremity of that county, bordering on Berkshire, contains the feite and ruins of an ancient Roman station. It appears also to have been a city of the Belgo Britons anterior to the Roman colonization of Great Britain, and was called Caerfebon, or Segont, as being the chief city of the Sazgoniaci. In the seventh Iter, of Antonius it is named Vindomim, and marked 22 miles from Venta-Belgarum (Wincheffler), and xc from Callevam (probably Reading). That this was a Roman station of importance, appears evident from the various roads, or vic, branching from it; from the magnitude and construction of the walls, valla, and amphitheatre; and from the numerous coins and other relics that have been found here at different periods. The whole city, or station, was surrounded by a fos, with a vallum on the inside, on which a wall was raised. This was constructed, in the usual Roman manner, with alternate layers, or rows of large flat stones, rubble flints, and cement, also bricks and slabs. In one place this wall was twenty-four feet thick, and the fos was above 100 feet across. The exterior form of this station is unlike any other Roman work in England, being an irregular octagon; whereas those of Camulodunum (Colchester), Venta-Belgarum (Wincheffler), Lindum (Lincoln), Londinium (London), and almost all others, were constructed in the shape of a parallelogram, with the corners rounded off. The inclosed area of Silchester is about one mile and a half in circumference, and contains nearly one hundred acres, the whole of which is appropriated to the arable and pasture lands of a farm. In very dry seasons, it is easy to trace the situation and direction of the Roman streets, two of which intercepted the town, and communicated with the four entrance gates, on the east, west, north, and south sides of the city. Near the centre of the area have been traced the foundations of a large edifice, supposed to have been the forum. About 150 yards from the north-east corner of the walls, are the banks of an amphitheatre, which appears to have contained five rows, or terraces for spectators. A small church and a farm-house, with its offices, are all that now remain within the ancient walls; and thus present an amazing contrast to the appearance and pursuits of former times. Now the humble and useful husbandman, with the humane Christian pastor, are the chief occupants of this peaceful spot, which, in the third century, was peopled with Roman soldiers, and was often the theatre of remorcleles battles, savage sports, and senefels Pagan ceremonies. A particular account of this place will be found in the 6th volume of “The Beauties of England,” by J. Britton and E. W. Brayley.

SILCOU, a town of Hindoostan, in My forest; 8 miles S.E. of Seringapatam.

SILDA, in Ancient Geography, a town of Africa, in Mauritania Caferiensis, according to Ptolemy. The Itinerary of Antonine places this town on the route from Togo-lusia to Tingis, between Aquae Dacieae and Voilificene.
SILENE, in Geography, a large and populous nation and place on the coast of the Black Sea, in the hundred of East Galicia, and county of Luneville, England. The lordship contains about 3200 acres, the greater part of which is moor land, with other commons and lands, in conformity to an act of parliament passed in 1759. The manor belongs to Earl Ferrers. In the parish were formerly two ancient manor-houses, belonging to the See and the Pochin families. In 1811 the parish contained 249 houses, and 1200 inhabitants, most of whom were employed in agriculture, and frame-work knitting. Here is one free school, and three other large schools. The church, a handsome stone building, consists of a nave, aisle, a chancel, a porch, and a tower. The revenues of the church were formerly appropriated to the abbey of St. Ebrulphus, in Normandy, which was suppressed by King Henry V. Afterwards the living belonged to the priory of St. Mary, in the isle of Axholme, in the county of Lincoln. Nichols's History and Antiquities of the County of Leicestershire, folio, vol. ii.

SILEN, a town of Hungary; 14 miles E.N. of Bolefoke.

SILENCE, Fr. in Mufi., equivalent to r/rj; which see. 


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SILENE.

Flowers spik'd, alternate, nearly filiflime, directed one way. Petals deeply cloven. Leaves spathulate, hairy. — Native of Spain, the south of France, vineyards about Conflantinople, and cultivated ground in Greece; also of Virginia; flowering in June and July. An annual, upright, slightly branched species; the leaves with which accompany the flowers narrow, and much smaller than the rest. Petals small, pale pink, or white with a green external tint, minutely crowned. Cleft ovate, ralked. The flowers are said to expand at night only.

S. pendula. Pendulous Catchfly. Linnaeus Sp. Pl. 559. Willd. n. 27. Ait. n. 37. Prodr. Fl. Græc. n. 979. Curt. Mag. t. 114. (Willogo hisa ficelus, thecasis aquaculz facie, fupina; Dill. Ethl. t. 421. t. 312.) — Flowers racemose. Calyx of the fruit pendulous, inflated, with ten rough ribs. Stem decumbent. — Native of Italy, Sicily, Crete, and Cyprus, flowering in the spring. Every bank about Rome is decorated with this elegant plant in the spring. Nothing is better calculated for the decoration of rock-work, or dry parterres, than this hardy annual, whose purplish stems spread in every direction, and are copiously adorned with large pink flowers, with a membranous, violet-ribbed, inflated calyx. The seeds scatter themselves without any trouble.

S. vulgaris. Pink Evening Catchfly. Retz. Off. fusc. 3. 31. Willd. n. 24. Ait. n. 35. Curt. Mag. t. 677. Sm. Fl. Græc. Sibth. t. 409, unpublished. (S. bipartita; Desfont. Atlant. v. 1. 332. t. 100. S. ciliata; Willd. n. 41, excluding the fynonym. Lyciæna marina hifura purpures, luecoj follo; Barred. Ic. t. 1010.) — Petals with two deep rounded lobes, and a sharp cloven cleft. Calyx deeply divided. Leaves spatulate. Stems diffuse. — Found on the sea-shores of Sicily, Barbary, Crete, Malta, and Greece, not uncommon. It has been known about twenty years in our gardens, as a hardy annual, flowering in summer. Linnaeus had specimens, but never determined the species. The stems bear numerous spathulate leaves. The flowering branches are naked below, each terminating in a simple cluster of eight or ten handsome bracted pink flowers, all drooping one way, with a reddish club-shaped calyx. The pubescence, especially of the calyx, is more close and soft than in S. pendula, though more long and shaggy in some specimens than others. The stem is very rarely once forked, being usually altogether racemose.

S. dicotyledon. Pale Spiked Catchfly. Prodr. Fl. Græc. n. 981. Fl. Græc. t. 410, unpublished. — Petals with two deep narrow segments, and a notched cleft. Calyx villous. Leaves obovate. Stem diffuse. — Gathered by Dr. Sibthorp, in the isle of Cyprus. The root is annual, long. Stems spreading, scarcely a span in length, not forked, though mostly once divided, round, leafy, reddish, rough, like the root of the herbage, with long spreading hairs. Leaves thick and broad, rather more than an inch in length; the lower ones tapering at the base. Flowers fix or eight in each spike, cleft, on short partial flaks. Calyx rather slender, hardly an inch long, with ten red hairy ribs. Limb of each petal nearly as long as the claw; pale red on the upper side; light green, with darker veins, beneath; cleft white, divaricate, double-toothed.

S. thyrsiflora. Thyme-leaved Catchfly. Prodr. Fl. Græc. n. 982. Fl. Græc. t. 411, unpublished. — Petals with two deep narrow segments, and a notched cleft. Calyx hairy, glutinous. Stems procumbent, woody, much branched. Found by Dr. Sibthorp on the sandy shores of Caria and the isle of Cyprus. Root perennial. Stems a foot or two in length, widely spreading, repeatedly branched, copiously jointed, round, hairy, sending up several terminal, ascending, simple, leafy, hairy, and rather vilid, flowering branches, from three to six inches long. Leaves obovate, acute, rough, about half an inch long, with axillary tufts of still smaller ones. Flowers racemose, three or four at the top of each branch, erect, white; the back of the petals greenish. Calyx an inch long, hairy, pale green, with pink dots.


S. dichotoma. Forked Long-branched Catchfly. Ehrh. Beitr. v. 7. 143. Fl. Seelc. n. 65. Willd. n. 23. Fl. Græc. t. 413, unpublished. (S. trinervis; Soland. in Rudolf's Aleppo, ed. 2. 252.) — Petals in two deep narrow segments, with scarcely any crown. Stem forked, racemose, villous as well as the leaves. — Native of Hungary and the Levant. Dr. Sibthorp met with it in Crete, and about the Bithynian Olympus. We believe this species was raised, about 25 years ago, in many gardens about London, from seeds sent by the late Mr. Davall, so that it is entitled to a place in the Hortus Krewensi. Root biennial, tapering, as thick as a common radish. Stems several, ascending, from one to two feet high, round, hairy with long spreading hairs, once or twice forked, with an intermediate, nearly filiflime, flower, and then extended into long, simple, spik'd or racemose branches, each bearing five or six filiflime white flowers, whose petals are narrow, with only occasional rudiments of a cleft. Calyx with ten green ribs. Anters green. Seeds red-brown. The leaves are chiefly radical, and very numerous, composing a dense, shaggy, hoary, and somewhat glaucous, tuft; each leaf two inches long, and nearly one broad, obovate, bluntly pointed, tapering down into a broad footstalk.

S. divaricata. Forked Spreading-branched Catchfly. Sm. Prodr. Fl. Græc. n. 985. Fl. Græc. t. 414, unpublished. — Petals in two deep rounded lobes, with a cloven cleft. Stem forked, divaricate, racemose. Leaves all lanceolate, hairy, acute. Discovered by Dr. Sibthorp on the coast of Asia Minor. In size and habit this bears some affinity to the last, but is more leafy, and the leaves are longer, tapering at each end, undulated, of a darker green, rough with shorter hairs, not shaggy. The flowering branches spread at almost right angles. The flowers are white, but with much broader and rounder petals, each petal bearing a rounded cloven cleft.

Sect. 2. Stem forked, with panicled branches.

chick noticed it in Canada. The root is perennial, long, white, branching at the summit. Stem erect, a foot and a half or two feet high, branched, round, glaucous: Leaves ovate-lanceolate, acute, glaucous, usually very smooth, but occasionally rough and fringed; the radical ones numerous, crowded, spatulate. Panicle forked, bearing numerous white drooping flowers. Calyx almost globular, membranous, white, elegantly reticulated with green or purplish veins and ribs. Tub of each petal almost as long as its claw, but half was divided into two spreading, oblong, somewhat rounded segments, generally ditruncate at the base, but we have sometimes seen the divisions of one. Another green, occasionally liable to a failure, by which they become elongated, teeming with utelae purple dust, which stains the petals. The natives of Zante, who call the piant of this genus, eat the boiled leaves, which are said to partake of the flavour of green peas.


(9. amenea; Huds. Angl. t. 188. Light. Scot. t. 227. Cucubalut Bebeh a; Linn. Sp. Pl. 591. Fl. Dan. t. 857. Lychmis lymma anglica; Bach. Hutt. v. 3. p. 2. 357. Ger. Em. 409. Lob. Ic. 337. \textmd{—} Flowers nearly solitary, terminal. Petals cloven about half way down; the segments of their creft entire. Calyx smooth, reticulated with veins. Stem decumbent. \textmd{—} Native of the sandy or rocky sea-shores of Norway, Britain, Gotland, &c., as well as of the floy beds of mountain torrents in Wales, flowering in August and September. The appearance of the leaves and flowers, at first sight, is so like S. infra, that most botanists, for a long time, confidered the plant as a mere variety of that species. They are indeed so nearly akin, as to be inseparable with respect to genus, though S. infra is mostly without a crown to the flower, and this is usually furnished with one. The root of S. maritima is creeping, and the plants often quite prostrate, hardly a span high, bearing one flower, for the most part, rarely two or three, scarcely confining a panicule. The leaves are narrower, linear-lanceolate, or slightly spatulate, very smooth and glaucous, minutely toothed at the edges. Calyx much like the latter. Capule shorter, almost glabrous. Style occasionally varying to four or five.


(8. americana; Huds. Angl. v. 2. 685. — Beem album, ficu Pekomenum fuxatule, fabrifico, fuculum; Bocc. Muf. t. 133. t. 92. \textmd{—} Flowers clustered, crowded, drooping. Petals in two deep, rather narrow, lobes; the segments of their creft notched. Leaves obovate, with a small point. \textmd{—} Native of sandy places near the sea, in Sicily, Aifa Minor, Mount Athos, and the ile of Samos. Root perennial. Plant very glaucous and smooth, twice as tall as the infra, with much thinner and broader leaves. The flower once or twice forked, each of its long upright branches bearing several remote, short, tufted flowers of drooping white flowers, with a reticulated, purplish, tumid, angular calyx; and flails, with pointed fringes, all of the same hue. The tube of each petal as long as the length of its class, is two-ranked, each, spreading lobes of the crest deeply divided, with nearly create segments. Germs red in the lower half, and grey above. Calyx reticulated. The present species is supposed, according to the Linnaean character of the genus, and its close relationship to the three preceding, to be separable from any of them, even as a section of a genus.


(8. americana; Huds. Angl. v. 3. p. 2. 357. Ger. Em. 409. Lob. Ic. 337. \textmd{—} Flowers in a corolosy panicle, nearly upright. Petals deeply divided, rounded; the segments of their creft notched. Calyx reticulated. Leaves obovate-lanceolate. \textmd{—} Native of Crete, Aifa Minor, and Greece. \textmd{—} The root of this annual has glaucous than the last, and more approaching the habit to our common S. infra; but the flowers are broader, and effentally different. The tube of each petal is about a quarter the length of the claw, pale pink, in two elliptical, or almost orbicular, lobes, with a white crest, of two, quite separate, notched segments. Germs elevated on a stalk of its own length, along with the petals and flails, within the calyx, as is more or less the case with most of this genus.

S. cella. Sea-green Campion or Catchfly. Sm. Prodr. Pl. 699. Fl. Græc. t. 417. unpublished. \textmd{—} Lychmis cretica mons Ich, folo toburundus, caela; Tourne. Cor. t. 44, by the character. \textmd{—} Flowers in a corolosy panicle, erect. Petals in two deep linear divisions; the segments of their creft entire. Leaves roundish-obovate. \textmd{—} Native of mount Carnarius, and if we are right in Tournefort's synonym, of mount Ida. This delicate smooth species has a very deep perennial root, crowned with a dense tuft of numerous, branching, leafy, round, pointed flowers, nearly a span high, each terminating in one or two naked flowering branches, about a finger's length, bearing a forked panicle, of from four to eight pale, but elegant, flowers. The leaves are full an inch long, and half as broad, of a deep glaucous green, tapering down into short broad footstalks, which clasps the stem. Bracteas under the partial flower-flasks small, ovate, acute. Calyx obovate, half an inch long, tipped with pink, and variegated with green and white, but hardly reticulated. Petals narrow, cream-coloured; green underneath; their lobes almost entire, or parallel, above half the length of the claw. Styles and filaments rose-coloured, with greenish anthers.

S. levigata. Sm. incepted Cachfly. Sm. Prodr. Pl. 699. Fl. Græc. t. 418, unpublished. \textmd{—} Panicle spreading. Petals cloven half way down, narrow, without a crest. Leaves roundish-elliptical. Calyx very smooth and even, without veins. \textmd{—} Found by Dr. Smith in hilly parts of the ile of Cyprus. \textmd{—} The root is annual. Stem several, from three to eight inches high, leafy below, feemingly like every other part of the plant. Leaves of a deep glaucous hue; the radical ones obovate, stalked; the rali ovate, less obtuse, and nearly sefiffle. Petals turned; the partial flals much longer than the calyx, which is ovate, reddish, peculiarly even and polished. Petals small; their limb pink, in two oblong, obtuse lobes, separated and half way down, and ditinct of any creat. Styles very downy, rather short.


(8. americana; Huds. Angl. v. 3. p. 2. 357. \textmd{—} Panicle-spreading. Petals wedge-shaped, emarginate, with a cloven crest. Leaves ovato-lanceolate. Calyx linear, cylindrical, with ten ribs. \textmd{—} Native of dry mountainous situations in Nor.}
way, Switzerland, and Greece. The root is perennial, tufted, bearing several leafy florets, four or five inches high, with a somewhat corymbose panicule. Herbaceous, smooth, green, scarcely at all glaucous. Leaves an inch long, acute, varying in length. Flowers small, white. Caspia, splitting from top to bottom into fix valves.

S. chorophila. Armenian Catchfly. Sm. Plant. ex Herb. Linn. t. 15. Willd. n. 50. Ait. n. 52. Curt. Mag. t. 807. (Lychnis orientalis viscosa, centareuli folio, flore longifimo; Tourn. Cor. 24.)—Panicule spreading. Petals cloven half way down, with a two-lobed crest. Leaves glaucous, elliptical, pointed. Calyx nearly cylindrical, very smooth, without veins.—Gathered by Tournefort in Armenia. Said to have been introduced at Kew in 1756, by Mr. John Hennemann. A hardy perennial, twelve or eighteen inches high, flowering in August, readily known by the general resemblance of its foliage to Chlora perfuffata, though the leaves are not perforate. Flowers large, erect, in a wide panicule, without scent, white, turning reddish as they fade. Calyx above an inch long, tinged with purple, very smooth, without ribs or veins, its form slender, cylindrical, or slightly club-shaped.

S. longipetala. Long-petalled Catchfly. Vent. Jard. de Cels, t. 15. Sm. Prodr. Fl. Græc. Sibth. n. 992. Fl. Græc. t. 419, unpublished.—Flowers pendulous. Petals in two deep linear segments; with a notched crest, and hairy claw. Leaves lanceolate, rough-edged.—Found by Bruguier and Olivier, in the neighbourhood of Aleppo. Dr. Sibthorp met with the name of the isle of Cyprus. The root is annual. Stem two feet high, leafy, panicked, spreading, and many-flowered. Herbaceous rather glaucous, smooth, except the edge of the leaves, which is rough to the touch. Leaves about three inches long, acute, strongly ribbed; the lower ones elongated and contracted at the base, clasping the stem at the very bottom. Flowers green, quite pendulous. Calyx obovate, ten-ribbed, smooth, half an inch long. Claws of the petals hairy below, as well as the filaments and stigmas; limb smooth, very long, involute. Stigmata club-shaped, red like the author.

S. inaperta. Small Greenish Catchfly. Linn. Sp. Pl. 600. Willd. n. 39. Ait. n. 44. Sm. Fl. Græc. Sibth. t. 420. unpublished. (Vicago lyzius, inaperto flore; Dill. Elth. 424. t. 315.)—Panicule spreading. Flowers erect. Petals in two deep narrow segments; with a double awl-shaped crest. Leaves linear-lanceolate, smooth.—Native of Madeira. Alton. Dr. Sibthorp found it on the mountains of Greece. The root in his possession is creeping, and evidently perennial. Dillenius describes it as an annual. Stems several, near a foot high, clothed in the lower part with numerous smooth green leaves, about an inch long; and branching at the top into a panicule of a few pale delicate flowers, which seem not to have expanded properly in Sherard's garden, whence originated the specific name. In our Greek specimens the calyx is flender, rather club-shaped, an inch long, smooth, with ten green ribs. Petals widely spreading, greenish-white above, light brown beneath; their crest small, in two simple awl-shaped lobes. Caspia ovate, its stalk, within the calyx, as long as itself.

S. juncea. Rushy Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 994. Fl. Græc. t. 421, unpublished.—Panicule elongated. Flowers erect. Petals in two deep narrow segments; each lobe of their crest three-toothed. Leaves fimbriate, all over rough.—Gathered by Dr. Sibthorp in Asia Minor. This has a small, white, annual root. Stem solitary, erect, two or three feet high; leafy and rough below; terminating in a very long, flender, smooth, slightly spreading panicule, of numerous florets, which are rather larger than the preceding, but with a shorter calyx. Petals white, with brown veins beneath. The leaves are crowded at the root, and bottom of the stem, green, an inch and a half long, somewhat pointed; those about the panicle are awl-shaped and smooth.

S. cretica. Cretan Catchfly. Linn. Sp. Pl. 601. Willd. n. 42. Ait. n. 47. Sm. Fl. Græc. Sibth. t. 432, unpublished. (Vicago folius inferiorius bellidis, superiorius tunicae, calicis frictoris, et turgidiori; Dill. Elth. 422. t. 314. f. 404, 405.)—Panicule sparingly branched. Flowers erect. Petals in two deep divaricated segments; the lobes of their crest acute, entire. Lower leaves ovate, undulated, rough.—Found by Dr. Sibthorp on rocks near the sea, in Crete and Cyprus, as well as on the coast of Caramania. A hardy annual, springing up spontaneously year after year in a Chelsea garden. The florets are two or three, from one to two feet high, erect, flender, virid. Leaves green; the lower ones obvate, obtuse and rough; upper linear-lanceolate, acute, smooth. Flowers few, small, but not inedant, crimson, with a smooth, purplish, obvate, ten-ribbed calyx. There is an angular tooth to the claw of the petals, at each side, below the crest.

S. conica. Corn Catchfly. Linn. Sp. Pl. 598. Willd. n. 21. Fl. Brit. n. 8. Engl. Bot. t. 922. Jacq. Amstr. t. 253. Sm. Fl. Græc. Sibth. t. 243, unpublished. (Lychnis calicis ariatis, secunda Cibus; Ger. Em. 470.)—Stem forked. Petals cloven half way down; with a rounded cloven crest. Leaves soft and downy. Calyx of the fruit conical, with thirty ribs.—Native of sandy corn-fields in the south of Europe and the Levant; rare in England, though it still occurs, as in the time of Dillenius, in the sandy parts of Kent, flowering about July. Root annual. Herb downy and vibicid, of a greyish-green. Stems solitary or numerous, spreading, various in height, forked and panicked. Leaves linear-lanceolate, acute. Flowers erect, pale rose-coloured, fragrant, especially at night, with the scent of a honey-fuckel. Calyx cylindrical, becoming conical as the capsule swells, and membranous, with thirty green ribs, and five long slender teeth. Petals nearly obcordate, as is also the white crest of each.—The petals appear to be sometimes entire, so that we suspect S. conica of Linnaeus may be a variety of this, with smoother broader leaves.

S. nolitiflora. Night-flowering Catchfly. Linn. Sp. Pl. 598. Willd. n. 31. Fl. Brit. n. 9. Engl. Bot. t. 291. (Ocyonoides noctiflorum; Camer. Hort. 109. t. 34.)—Stem forked. Petals rather deeply cloven; with a short blunt crest. Calyx with ten angles, connected by transverse ribs; its teeth as long as the tube.—Native of sandy or gravelly fields, in Sweden, Germany, England, Switzerland, Crete, and Asia Minor; not rare in Norfolk and Suffolk, flowering in July. Root annual. Herb dark green, softly hairy or downy, spreading, of a coarse rank habit. Leaves lanceolate, three-ribbed; the lowest obvate. Flowers the size of our common Lychnis dioica, (their calyx and stigmas very vicid,) unrolling their pale bluish-coloured petals in an evening only, when they exhale, in warm weather, a powerful and delicious scent. The strong reticulated ribs of the calyx are remarkable.

S. leucocephala. White and Brown Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1000. Fl. Græc. t. 424, unpublished.—Petals in two deep rather narrow segments; with a deeply cloven crest. Calyx with ten angles. Leaves linear-oblong, recurved, glabrous and hairy. Discovered by Dr. Sibthorp, in the isle of Cyprus. A hairy, glutinosus, branching, annual species, about a span high. Leaves an inch or half an inch half long, green, narrow, obtuse, channelled, forma-
what reveals, received. Flowers smaller than the last, except in their ovary, which is pale, dull, deltoid of transverse ribs. Petals cream-colored below, of a rose-purple above, with 9, their crest in two rounded cartilages. This is probably a 111st infertile flower, less the half.


S. ochidaca. Orchid-flowered Catchfly. Linn. Suppl. 241. Wild. f. 95. Att. n. 50. Sm. Fl. Gram. Sicil. 1, 427, unpublished. (S. Acreum; Jacq. Hort. Vind. v. 14, t. 32. Lychnis graeca, bellidiformis, flore parvo dilato, flore composito; Tourn. Cor. 24.)—Downy, coriaceous. Cabo y x. crispa, bidentate. Petals four-lobed; with a sharp twisted bed crest. Upper leaves ovate. Partial stalk as long as the capsule. Native of the Levant, flowering in May. Annual, of the same and habitat of the last, but the herbage is of a green-grass, and finely hairy or downy, particularly the stem, the upper part of which is also viscid. Leaves broader, sometimes smooth in the
distinct, the leafy-blue, P. Somnifera, in July, having two races, with only a foot or two clubbed, perhaps
floral basis. The leaf is not glossy. The flower is small, lateral.


Upper leaves oril in the form of cup and capitate. Petals 9, with long hairs of the leaves, flowering in summer. Dr. 191. S. 311 with the species in Greece, and on Mount Athos. Inhabit a very sunny place with the leaf, but is less, more hairy, with shorter leaves, and the flower is not distantly. The flower is fully broad, without lateral lobes. There is a brown filament in each of the flowers, by which the petals are caught.


S. ochidaca. Orchid-flowered Catchfly. Linn. Suppl. 241. Wild. f. 95. Att. n. 50. Sm. Fl. Gram. Sicil. 1, 427, unpublished. (S. Acreum; Jacq. Hort. Vind. v. 14, t. 32. Lychnis graeca, bellidiformis, flore parvo dilato, flore composito; Tourn. Cor. 24.)—Downy, coriaceous. Cabo y x. crispa, bidentate. Petals four-lobed; with a sharp twisted bed crest. Upper leaves ovate. Partial stalk as long as the capsule. Native of the Levant, flowering in May. Annual, of the same and habitat of the last, but the herbage is of a green-grass, and finely hairy or downy, particularly the stem, the upper part of which is also viscid. Leaves broader, sometimes smooth in the
with felt down. —Native of the sea-coast of Italy. Gathered by Dr. Sibthorp in Asia Minor, between Smyrna and Prusa. We regret that he had not time to have a drawing taken of this rare and curious species, of which there is not, to our knowledge, any figure extant. Rand mentions the plant as cultivated at Chelsea, in 1739, and Linnæus had it at Upsal. The stem is branched, somewhat shrubby. Whole herbage clothed with velvet-like pubescence. Leaves crowded, spatulate, an inch and a half long, acute, shortly revolute. Panicles dense, level-topped. Calyx club-shaped, ten-ribbed. Petals white or reddish; their limb inerely heart-shaped. We find this plant mentioned in Mr. Donn’s Cambridge catalogue, as introduced in 1804. If it exists in any garden, a figure ought to be published.

S. fruticosa. Shrubby Catchfly. Linn. Sp. Pl. 597. Wildl. n. 14. Ait. n. 26. Sm. Fl. Græc. Sibth. t. 428, unpublished. —(Saponaria frutecosa, acutis foliis, ex Sicilia; Bocc. Sicc. 58. t. 30. Ocyroideis frutecosum; Camer. Hort. 109. t. 33, excellunt.)—Panicle corymbose, close, somewhat three-forked. Calyx club-shaped, rough. Petals cloven; cleft of four teeth. Stem shrubby. Leaves rough-edged.—Native of rocky situations, near the sea, in Sicily and Cyprus. It is supposed, on the authority of Parkinson’s Paradys 254. n. 19, to have been cultivated here in his time. The stem is woody, half an inch in diameter, with numerous tufted leafy branches, whose erect flowering extremities, about a span long, are more distinctly furnished with smaller leaves, and are downy, villous, and coloured in the upper part, each bearing a dense level-topped panicle, of ten or fifteen large flowers. Leaves recurved, spatulate, pointed, about an inch long, evergreen, smooth, and shining; the edges only being rough with minute, reflexed, rigid hairs. Calyx above an inch long, ten-ribbed. Limb of each petal of a long, inerely heart-shaped, form; pink above; veined with green beneath; their cleft white, of two acute, somewhat notched, principal segments, and two sharp teeth at the base. In the Prodr. Fl. Græc. the figure of this plant is, by mistake, referred to S. paradoxus, which will be corrected in the Flora itself.

Sec. 4. Stem panicled, rarely forked.

S. rigidula. Slender Rigid Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1009. Fl. Græc. t. 430, unpublished.—Stem alternately branched, spreading. Petals in two deep sharpish lobes; each segment of their cleft four-toothed. Leaves lanceolate, smooth.—Discovered by Dr. Sibthorp, on mount Hymentus, near Athens. The root is annual. Stem erect, a foot high, copiously branched from the very bottom, spreading, slender, purplish, villous, but, like every other part, destitute of pubescence. Leaves green, narrow, few and remote, about an inch long; the lowest much longer and broader. Petals pale pink, veined with crimson. Calyx club-shaped, pale green, with ten red ribs, smooth, not an inch long. Capule ovate, shorter than its stalk. A very pretty species, whose copious and delicate flowers would be an acquisition to our gardens.

S. spinifera. Thorny-branched Catchfly. Sm. Prodr. Fl. Græc. Sibth. 1010. Fl. Græc. t. 451, unpublished.—Stem shrubby, branches opposite, horizontal, becoming thorns. Petals deeply divided. Leaves spatulate, downy all over.—Found by Dr. Sibthorp in Asia Minor. The stem is thick and woody, very densely branched, leafy, downy, remarkable for its numerous, long, divaricated, lateral shoots, which finally harden into spines. The flowering branches are erect, a spain high, each bearing a racemose, downy panicle, of pale-green flowers, veined underneath with brown, and to judge by their aspect, doubtless fragrant at night. Calyx about an inch long, green, downy. The cleft of each petal consists of two long, rounded, white lobes. Capule ovate, twice the length of its stalk.

S. gigantea. Gigantic Catchfly. Linn. Sp. Pl. 598. Wildl. n. 17. Ait. n. 29. Fl. Græc. Sibth. t. 443, (Lychinis græca, fifts arborecentis follow et facet Sibth. Hort. 32. t. 113.)—Stem erect, downy, and villous. Flowers tufted. Leaves spatulate, villous. Petals in two rounded lobes. Capule nearly globular.—Native of Crete and the islands of the Archipelago; Linnaeus by mistake says of Africa. It has long been known in our more curious green-houses, and is esteemed for the sweet nocturnal perfume of its pale green flowers. The plant, though a yard high, and of a shrubby aspect, is only biennial. Radical leaves two inches long, copious, of a broad spatulate figure, more or less villous, light green, obtuse, with or without a small point. Stem straight, villous; leafy, with several short branches, below; slightly branched above, but befit with dense, whorl-like, downy panicles, of numerous flowers. Calyx three-quarters of an inch long, club-shaped, downy. Limb of the petal divided more than half way, into two broad rounded lobes, veined beneath with purple; their cleft, very short. Capule twice as long as its stalk.

S. congesta. Tufted Green Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1012.—Stem somewhat branched. Panicles terminal, dense, many-flowered. Petals deeply divided, without a crest. Leaves spatulate, downy.—Gathered by Dr. Sibthorp in Greece; we believe on hills near Athens. The root is woody, evidently perennial, bearing many tufts of copious, spatulate, obtuse, green leaves, an inch and a half long, clothed, like the leaf of the herbage, with dense, very short, pubescence. Stem erect, from nine inches to two feet high, scarcely leafy, bearing a few alternate branches, somewhat villous at the top, where each terminates in a dense tufted panicle of greenish flowers, whose calyx is half an inch long, obovate, or club-shaped, and whose petals are cloven into two rounded lobes, without any cleft. This species, of which we have no figure, is in some points allied to the last, but more akin, on the whole, to the following.

S. viridisflora. Paniced Green Catchfly. Linn. Sp. Pl. 597. Wildl. n. 19. Ait. n. 31. (Lychinis ocymaflora, flore viridi; Herb. Parad. 199, with a plate.)—Stem branched. Panicles elongated, loose, drooping, many-flowered. Petals divided half way; their cleft of two linear lobes. Leaves elliptic-lanceolate, acute, downy.—Native of Portugal and Spain. The root is fald, in Hort. Kew. to be biennial, though Herrmann calls it perennial. Stem one and a half or two feet high, ending in a long loose panicle of drooping green flowers. Leaves two or three inches long, rough, like the leaf of the herbage, with extremely minute tubercles, and more or less of short hoary hairs. Flowers like the leaf, but somewhat larger, and furnished with a crown, of which we can perceive no traces in S. congesta.

S. nutans. Nottingham Catchfly. Linn. Sp. Pl. 596. Wildl. n. 11. Brit. n. 3. Engl. Bot. t. 455. Fl. Dan. t. 242, (Lycynis sylvetris alba non Claris; Ger. Em. 470.)—Flower-flanks panicked, drooping one way. Petals in two deep linear segments; their cleft of two acute lobes. Leaves lanceolate, downy.—Native of dry lime-flone pastures or rocks, in various parts of Europe, flowering in June and July. It was first, in this kingdom, observed at Nottingham caille, but grows also at Dover, and various
SILENE.
S. palaestina. See under C. 1. n. 8, PI. 1673. Willd. n. 135. J. H. t. r. Vol. 3, 455. t. 844. (Lvs. vilcares pecumbentes foetidus longi, pet. 5, fol. 125, t. 556.)

—Petal slender. Petals mostly luteo-red; their crest of two acute lobes. Calyx downy. Leaves oblanceolate, late in the Nat. of the south of Europe. Miller cultivated it for the Dover Catchfly, in that it requires a place in the Hesperiacetoidea, though erroneously admitted into PI. Brit. 490, as is explained at 1452 of the same work. What the older botanists found at Dover and which may be seen in Petiver's and Buddle's collections in the British Museum, is tall an undetermined plant. We greatly suspect, after all the confusion that has attended it, that the Dover Catchfly may be, Mr. Hudsone made it, the true C. pallida, and not Linn., (see our next species but one,) a Swedish name, for which Tournefort's Lysimachia orientalis maximus, maximus, undulata, figured in his Voyagu.e, t. 45, 125, is rarely quoted. Bota. arms of late have found nothing at Dover but Silene nutans, varying in size and biforms. The true S. pallida is a rarely found plant, not very unlike Scoparia saxatilis in flowers, but more slender in habit. The lower leaves are thin to papillose; the upper are linear-lanceolate. Calyx above as long, downy. Petals large, yel low-red.

S. buglossoides. Longsmooth-weed Catchfly. Elfr. Bottr. v. 7, 1744. Pl. Select. n. 75 Willd. n. 16. Art. n. 154. "S. Willd. et Knob. II. v. i. t. 85." (S. juncea; Roth Caii. t. 54. Lysimachia prostrata, folia et calvix; Barcell. t. 12, 85, t. 852.)—Petal slender, racemose. Petals in two deep, rounded, ovate lobes; their crest of two acute lobes. Leaves linear-lanceolate, smooth, as well as the slightly calyx. — Barrécher says this plant grows in dry mossy situations in Tuscany. There can be no doubt as to his cognoscere, though entirely overlooked by the German writers, who regard Tuscany as the country of his plant. This is a tall, slender, elegant, personal species, quite smooth, with a purple sheen on the stem and calyx. — The latter is above an inch long, slenderly, nearly cylindrical, with ten obtuse ribs; its surface even and polished, without any pubescence. Claws of the petals longer than the calyx; their limb white, tinged externally with red. Leaves three or four inches long, half an inch broad, slightly glaucous; the radical ones numerous, on long stalks. This species bears a considerable affinity to S. prostrata, but the long racemose panicul, and smooth even calyx, afford clear marks of distinction.

S. rugosa. Clammy Hairy Catchfly. Art. n. 3. (Cuculcutus vilcares; Linn. Sp. Pl. 592. Fl. Suec. ed. 2, 148. Willd. Sp. Pl. v. 8. 685. Lysichus montana vilcosae nitidiflora herbata latifolia rubra, florisibus atque appendicibus; Till. Pat. 105.)—Petal simply racemose, hairy. Flowers opposite, larger than their flanks, drooping every way, without a crest. Stem simple, leafy. Lower leaves lanceolate, even, nearly round; upper downy, vilcld; dilated and reflexed at the base. Native of Scania and Finland, where surely discovered by Linnaeus; and perhaps of Tuscany; as well as of our cliffs at Dover; see the last species but two. The Italian specimen, in the Linnaean herbarium,
dowy. Leaves ovato-lanceolate.—Found by Mr. Nuttal, growing wild, in great abundance, in the neighbourhood of St. Louis, on the MisSissippi, North America, from whence seeds were communicated to A. B. Lambert, esq. who raised this fine plant in his garden at Boyton, Wilts. The stem is two or three feet high, somewhat angular. 

Herbage green, finely downy and viscid; at least in the upper part. 

Petiole racemose, partly forked, composed of about a dozen large flowers, conspicuous for the vivid flaccid of their long lanceolate petals, filaments, and style. The calyx is above an inch in length, angular, ten-ribbed, slightly swelling upwards. The petals are said to be sometimes emarginate. We guess at their extent from the figure cited, which is not sufficiently explicit on this important point.


Stems erect, two feet high, slightly leafy, very vivid in the middle part of their upper joints. Leaves copious about the root, about an inch in length, on very long stalks; in British specimens they are spatulate, clothed with minute curved pubescence; in Greek ones obovate, with longer hairs. The whole plant indeed varies greatly as to luxuriance, but we cannot discern a specific difference. Flowers small, with narrow pale yellow petals, and a purplish calyx. 

The flaminis are usually imperfect, or obliterated, in all the flowers of one root, and the pistils in those of another; but occasionally both are perfect in the same. 

Capule fleshy, hardly bigger than a grain of wheat, splitting into five teeth.


The root is perennial, thick, woody, yellowish within, much divided at the summit. 

Stems numerous, about a foot high, erect, close, leafy, roughish, quite simple, except in the flowering part, very vivid between several of the upper joints. 

Leaves numerous, narrow, acute, about an inch long, much divided at the summit. 

Stems numerous, narrow, acute, about an inch long, minutely rough, of a glaucous green. Flowers erect, in close, irregular, slender panicles. Calyx green, smooth, not quite an inch in length, ten-ribbed. Limb of the petals fleshy-coloured above; greenish, with purple veins, beneath. 

Capule in a flax as long as itself. These flowers, and those of the following, are probably fragrant at night.


Capule shorter than its stalk.—Gathered by Dr. Sibthorp in Greece. 

The root appears to be perennial, and somewhat creeping. 

Stem solitary, a foot high, slightly leafy, smooth, like every other part of the plant; the middle of its upper joint, below the inflorescence, viscid. 

Radical leaves numerous, stalked, narrow, glaucous, two inches long, including the flasks. 

Flowers few. Calyx club-shaped, an inch and a quarter long, smooth, with ten purple ribs. 

Limb of the petals inflexed; white above; cinnamon-coloured beneath. The flalk supporting all the parts of the flower, within the calyx, is remarkable for its length, which nearly equals the petals, and exceeds the ripe capule. 

Sect. 5. Stems single-flowered. 


—Stems single-flowered. Leaves lanceolate, fringed. 

Calyx bell-shaped, downy. 

Petals cloven, auricled on each side at the base. Gathered by Dr. Sibthorp, on the precipices of Mount Delphi, in Negropont. 

The perennial root runs deep into the earth, and is crowned by numerous, dense, rose-like tufts, of bright green, ovato-lanceolate, sharp-pointed leaves, an inch long; smooth above; their cartilaginous edges fringed with white hairs. 

Stems solitary, erect, simple, downy and viscid, a finger's length, bearing two or three distinct pairs of smaller leaves. 

Flowers erect, the size of S. martima. 

Calyx swelling upwards; its veins and segments purplish. 

Limb of the petals deflexed, in two rather deep, oblong, rounded segments, furnished at the base with two very peculiar lateral appendages; their crest of two spreading lobes; their upper side white, tipped with pale purple; the under reticulated with purple veins. 

Calyx ovate, nearly thrice the length of its flalk. 


Calyx club-shaped. 

Petals cloven; their claws wedge-shaped. Gathered by Dr. Sibthorp, on the summit of the Bithynian Olympus. 

An elegant and remarkable species. 

The long perennial root resembles the laft, except in being of a whiter colour. 

Stems very short, tufted, decumbent. 

Leaves crowded, fickle-shaped, about an inch long, rigid, rough with viscid hairs, three-ribbed, permanent, turning white at age. 

Stems ascending, a finger's length, purplish, hairy and viscid, slightly leafy. 

Flowers erect, cream-coloured, with a slender, rough, blood-red calyx, above an inch long. The flalk, bearing the parts of the flower within, is nearly equal to the calyx itself, and much longer than the ripe capule. 

Petals with broad claws, dilated upward, and a crest of two bluntish lobes. 

Germin brownish below, with two crimson bands; green above. 


Petals undivided; their crest bifiliform. 

—Native of the mountains of Carinthia, Moravia, and Italy, in a miscaceous soil. 

A very handsome species. 

The root is perennial, crowned with dense tufts of grassy, or thrill-like, rather succulent leaves, about an inch long; among which are several, solitary, partly decumbent, simple stems, about twice that length, bearing a pair or two of smaller fringed leaves. 

The flowers are very large in proportion, rose-coloured, and, according to Arduin, who lent specimens to Linnaes, very fragrant, though Clusius and Wulff describe them as without scent. The calyx is an inch long, slightly bell-shaped, reddish, densely clothed with soft white hairs. 

Limb of the petals rounded, waxy, but not lobed; their crest, overlooked by Arduin, of two erect slender crimson teeth, growing pale as the flower fades. 

Germin nearly or quite fleshy. 

Silene, in Gardening, contains plants of the hardy herbaceous, and of the annual and perennial kinds, of which the species cultivated are, the common or Lobel’s catchfly (S. armeria); the variegated catchfly (S. quinquevirgata); the pendulous catchfly (S. pendula); the Spanish catchfly (S. mufepulpa); the green-flowered catchfly (S. viridiflora); the Nottingham catchfly (S. nutans); and the shrubby catchfly (S. fruticea).

In the first sort there are varieties with a bright purple flower, with a pale red, and with a white flower.

Method of Culture.—The annual and biennial sorts may be raised by seeds, which should be sown in the spring or autumn seasons, where the plants are to grow; but the latter is the better time. Some low at both seasons, which may be a good practice. The seed should be put in in patches in the borders, clumps, &c. When the plants are up, they should be thinned to two or three plants in each clump, and be kept clean from weeds. With the biennial sorts it is sometimes the practice to sow them in beds; and when the plants are up, to remove them to nursery-rows till the autumn, when they are planted out in the borders, &c.

And the perennial sorts may likewise be increased from seeds, in the same manner; but the usual way is by slips of the heads, and, after the roots, planting them in slaty places, in the spring or early summer months. The shrubby sort may be increased by slips and cuttings of the branches or shoots, which should be planted out in similar situations, in the spring and summer season.

Ancient authors, however, who are very worthy of credit, express more favourable testimonies of him. Silenus, according to their account, was a profound philosopher, whose wisdom was equal to his knowledge; and the drunks, so often mentioned, were merely mythical, furnishing that he was profoundly immersed in speculation. Cicero, Plutarch, and many others, had formed the same idea of Silenus, and always regarded him as a very ingenious man, and a great philosopher. Accordingly Virgil, in his second eclogue, puts into his mouth the principles of the Epicurean philosophy, about the formation of the world, and the beings that compose it:

"Namque canebat uti, &c."
three sons, Alcmeus, Maron, and Lenæus. Servius, on Virgil's Eclogue, makes Silenus the son of Mercury; others, the son of Pan and a nymph; others will have him born of the drops of the blood of Calus, the father of Saturn.

Aelian (Var. Hist. 1. iii. c. 12.) alleges that Silenus was born of a nymph, and that though he was not of the number of the gods, he was, however, of a nature superior to that of man. Silenus is said to have been born at Malea, or at least brought up there, according to the testimony of Pindar, who thus speaks: "Silenus, that incomparable dancer, when a citizen of Malea, the happy spouse of fair Nais had the good fortune to educate." Lucian describes Silenus as of a middle size, fat and plump; and thus he is represented upon medals, and other monuments now remaining.

Bochart, in his "Canaan," will have Silenus to take his name from Γέλιος, or Σίλβος, Silb, the name of the Melethian, whence Γέλιος, Silës. He also adds, that all that is attributed to this imaginary deity is taken from what the prophets have foretold of Jesus Christ. Thus, whereas it is said, that our Saviour should bind his afo to the vine, and his colt to the young vine; Silenus is made to ride on an afo. Because our Saviour washed his garments in blood, as those that trod the wine-preb; Silenus was made to prebide over those who preb the vintage. Because it is added, his eyes were red by rea of wine; Silenus was made all suddled. Bochart, however, advances all this with a great deal of druff, as he has reaon, it having no warrant. He adds, that the devil invented the afo of Silenus, to turn the mysteries of our religion into ridicule. But the fene which he has given to the words, rubent oculi ex vino, & dentes ejus ex latte allelueant, is very forced and unnatural; as if the words signified any thing more, in the propriety of the Hebrew tongue, than, his eyes are redder than wine, his teeth whiter than milk. We may add, that nobody, before Bochart, neither Christian nor idolator, ever saw any thing of Jesus Christ in the fable of Silenus.

Silenus was worshipped after his death as a demigod, and received the honours due to heroes, independently even of Bacchus. Thus Paunianus speaks (in Elie.), who, mentioning the temple which Silenus had in Elis, expresses himself in these words: "There you will likewise see a temple of Silenus, but a terrible temple which is appropriated and peculiar to himself, while Bacchus has no share in the honour of it.""-

SILENTIARY, SILENTIARIUS, an officer among the ancient Roman flaves; being, according to some authors, a flave placed over the rei, to prevent any noife and uproar, and to keep them flent.

Seneca, in his Epîtres, mentioning the great care taken to keep the flaves mute, has given occasion to Lipius, Pompa, and some others, to suppose, that the silentiary was established in his time: but others, as Pignorius, think no such conclusion can be drawn from Seneca's words; nor any thing, but that they were, even then, very severe in preventing any noife among the flaves. As to the name and office of the silentiary, it was not established till about the time of Salvinus, who is the first author that mentions it.

There were also silentiarii established in the emperor's court, called quietis minîfrì, and silentiarii palati; and honoured with the farther titles of clarissimi, spectabilès, devolutissimi, and in Greek Σωφιστατοί, q. d. molt admirable.

There were a great number of these; but only thirty ordinarily officiated, who were divided into three bands, each of which had its decurio. The council of Clausesdon call the body of silentiaries, sèhola devolutsimòrum silentiâriiùn.

SILÆ, in Botany, a Latin name in Virgil, supposed to belong to some slender kind of willow, or oriet. It is used vaguely, by the earlier botanists, for different umbelliferous plants, and retained by Gartner, after Rivinus, for Lagospernum trilobum and aquilégifolium, which those writers place in a genus by themselves. Linæus uses the above word, as the specific appellation of another Lazerétium. See that article.

SILEŠIA, Duchy of, in Geography, a country of Europe, bounded on the N. by the marquise of Brandenburg, on the E. by the duchy of Warsaw and Austrian Poland, on the S. by Hungary, from which it is separated by a chain of mountains, and a wilderness or thicket, about four miles broad, and on the W. by Moravia, Lusatia, and Bohemia. To the W. and S. Sileśia is environed by a chain of hills, being with respect to extent and height some of the most remarkable in all Europe. (See Silešia.) For other mountains of Sileśia, and their productions, see Prussia. In the mountains of this province, and in that part of it that lies towards Moravia and Hungary, the winter is earlier and of longer continuance, and much more severe, than in the more level territories. During those months, in which at the foot of the Riefengebirge and the Gefenek every thing is covered with ice and snow, the trees at Breslau are in full verdure even in winter. The sandy parts of the principality of Glogau, and beyond the Oder, towards Poland, with the mountainous tracts, which are of considerable extent, produce but little, nor is their grain sufficient for the consumption of the inhabitants. But this deficiency is compensated, in favourable seasons, by the fertility of the other and larger part of Sileśia, which, besides wheat, rye, barley, and oats, yields likewise maize or Turkey-wheat, spelt, buck-wheat, millet, linseed, peas, and beans. The culinary vegetables about Breslau, Briei, Néflie, Frankenstein, and Lignitz, are excellent; and the vicinity of Gruenberg and Lower Beuthen affords plenty of fine fruits. Those spots that are not fat for tillage afford good pasturage-grounds, or are covered with wood. Of flax there is abundance, but hemp in less plenty, which is supplied by importation from Hungary and Poland. Hops principally abound near Merseberg. Moreover, Breslau, and Schweidnitz, is one of the principal places of export. A yellow dye, called sèhrte, is plentiful; nor is this country deficient in tobacco plantations; but its saffron is of an indifferent quality. The wine of the country is good, more especially after it has been kept for some years in the cellar. In the mountains and Upper Sileśia, tar, pitch, and resin, are made from the pine and fir, and the larch-tree produces turpentine. From these resins trees, and the trunks of the closer pines, the inhabitants of the mountains make a lamp-black. Terra figillata is found in many places, and particularly near Srugia; but it is used not as an article of the materia medica, but principally in the manufacture of earthenware. Cattle are reared merely for the plough, and for the necessary supply of milk, butter, and cheese; but the markets are furnished, particularly with oxen, from Poland and Hungary. The most noted markets are those of Briei, Breslau, and Schweidnitz. Although the fluids in this country afford many fine and flint hores, the number is not sufficient; and therefore, besides thoes that are purchased at Frankfurt fair, great numbers are brought hither from Lithuania. The inhabitants of the hilly districts keep goats, and cheese in great quantity is made from their milk. The breed of sheep is considerable and
SIL

and because, owing to the calcarious quality of the soil, the wild hogs of these forests, when driven into the Upper Lusatia, and on the hillside near Luska, contain a peculiar proportion of Silex, detritus, Glasses, Lava, Limestone, Volcanic, Scoria, Ores, 

and so on, and are an invaluable quantity to the industry of Silesia. Silica is found in a state of tertiary calcination. The principal manufactures are glass, thread, yarn, and cloth. The chief export is pitch, mull, and thread, yarn, lace, and worsted cloth, together with flax and paper. Under the dominion of the king of Prussia the commerce of Silesia has been considerably improved.

The prevalent religion in Silesia, as well as in Prussia, is the Protestant; and the biblioplies here, as well as in Poland, retain their ancient limits, while the power of the prelates is much abridged.

The manners and customs of the inhabitants of this province resemble those of their relatives, the Bohemians; but that of the latter is much mellowed down into that of the German, that the peculiar features are minute and unimportant. Silesia has some pretentions to literary fame. The capital of Silesia is Breslau; behind which there are only three towns which contain more than 60,000 inhabitants, viz., Glagow, Hirzfelde, and Schweidnitz. For other particulars, see Prussia.

Sileia affords few materials for history. Its ancient inhabitants were the Lygov and Quadai; but about the middle of the sixth century, the Slavs having overrun the country of the latter, a part of it was annexed to Poland, and called Zelizia. Under the Polich sovereigns, Sileia received the Polish language, manners, and usages, with the Christian religion. After having been a Slavonic province of the Polish dominion, it was feigned, in the 15th century, by John of Luxemburg, king of Bohemia (February, 1339), and passed with that sovereignty to the house of Austria. On the death of the emperor Charles VI. in 1740, Frederick II. king of Prussia, laid claim to the principalities of Lignitz, Breslau, and Wohldan; and his claim was effectively supported by the march of an army into Sileia, that Maria Theresa, daughter and heiress of the emperor Charles VI. and queen of Hungary and Bohemia, by a preliminary treaty at Breslau, which was soon followed by a ratification of the same at the peace of Berlin, did, on behalf of her self, her heirs and successors, of both sexes, for ever cede to the king of Prussia, and his heirs and successors, of both sexes, with entire sovereignty and independency of the crown of Bohemia, the countries of Upper and Lower Sileia, together with the district of Katicher, formerly belonging to Moravia, as also the county of Glatz; reserving, however, to herself the principalities of Teschen, with the lordships annexed thereto, the part of the principalities of Trappau and Jagendorf, beyond the Oppa, the part of the principality of Neisse bordering on Moravia, and a small district belonging to Moravia, with some frontier towns. Sileia was never immediately connected with the empire, having at no time been an imperial fief, nor obtained a seat or vote in the diet. Neither has it been ever subject to the supreme tribunals of the empire, so that here the imperial laws are of no force. This event happened in 1742. The king of Prussia having obtained the greater part of this country with entire sovereignty, and absolutely independent of the crown of Bohemia, governs it accordingly, as a state absolutely free and divested of the leaf connection with the empire; but in the year 1751, the empire becoming a guarantee to his Prussian

SILESIAC Terra. See Terra.

SILEX, Kieselerde, Germ., in Mineralogy, a species of earth which is generally found in a flinty slate, and from its forming nearly the whole composition of flint, it has acquired the name of Silex, or flint earth. It is found in equal or perhaps greater purity in rock-crysal and quartz, and in white sand; and it is probably an earth that melts into a globule. Melt of the rocky combinations of Silex are remarkable for their hardness, and will very readily strike fire with flint. Silex, when pure, is white, and perfectly void of taste and smell; it is insoluble in water, and incapable of artificial crystallization. For its other properties, see Flint and Sileca.

SILHET, in Geography, a circar of Hindoostan, in the N.E. part of Bengal, bounded on the N. by Bootan, and on the E. by Meckley, and elsewhere by a part of Bengal. Also, a town of Hindoostan, and capital of a circar, to which it gives name; 106 miles N.E. of Dacca. N. lat. 24° 52'. E. long. 91° 57'.

SILL, in Botany, a name given by the old Greeks to a plant called aloe sylphi.

SILLAN, in Geography, a town of Sweden, in Dalecarlia, on a lake to which it gives name; 25 miles N.W. of Falun.

SILICA, in Ancient Geography, a town of Africa, in Interior Libya, near the river Bregadus. Ptolemy.

SILICA, in Mineralogy and Chemistry. In the former it is an earthly substance, existing abundantly in the composition of the globe, and forms a distinct genus of minerals in such as it predominates. In chemistry it was formerly considered as a simple body, under the class of earths. In the present state of chemistry it is regarded as a metal combined with oxygen, and belongs to one of the most extensive classes of compounds in chemistry. The minerals in which it is principally found are rock-crysal, quartz, agates, and flints. The first of these almost wholly consists of silica. In order, however, to obtain it in perfect purity, let the rock-crysal, or quartz, be heated red-hot, and then plunged into cold water. This has the effect of lessening its aggregation. To facilitate its reduction into powder, let one part of this powder be tufed in a silver crucible, with three parts of pure potash. The fused masses will be found soluble in pure water. To the clear solution add any acid sufficient to saturate the alkali, but not more. A gelatinous precipitate will be found, which, when well washed, dried, and heated to ignition, in a silver crucible, will be pure silica.
It is a fine white powder, harsh to the touch, and di-
stitute of talc or smelt. Its specific gravity is 2.6.
Silica is not acted upon by the air, nor changed by mois-
ture. When strictly pure, no ordinary heat will fuse it.
It does however put on appearances of fusion, when heated
by the aid of a blowpipe and oxygen gas. It does not
combine with oxygen, sulphur, phosphorus, carbon, or
azote.
The two fixed alkalies do not affect it in the cold, but
when fused with it in a silver crucible they combine, forming
compounds, which have all the appearance of glas.
Indeed, when the two bodies are in one proportion, they form the
perfedt and most perfect glas.
When the alkali is to the silica as three to one, the compound is soluble in water.
This solution has been called the liquor of flinta. Any of
the acids are capable of combining with the alkali, and pre-
cipitating the silica in a flate of purity, as we have before
observed in the process for obtaining silica.
If an excess of acid be added to the solution, part of
the silica is dissolved. This is more especially the case with the nu-
muriatic acid. A very dilute solution of silica in potash, in
a vessel covered with paper, was left at rest by professor
Seigling for eight years. Crystals of silica were found in the
fluid, and the surface had a transparent film upon it, strong
enough to allow the vessel to be inverted without spilling the
liquid. Some of the crystals were found to be pure silicas,
in groups of tetrahedral pyramids. There were also crystals
of sulphate and carbonate of potash. The former were so
hard as to strike fire with steel.
When fluoric acid is distilled from a glass vessel, or from
any other substance containing silicas, this acid assumes a
complete gaseous form. The moment it is absorbed by a
water, a proportion of silica is precipitated. In this case,
the gas which comes over is a compound of silica and the
acid, which may be called fluast of silica. The liquid acid
is also found to hold silica in solution. It was from this
solution, after standing two years, that Bergman obtained
crystals of pure silica. They were of a cubic form, with
three angles truncated. They were not so hard as rock-
crystal.
The boracic and phosphaoric acids have no action upon
silica in the cold, but unite with it by fusion, forming trans-
parent vitreous substanices.
Silica does not combine with any of the metals, but it
combines with many of their oxys, forming compounds,
which are called glases, enamels, or porcelains, according to
their appearance.
With the oxyd of lead it forms the glazing of common
pottery; with oxyd of iron, a dark green or black glas.
We have already spoken of its combination with the
alkalies which belong to this class of compounds.
When a solution of lime or barytes in water is added to
a solution of silicate of potash, or liquor of flint, these
earths become precipitated, forming a peculiar compound.
A similar combination takes place when a solution of
silica in potash is added to a solution of alumine in the same
alkali.
Although the fusibility of silica is impracticable at the
heat of our hottest furnaces, yet its combination with other
earths is fusible, though at a very high temperature.
Equal parts of lime and silica fuse into a mass between
porcelain and enamel at 150° of Wedgewood. We hence
see the use of lime in melting iron ores which abound with
silica.
Silica appears to be the most abundant of the earths,
forming the greatest proportion of the primitive rocks, and
the basis of the terrestrial globe.

Although it has not been directly proved to be a metallic
oxyd, there is the most presumptive reason for thinking it
so. From the small action which acids had upon it, com-
pared with the other earths, Sir Humphrey Davy at first
suspected it to be an earth already combined with an acid,
and made some attempts, by the aid of Galvanism, to verify
this idea, but without success. He fused silica with iron
by the Galvanic battery, and obtained a mass which afforded
silica when dissolved by an acid with water. He also heated
silica to whiteness, and on bringing potassium in contact,
a compound was formed of silica and potash, but a number of
black particles were diffused through the mass, which
Sir Humphrey Davy thought were conductors of elec-
tricity. They did not act upon water; but when an acid
was added, an effervescence took place. They also burnt
in a strong heat, affording a white substanice, which had the
characters of silica.

Little is known of the proportions in which silica com-
bines with other bodies: Dalton gives its atom as forty-
five times heavier than hydrogen: and Sir Humphrey
Davy states the number for silica at sixty-one, which, re-
duced to Dalton's standard, would be 90.5. But neither of
these is to be depended upon.

SILICEOUS, in Mineralogy, denotes compounded prin-
cipally of silice.

SILICEOUS Schilus, in Mineralogy and Geology, the horn-
tone flate of some geologists; flinty flate of Jamefon; a
rock of the nature of flate, but containing a great portion
of siliceous earth. It frequently occurs in beds in clay-flate,
and sometimes forms entire mountains, which are either
homogeneous or porphyritic, containing crystals of felspar,
and forming porphyritic flinty flate. The colour con-
fits of various shades of grey, but it is sometimes red, appro-
aching the nature and colour of Jasper. It is generally tra-
versed by veins of quartz, but rarely, if ever, contains met-
allie veins. It is extremely hard, and breaks with difficulty;
the fragments are sharp-edged, and more or less translucent
in minute portions. The Lydian flone, which is used as a
text, or touch-flone, for determining the purity of metals, is
nearly allied to siliceous schilus. This rock paffes, by
gradation, into clay-flate; and when the silice predominates,
into hornstone or chert.

SILICEOUS Earth, in Agriculture, such as is constituted of
siliceous materials.

SILICEOUS Marl, that which is of a sandy or siliceous
nature. See MARL.

SILICERNIUM, among the Romans, a funeral supper, which is otherwise called exequium.

SILICATE, in Mineralogy, a term lately introduced by
professor Berzelius, to denote the combination of flax
with other earths or oxys, in which the silice is suppoas
ed to act as an acid. These substanices he denominates silicato.
As this view of the action of siliceia tends to throw considerable
light on various processes in the mineral kingdom, it is but
justie to our own countryman, Mr. Hume, a reputeable
scientific and practicable chemist in London, to state, that
so early as 1805, he had, in Mr. Park's Chemical Catechism,
altered the action of siliceia as an acidifying principle, and
subsequently in the Philosophical Magazine for 1808, he
distinctly and percievably defcried various processes, both
natural and artificial, in which silice performed the part of
an acid; this he attributed to the great proportion of oxygen
contained in it. As silice is by far the most abundant
substanice in the composition of the globe, either pure or
in combination with the other earths, its peculiar pro-
perities, and the part which it performs in the successive
changes that take place in the mineral kingdom, are a sub-
ject
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fer of weather in both the cases in the mineral
products. The clarity of the effect with the use of
crystals, 
Mr. Hume set forward in a way that may be
known to all who have been interested in the
studies of oxygen and its on the metals, particularly to that which is called
the reaction, with a very many cases of the word, a
complete fatigue and 
new, by each of the metals; all
the metals (pears) without exception, from being the
Our opinion is that in the universe, it may be rendered quite
as one having a variety of the kind of minerals
are clear from the metals. It is also seen that the most
durable, which are obtained, particularly for making glass,
and making artificial gems. The best opaque colours,
such as are most suitable for enamel, water, oil, crayon,
and all other descriptions of painting, are derived also from the
metals combined either with oxide or oxygen. Even
the previous flowers, and the least valuable crystals and pebbles,
with an infinite number of mineral productions, seem to
derive their beauty and value from the action of the metal
on the metals. Thus, the opacity of lead is effectually changed by
the fossil or fossilized composition of most glazes, and
the compound is rendered not less diaphanous than when,
by means of oxygen, the same metal is dissolved in dilute nitric acids.

The power which fossil exerts over potash and soda,
and a variety of other substances which enter into the
composition of glazes, is a striking and well-known instance (says
Mr. Hume) of its neutralizing efficacy; for no acid more
clearly and positively attains the acuity of alkaline bodies, and
displaces them of their corrosive character. The effervescence
which results when fossil and the alkali enter into fusion and
form the tallowy compound, is not observable till the materials
are on the point of perfect combination; hence, as
something is apparently evolved, neither oxygen nor any
other acentric fluid can be supposed to enter; so that the
effervescence power (if the term may be applied) which appears
to exercise the alkaline matter, is alone due to the fact
which is usually employed to form glaze. Indeed vitrification
seems, in all instances, to be accomplished by fossil, or
by oxygen, and the glaze of lead, of antimony, of phosphorus,
borax, or any other body, is due to the one, as
such as the glaze in common use is to the other of these
oxidizing agents.

The power of fossil, as an oxidizing, saturating, and
neutralizing agent, is by no means confined to rocks,
minerals, and the inanimate parts of created matter; but it
persists also, as an essential element, the structure of
organized beings, and occupies a distinguished place both
in the animal and vegetable economy. "Nothing is more
alluring," says Dr. Smith, "than the secretion of flinty earth by plants,
a fact which it well attested." According to modern experiments, human hair, and probably
the hair of all animals whatever, also contains fossil as a
constituent element.

From numberless phenomena that admit of no other in-
terpretation, it may justly be inferred, says Mr. Hume,
that nature poises means of converting fossil into other forms,
and of interweaving it into the constitution of her
worked works, that it ceases entirely to appear in its
original state. Every thing connected with the progress of animal
and vegetable existence, with the ineradicable secrets of the
affirming powers, or with the physiology of all organized
matter, shows that transmutation is an operation which we
cannot disprove, though we may not be able to trace it
through all its steps.

According to Berzelius, fossil, or silica, considered as an
acid, is the property by which it is possessed of forming,
from a state of dryness, into a vegetable state, in the
bonds, or its property of creating. The action of
fossil upon which it acts is such as to in
the bond, is the creation of silica in the
bonds of the alkali; that is, it is a process by which
the alkali is converted into silica. Hence it is that
the term "fossil" is applied to the process of
combination of the alkali with excess of fossil; it is,
therefore, this combination which is termed the
appellation "fossil," and which, for example, is made in the
formula, $\text{Li}_2\text{SiO}_3$, and may be understood to mean that the
alkali contains twice or three times the oxygen of the fossil.

Fossil, like other acids, gives rise to double fuels, partly
with and partly without water of crystallization. We cannot
frequently find, that the bases which have a tendency
to produce double fuels with other acids, do the same thing
here: in the same manner, as in the double fuels, we
again find (although with many exceptions) the same proportion
between the bases as in the other previously known
fuel acids with double bases. Hence, for example, if in common
fossil we could exchange fossil for sulphur, the
combination would be alum without water.

But Nature in her rich fruits, says Berzelius, exhibits
a number of combinations of fossil that more or less varnish,
for which we have few if any analogous combinations to produce
from the experiments in our laboratories. Thus we find fuels
with from three to four bases, which all form one common
combination, while pure crystalline structure seems to render
it evident that it must be considered as one chemical whole;
unless it should hereafter be proved that such bodies belong
to the class of crystals that are formed of many different
fuables lying in juxtaposition, but not chemically
combined.

It often happens, also, that these numerous fuels are
not of the same degree of saturation, but that one or more of
the weaker bases are subficiences, or fuels, while one
or more of the stronger are bi or trio-fuels. That similar
combinations are not formed in our laboratories, arises evidently
from the rapid and violent means by which these
combinations are effected, which will not admit the action
or influence of those weaker affinities which take place in the
secrecy and undisturbed recesses of the mineral kingdom.
As it is of importance to ascertain the quantity of oxygen
in fossil, in order to determine its proportions in the different
combinations of fuels, Berzelius, from various experiments
made by himself and others, eliminates the proportion
of oxygen to be 49.64. See SILEX.

SILICULA, in Botany, the diminutive of Siliqua,
(see that article,) is a Pouch, or pod of a short, or rounded,
figure, along both the edges of whose partition the seeds
are infected; witness the Draca vera, or Whitlow-grass,
so common on walls in the spring, and the Thaljips Bufeus,
Shepherd's purse. The partition is always really
parallel to the valves, though the latter are often so pro-
tuberant, as in the Thaljips, that their depth is much greater
than the real diameter of the fruit. Hence Linnaeus has
fallen into an error, first detected by Mr. Brown, in the
character of Subularia. See that article.

SILICULOSA, the first of the two orders of the 15th
clad in the Linnaean system, Tetradynamia, (see that
article,) the character of which order consists in the short,
or rounded, not oblong, form of the seed-veil. See SI-
LICULA.

SILIFREY, in Geography, a town of Africa, in the
kingdom of Barra.

SILILICON, in Botany, a name given by some of the old
old Latin writers to the carob tree, *filigia dulcis*. The Latins borrowed this name from the Greek *xiphylanos*, the sweet, or sweet-fruited tree.

Ii dando means the word *filicion*, and making it only *filicon*, supposes it to be a barbarous way of spelling the word *filiqua*; but the evident derivation of the genuine word from the Greek, shews his error both as to the word itself, and the origin of it.

**SILIN**, or *Aby Ayt*, in *Geography*, a town of Egypt; 12 miles S.S.E. of Siut.


**SI-LING**, in *Geography*, a town of China, of the third rank; in Onag-6; 20 miles S. of Si-long.

**SILINO**, a small island among the Philippines, near the north coast of Mindanao. N. lat. 9° 2'. E. long. 121° 40'.

**SILINUS**, in *Ancient Geography*, a river of the Peloponnesus, in the Elide, which watered the territory of the Seclunte, according to Saunfanius.

**SILIPICA**, in *Geography*, a town of South America, in the province of Cordova; 20 miles S. of St. Jago del Enero.

**SILIQUA**, *xipho* in *among the ancients*, the third part of an obulus, or, what comes to the fame, the fifth part of a ferule.

**SILIQUA Nabatheae. See Nabatheae Silica.**

**Siliqua**, in *Botany*, a Pod, is a sort of *Pericarp.* (See that article.) The *Siliqua* is a solitary feed-veil, of an elongated form, and dry substance, consisting of two parallel valves, separated by a parallel linear partition, or receptacle, along each of whole edges the feeds are ranged in alternate order. Examples are found in the Cruciferae plants, constituting the Linnean clas *Tetradynamia*, such as *Cleranthus*, the Stock or Wall-flower; as also in *Chelidonium*, the Celandine; and *Bignonia ecbinata*, *Cartn*. t. 52. f. 1.

This kind of feed-veil differs from a *Legume*, (fee that article,) in having the feeds inserted along each of its margins.

**Siliqua. See Carob.**

**Siliquastrum**, the appellation of the Judas-tree in Tournefort and preceding authors, alluding to its partial resemblance to the fruit of the Carob, which was called *Siliqua*, the Pod, by way of eminence. See Ceratonia and Cercis.

**Siliquastrum**, in *Natural History*, the name given by Mr. Lhuyd, and others, to the bony palates of fishes, when found fossil. See Ichthyperia.

**Siliquaticum**, among the Romans, a custom or toll paid for merchandise. This the Greeks called *cera-tismon.*

**Siliquosa**, in *Botany*, the second order of the Linnean 15th clas, *Tetradynamia*; which order is characterized by the oblong form of the feed-veil. See *Siliqua* and *Silicula.*

**Siliquosæ**, the 30th natural order, among the fragmenta of Linneus, exactly analogous to the *Cruciferae* of Juffieu. See that article, as well as, hereafter, *Tetradynamia.*

**Silis**, in *Ancient Geography*, a river of Italy, in Venetia, which had its source in mountains called Taurifani.

**Silisteni**, in *Geography*, a town of Moldavia; 10 miles S.W. of Hudi.

**Silistria. See Distria.**

**Silivria**, or *Killeover*, a large and populous town on the sea of Marmora, once well fortified, and still in part surrounded by a strong wall. Some of its mosques and minarets are very handsome buildings. The lower part of the town is walled by the sea. Its bay is capable of accommodating a considerable number of vessels, and is so well sheltered by the high land on each side of it, that ships may, in any weather, ride in safety.

**Silius Italicus, Caius**, in *Biography*, an Italian poet, was born about the year 15 of the Christian era. He has been suppos’d to have been a native of Italia in Spain; but his not being claimed as a fellow countryman by Martial, who has bestowed upon him the highest praises, renders the supposition improbable. It is certain that he lived chiefly in Italy, in which he possessed several estates. The knowledge of him come down to these times is derived from a letter of Pliny the Younger to Caninius Rufus, announcing his death. From this it appears that he incurred some reproach in the reign of Nero, as having been forward in acculations, and that he was confin’d at the time of the tyrant’s death; that he made a discreet and humane use of the friendship of Vitellius; and that having acquired much honour, from his conduct in the proconfulate of Afia, he thenceforth withdrew from public offices, and maintained the rank of the principal perfons of the city without power, and without envy. It appears, likewise, that he paid his time chiefly in literary conversations, and in composing verses, which he sometimes recited in public. He had great taste for elegance, and purchased a number of villas, which, after enjoying for a time, he deferted for new ones. He collected a number of statues, books, and buildings, to some of the latter of which he paid a kind of religious veneration. This was particularly the case with respect to that of Virgil, whose birth-day he kept with much more ceremony than his own, and whose tomb was included in one of his villas. He is said also to have possessed a villa that had been Cicero’s. In his latter years he retired altogether to his seat in Campania, which he did not quit upon any account; and the general tide of his prosperity did not censure to flow, except in the infancy of the death of the younger of his two sons, which was in some degree compensated by the confular dignity of the elder. In his 75th year he was attacked with an incurable ulcer, and he is said to have put an end to his life, by abstinence from food.

The work of Silius, which has come down to the present time, is an epic poem on the second Punic war. In this he scarcely deviates from Livy, in the narration of transactions; but occasionally introduces a machinery, copied from Virgil, of whose type and manner he is an imitator. Pliny says, that “he writes with more diligence than genius.”

The best editions of this work are those of Drakenborch, 1717; and of Lefebvre de Villebrune, 4 vols. 12mo. 1752.

**Silk, Sericum**, a very soft, fine, bright, delicate thread; the work of an insect, called bosbyx, or the silk-worm.

The ancients were but little acquainted with the use and manufacture of silk; they took it for the work of a fort of spider, or beetle, who spun it out of its entrails, and wound it with its feet about the little branches of trees. This insect they called *seres*, from *Seres*, a people in Scythia, whom we now call the Chinese, who, as they thought, bred it; whereas the silk itself they called *sericium*. But this *seres* of theirs has very little affinity with our silk-worm, bombyx; the former living five years; but the latter dying annually, enveloped in a yellowish bag or ball, which, wound out into little threads, makes what we call silk.

It was in the isle of Cos that the art of manufacturing it was first invented; and Pamphila, daughter of Platis, is honoured as the inventor. The discovery was not long unknown
unknown to the Romans. Silk was brought from Serica, where the worm was a native. But to far were the fears from profiting by the discovery, that they could not be induced to believe it to be a thread should be the work of a worm; and thereupon formed a thousand chimneer conjurements of their own.

Silk was a very scarce commodity among them for many ages: it was even sold weight for weight with gold; and, in so much, that Venetians tell us, the emperor Aurelian, who died A.D. 275, refused the empress, his wife, a foot of silk, that the fetched of him with much earnestness, merely on account of its dearness.

Others, however, with greater probability, affirm that it was known at Rome in early as the reign of Tibersius, about A.D. 15.

Cales, who lived about the year of our Lord 1733, speaks of the rarity of silk, being so rare that at Rome, and only among the rich.

Hegesippus, the emperor, who died A.D. 225, is said by some to be the first person who wore it in Athens, i.e., a garment of all silk.

The Greeks of Alexander the Great's army are said to have been the first who brought wrought silk from Persia into Greece, about 323 years before Christ; but the manufacture of it was confined to Benjus and Tyres, in Phoenicia, whence it was distributed over the West.

At length, two monks, coming from the Indies to Constantinople, in 555, under the encouragement of the emperor Jovianus, brought with them great quantities of silk-worms, with instructions for the hatching of their eggs, rearing and feeding the worms, and drawing out the silk, and spinning and working it. Upon this, manufactures were set up at Athens, Thebes, and Corinth. The Venetians, soon after this time, commenced a commerce with the Greek empire, followed the western parts of Europe with silk for many centuries; though sundry kinds of modern silk manufacturers were unknown in those times, such as damasks, velvets, fatings, &c.

About the year 1130, Roger II. king of Sicily, established a silk manufacture at Palermo, and another in Caltabell, managed by workmen, who were a part of the plunder brought from Athens, Corentin, &c., of which he made a conquest in his expedition to the Holy Land. By degrees, Mezirey adds, the rest of Italy and Spain learned, from the Sicilians and Calabrians, the management of the silk-worms, and the working of silk; and at length the French got it by right of neighbourhood, a little before the reign of Francis I., and began to imitate them. Thuanus, indeed, in contradiction to most other writers, makes this manufacture of silk to have been introduced into Sicily two hundred years later, by Robert the Wise, king of Italy, and count of Provence.

It appears by 33 Hen. VI. cap. 5, that there was a company of silk-women in England to early as the year 1455; but these were probably employed in needle-work of silk and thread; and we find that various sorts of small haberdashery of silk were manufactured here in 1482; but Italy supplied England, and all other parts, with the broad manufacture, till the year 1580. In Spain, indeed, the culture and manufacture of silk seem to have been introduced in an early period by the Moors, particularly in Murcia, Cordova, and Granada. The silk manufactures of this latter town were very flourishing, when it was taken by Ferdinand, &c., at the close of the fifteenth century.

In 1521, the French, being furnished with workmen from Milan, commenced a silk manufacture; but it was long after this time before they could obtain raw silk from the Vol. XXXII.
requires a great deal of attention; for there are some worms more lazy than others; and it is very dangerous waiting till they make themselves a paschage, which usually happens about the fifteenth day.

The first, finest, and strongest balls are kept for the breed; the rest are carefully wound. If there be no more than can be well wound at once, they lay them for some time in an oven, moderately hot, or else expose them, for several days successively, to the greatest heats of the sun, in order to kill the insect; which, without this precaution, would not fail to open itself a way to go and use those new wings abroad, which it has acquired within. Ordinarily, they only wind the more perfect balls. Those that are double, or too weak, or too coarse, are laid aside; not as altogether useless, but that, being improper for winding, they are referred to be drawn out into skeins. The balls are of different colours; the most common are yellow, orange-colour, lilac, rufi- and flesh-colour. There are some also of a greenish, others of a sulphur-colour, and others white; but there is no necessity for separating the colours and shades, to wind them apart, as all these colours are to be lost in the future scouring and preparing of the silk.

Silk. Manufacture of: In England, where silk is not produced in any quantities to be employed by the manufacturer, he must commence his operations upon the raw silk, with no other preparation than that of being wound off into skeins or hanks from the balls, or cocoons, which the filk-worms form.

In this state the silk is imported from those countries where it is produced, as Italy, Flanders, Spain, Portugal, Turkey, the East Indies, and China. A thread of this raw silk, drawn from the skin, is found to be composed of an assemblage of several of the fine fibres or threads produced by the worms; the fibres being united together by a natural gum, which is in the skin, and which is soluble in the hot water in which the cocoons are immered when the silk is wound off.

To prepare this raw silk for use, it is wound from the skeins upon bobbins; the compound thread is then twilled, to unite the constituent fibres more firmly than they can be by the gum alone; and afterwards, being wound again upon frein bobbins, two or three threads are twilled together to produce a stronger thread, fit for the weaver, who warps and finally weaves the silk into various articles of ornaments or utility, by processes very similar to the weaving of cotton or linen, but more delicately conducted.

In the countries where the silk is produced, the manufacturer may be more properly said to commence with the operation of winding or reeling off the threads into skeins from the cocoons, or balls, in which the worms envelope themselves. These balls become an article of trade, as soon as the insect within them is killed by exposing them to heat, either of the sun, or in an oven, or by the steam of boiling water; and, in general, the breeders of silk-worms sell them, in this state, to perons who make a business of the operation of winding. In Piedmont, where capital silk is produced, it is conducted, as follows, by the aid of the silk reel represented in Plate Silk Manufacture, fig. 1.

The balls are thrown into hot water, contained in a copper basin or boiler, A, which is about eighteen inches in length and six deep, set in brick-work, fo as to admit a small charcoal fire beneath it; or if a fire of wood is intended to be made, the fire-place must have a small flue or chimney of iron plate to carry off the smoke. At the side of the boiler is placed the reel, which is very simple. B B marks the wood-frame which sustains its parts: these are, the reel D, upon which the silk is wound; the layer a, which directs the thread upon it; and the wheel-work c, which gives motion to the layer. The reel, D, is nothing more than a wooden spindle, turned by a handle at the end; and within the frame, at each end, it has four arms mortised into it, to support the four battens or rails on which the silk is wound. The rails are parallel to the axis, and at such a distance, that they will form a proper fixied skein by the winding of the silk upon them, (it is usually a yard for each revolution.) One of each of the four arms is made to fold in the middle of its length with hinges, so as to caufe the rail, which these two arms support, to fall in or approach the centre, and thus diminish the size of the reel, and admit the skeins of silk to be taken off at the end of the reel when the winding is finifhed.

Upon the end of the wooden spindle of the reel, and within the frame, B, is a wheel of twenty-two teeth, to give motion to another wheel, c, which has about twice the number of teeth, and is fixed upon the end of an inclined axis, which, at the opposite end, carries a wheel, b, of twenty-two teeth, which gives motion to an horizontal cog-wheel, which, by its thirty-five teeth,This wheel turns upon a pivot fixed in the frame, and has a pin fixed in it, at a distance from the centre, to form an eccentric pin or crank, and give a backward and forward motion to the flight wooden rail or layer e, which guides the threads upon the reel: for this purpose, the threads are passed through wire-loops or eyes, a, fixed into the layer, and the end thereof opposite the wheel and crank, b, is supported in a mortice or opening made in the frame, B, so that the revolution of the crank will cause the layer to move, and carry the threads alternately towards the right or left. There is likewise an iron bar, c, fixed over the centre of the boiler at e, and pierced with two holes, through which the threads pass to guide them.

To describe the operation of reeling, it should be understood, that if the thread of each ball or cocoon was reeled separately, it would be totally unfit for the purposes of the manufacturer; in the reeling, therefore, the ends or threads of several cocoons are joined, and reeled together out of warm water, which softens their natural gum, and makes the fibres stick together, fo as to form one strong smooth thread; and as often as the thread of any single cocoon breaks or comes to an end, its place is supplied by another one, so that by continually keeping up the same number, the united thread may be wound to any length. The single threads of the newly added cocoons are not joined by any tie, but simply laid on the compound thread, to which they will adhere by their gum; and their ends are cut fine, as not to occasion the least perceptible unevenness in the place on which they are laid.

The woman who conducts the reeling is seated before the basin A, and employs a boy or girl to turn the handle of the reel: a fire is lighted beneath the basin A; and when the water becomes nearly boiling hot, she throws into the basin two or three handfuls of cocoons, and leaves them some minutes, to soften that natural gum with which the filk is impregnated; then she stirs up or brushes the cocoons with a will of birch or of rice-straw, about six inches long, cut flumpy, like a worn-out broom; the loose threads of the cocoons stick to the will, and are drawn out; she then diverges thefe threads from the will, and by drawing the ends through her fingers, cleans them from that loose filk which always surrounds the cocoon, till they come off entirely clean; this operation is called la battue; and when the threads are quite clean, she passes four or more of them, if she intends to wind fine silk, through each of the holes in the thin iron. 
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iron bar, which is placed horizontally over the centre of the basin A; afterwards the twine, two parallel threads (which consist of four cocoons each), twenty or twenty-five times round each other, that the interior ends of each thread may be brought together by crossing each other, and that the thread of the silk may be wound, which otherwise would be flat.

The threads, after passing through the holes in the iron bar, and being twisted together, are passed through the eyes of the loops, a, of the layer, and there being conducted to the reel, are made fast to its centre. The reel, which with the thread, gives it the most rapid movement possible, and thus draws off the threads from the cocoons in the basin A. The flow traversing motion of the layer prevents the threads by revolution in the air as to dry the gum of the silk from the floss, so that the threads will not adhere together. After the reel is covered for about the breadth of three inches, by the gradual progression of the layer, it returns and directs a second course of threads over the first laid, and goes until the required length of the floss is obtained. The machine winds the flosses at one time. As it is essential to the production of good silk, that the thread should have half part of its length gummed or gummified before it touches the bars of the reel, the Patent are by law obliged to leave a distance of thirty-eight French inches between the guides, a, and the centre of the reel; and the layer must also, under a penalty, be moved by cog-wheels instead of an endless cord, which is sometimes used in Italy, and which, if suffered to grow slack, will cause the layer to stop and not lay the threads distinctly, and that part of the floss will be glued together, whereas the cogwheels cannot fail.

When the flosses are quite dry the reel is removed from the frame, and by the folding of two of its arms the flosses are taken off. A tie is made with some of the refuse floss on that part of each floss where it bore upon the bars of the reel, and another tie on the opposite part of the floss, after which it is doubled into a hank, and usually tied round near each extremity, when it is laid by for use or sale.

This operation appears very simple, but to produce a good thread requires much attention. The reeler must not wait until the thread of a cocoon is entirely exhausted before the joins on another, because the threads near the end have not above a quarter of their full thicknees. The cocoons produce a very unequal length; some may be met with which yield 1200 eels, whilst others will scarcely afford 200 eels. In general, the production of a cocoon may be estimated from 500 to 600 eels in length. As often as the cocoons the winds are exhausted, or break, or only dimuish, the joins fresh ones to keep up the requisite number, or the proportion; because, as the cocoons wind off, and the thread becomes finer, she must join two cocoons half wound to replace a new one. Thus she can wind three new ones and two half wound, and the floss will be equal to that produced from four to five cocoons. When she would join a fresh thread she must lay one end on her finger, throw it lightly on the other threads which are winding, and the gum will join it immediately, and it will continue to go up with the rest. She must not wind off her cocoons to the last, because when they are near to an end the husk of the worm joins in with the other threads, and makes the silk foul and gouty. The floss may be wound of any size from one cocoon to 100, but it is difficult to wind more than thirty in a thread.

The nicety of the operation, and that part in which lies the greatest difficulty, is to wind an even thread, because as the cocoon winds off the end is finer, and other cocoons must be joined on to keep up the same size. This difficulty of keeping the silk always even for a thread, requires much skill and patience. For this purpose, she makes a small hole by a needle, five, or six inches long, in a thread, the end of which she has fastened to a reel. She then puts it in a basin, A, of water, and it cannot be unravelled even though she wind the thread round her finger; thus she may, for a week, from 12 to 15, or 20 to 25.

During the operation of winding, it was always usual to have a bowl of cold water by her, to letter, to rinse it, and to sprinkle frequently. As the thread, at the last of the winding, is made to break, the floss is divided by fibres every ten or fifteen threads. It is thus put into a basin, A, of hot water, and poured into the basin, B, containing, this is, when the water begins to boil. The water must be just at a proper degree of heat; for when it is too hot, the thread is dead, and has no body; whereas, when too cold, the end which forms the thread detaches a good, and forms a bad floss. The heat of the water from which the cocoons are wound, causes that adhesion of the fibres which completes the floss; a thread can with difficulty be wound off when cold water is employed, but in this manner the thread is very white, and the thread breaks with a slight friction, or the last mud will separate the fibres; but the silk wound from hot water cannot be separated except by hot water.

The old cocoons require the water to be very hot; if the threads break very frequently, it may be concluded that the water is too cold; or, on the other hand, if the silk comes off entangled, and in the state of wool, the water is too hot. When the first parcel of cocoons is finished, the basin, A, is cleaned, taking out all the stripped worms, as well as the cocoons, on which there remains a little floss; these are thrown into a basin, into which the loose floss that comes off in making the floss is likewise put as waste floss, to be carded and spun into threads. The water in the basin must be changed four times a day for coarse floss, and twice only for good cocoons of fine floss; if the water is not changed, the floss will not be so bright and glossy, because the worms contained in the cocoons foul it very considerably. The reeler must endeavor to wind as much as is possible with clear water, for if there are too many worms in it, the floss will be covered with a kind of dust, which afterwards attracts moths, which destroys the floss.

From the gummy or viscid material which floss gives out to water when the cocoons are infused in it, Chappe found that he was able to blow up the water into bubbles, or small balls, as many, and far more permanent than those of soap and water, and offering all the colours of the rainbow. So cluse, indeed, is the texture of these filky bladders, that even the most subtle gas does not penetrate them. Chappe filled many of them, the diameter of each not exceeding three inches, with hydrogen gas, and found several of them contained in a plate of sulphur, in an apartment, far considerably more than twenty-four hours. It is not all floss, however, that is sufficiently glutinous for this purpose; that which is of a very deep yellow will not answer the same purpose. This floss, from its colour, is happily led to be produced by the worm in a peculiar diffuse, yet this is a plate by no means uncommon.

All kind of floss which is simply drawn from the cocoon, by the reeling, is called raw floss, but is denominated fine or coarse according to the number of fibres of which the thread is composed. In general, the raw floss requires dyeing; to prepare for which the thread is very slightly twisted, to render it strong, and more able to bear the action of the hot liquor, without separating the fibres or forming up. Silk yarn, which is employed by the weavers for the warp or weft of the fluffs which they fabricate, is composed of
two or more threads of the raw silk, slightly twisted in a machine; and the thread employed by the flocking weaver is of the same quality, but composed of a greater number of threads, according to the thickness desired. Organzine silk is composed of two, three, or four threads of raw silk twisted, and so combined as to obtain the greatest tension: for this purpose, each thread of raw silk is twisted separately upon itself by a mill; the twist is given in a right-handed direction, and extremely tight. By a second operation of twisting, two of these threads are combined together, the twist being given in a contrary direction, and not above half as tight: this forms a thread similar to a rope. This description of silk, used for the warp of stuffs, is of the utmost importance to the manufacturer, for none of the principal articles can be fabricated without it. The Italians, from whom we formerly imported the silk in the state of organzine, for a long time kept the art of throwing it a profound secret. It was introduced into this country by the enterprise and skill of Messrs. Thomas and John Lombe, the latter having, at the risk of his life, and with wonderful ingenuity, taken a plan of one of these complicated machines in the king of Sardinia's dominions, from which, on his return, they established a similar set of mills in the town of Derby. (See Derby.) In consideration of the great hazard and expense attending the undertaking, a patent was granted to Sir Thomas Lombe in 1718, for securing to him the privilege of working organzine for the term of fourteen years; but the construction of buildings and engines, and the introduction of the workmen, took up so much time, that the fourteen years were nearly expired before he could derive any advantage from it; in consequence of which, he petitioned parliament, in 1731, to grant him a further term: but parliament, considering it an object of national importance, granted him the sum of £14,000 on condition that he should allow a perfect model of the machinery to be taken, and deposited in the Tower of London for public inspection. Similar mills were, in course of time, erected in different parts of the country; but owing to the difficulties that were experienced in procuring raw Italian silk of the proper size for organzine (the exportation of which was prohibited by the Italians), and to the mills having subsequently found employment for other purposes, the quantities worked into organzine, for many years, were far less than any proportion to the imports from Italy; it has however been since revived and improved, in consequence of which it is now carried on to a very considerable extent, as well in other parts of England as at Derby.

The process which the silk undergoes to bring it into this state, consists of six different operations. 1. The silk is wound from the skein upon bobbins in the winding machines. 2. It is then forked into different qualities. 3. It is spun or twisted on a mill in the fine thread, the twist being in the direction from right to left, and very tight. 4. Two or more threads thus spun are doubled or drawn together through the fingers of a woman, who at the same time cleans them, by taking out the flubs which may have been left in the silk by the negligence of the foreign reeler. 5. It is then thrown by a mill, that is, the two threads are twisted together, either slack or hard, as the manufacturer may require; but the twist is in an opposite direction to the first twist, and it is wound at the same time in skeins upon a reel. 6. The skeins are wound according to their different degrees of fineness, and then the process is complete.

The first operation which the raw silk undergoes is winding, that is, drawing it off from the skeins in which it is imported, and winding it upon wooden bobbins, in which state it can go to the other machines. The winding-frame is shown at fig. 2. of the plate, or rather a part of it, which will wind all threads at once, and by increasing the length it may be made to receive any number. Each of the skeins is extended upon a flight reel A A, called a swift; it is composed of four small rods, fixed into an axis, and small bands of string are stretched between the arms to receive the skein, but at the same time the bands admit of sliding to a greater or less distance from the centre, so as to increase the effective diameter of the reel, according to the size of the skein, because the skeins, which come from different countries, vary in size, being generally an exact yard, or other similar measure, of the country where the silks are produced. The swifts are supported upon wire pivots, upon which they turn freely when the silk is drawn off from them; but in order to cause the thread to draw with a gentle force, a looped piece of string, or wire, is hung upon the axis within the reel, and a small leaden weight, c, being attached to it, will cause a sufficient friction. B, B, are the bobbins which draw off the threads; they are received in the frame, and are turned by means of a wheel beneath each, the bobbin having a small roller upon the end of it, which bears by its weight upon the circumference of the wheel, and the bobbin is thereby put in motion to draw off the silk from the swift. D is the layer, a small light rod of wood, which has a wire-eye fixed into it, opposite to each bobbin, so as to conduct the thread thereupon; and as the layer moves constantly backwards and forwards, the thread is regularly spread upon the length of the bobbin. The motion of the layer is produced by a crank fixed upon the end of a crofs-spindle, E, which is turned by means of a pair of bevelled wheels from the end of the horizontal axle, upon which the wheels for turning all the bobbins are fixed.

These winding-machines are usually situated in the top building of the mill, the frames being made of great length, and also double, to contain a row of bobbins and swifts at the back as well as in front. Two of these double frames are put in motion by cog-wheels from the vertical shaft, F, which ascends from the lower apartments of the mill, where the winding-machines are placed. The winding-machines require a constant attendance of children to mend the ends or threads which are broken; or when they are exhausted, they replace them by putting new skeins upon the swifts. When the bobbins are filled they are taken away, by only lifting them up out of their frame, and fresh ones are put in their places.

A patent has been lately taken out by Messrs. Gent and Clarke, for a new construction of the swifts for winding-machines: they are made with fix single arms instead of four double ones; and the arms are small flat tubes, made to contain the items of wire forks, which receive the skein instead of the bands of string in the common swifts. These forks admit of drawing out the tubes until the swift is sufficiently enlarged to extend it; but as they extend the skein at fix points instead of four, as in the common one, the motion is more regular. Instead of the weight which causes the friction, a spring is used to press upon the end pivot of the axis, and make the requisite resistance.

The twirling of the silk is always performed by a spindie and bobbin, with a flyer, but the construction of the machine which puts the spindie in motion is frequently varied. The bobbins of our plate do not admit a representation of the front machines, or twirling-mills, such as are used at Derby, and at almost all the other great silk-mills in England. In fig. 3. we have given a drawing of a small machine, which is similar in the parts which act upon the filk; and indeed many mills employ such machines constructed on a large scale. The
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The one in our plate contains only thirteen spindles, and is intended to be turned by hand, a method which is too expensive for this country, but is common in the south of France, where many articles are produced by their silk manufactory. The spindles, and employ their wives to tambour or twist them by hand, to which they call only, because the spindles $A$, $B$, are arranged in an oval frame, $G$, $H$. In this frame, by which the motion is given, it is fixed at the end of a spindle, $R$, which carries a wheel, $D$, to give motion to a piston upon the upper end of a horizontal axle, $E$; this, at the lower end, or former end, $F$, receive an end of yarn or thread, by means of a press, $G$, and are placed perpendicularly to the frame $G$, $H$, the parts of which are joined by pieces of glass, which slide into the oval planks; the spindles are also received in collars, $L$, fixed to an oval frame, $G$, which is supported from the glass, $G$, by blocks of wood, $a$, $d$, $u$, and are small rollers, $v$, supported in the frame $G$, $H$, in a manner to the spindles: their use is to enlarge the frame, $a$, to oppose against the rollers of the spindles with sufficient force to keep them all in motion.

The thread is taken up as fast as it is twisted by a reel, $K$, which is turned by a wheel, $L$, and a portion, upon the end of the principal spindle, $R$. The threads are guided by passing through wires, $v$, fixed to an oval frame, $L$, which is supported in the frame of the machine by a single bar or rail, $f$, and this has a regular traversing motion backwards and forwards, by means of a crank, or eccentric pin, $i$, fixed in a small cog-wheel, which is turned by a piston upon the vertical axis, $e$; the opposite end of the rail, $f$, is supported upon a roller, to make it move easily. By this means the guides are in constant motion, and lay the threads regularly upon the reel, $K$, when it turns round, and gathers up the filk upon it, as shown in the figure.

One of the spindles is shown at $r$ without a bobbin, but all the others are represented as being mounted and in action. A bobbin, $s$, is fitted upon each spindle, by the hole through it being adapted to the conical form of the spindle, but in such manner, that the bobbin is at liberty to turn freely round upon the spindle: a piece of hard wood is stuck fast upon each spindle, just above the bobbin, and has a small pin entering into a hole in the top of the spindle, so as to oblige it to revolve with the spindle; this piece of wood has the wire-flyer, $k$, fixed to it; the flyer is formed into eyes at the two extremities; one is turned downward, so as to stand opposite the middle of the bobbin $s$; and the other arm, $k$, is bent upward, so that the eye is exactly over the centre of the spindle, and at a height of some inches above the top of the spindle. The thread from the bobbin, $s$, is pulled through both the eyes of this wire, and must evidently receive a twist when the spindle is turned; and at the same time, by drawing up the thread through the upper eye, $d$, of the flyer, it will turn the bobbin round and unwind therefrom. The rate at which the thread is drawn off from the bobbin, compared with the number of revolutions which the flyers make in the same time, determines the twist to be hard or soft; and this circumference is regulated by the proportion of the wheel, $d$, to the pinion $i$, from which it receives motion; and these can be changed when it is required to spin different kinds of silk. The operation of the machine is very simple; the bobbins filled with silk in the winding-machine, $f$, $s$, are put loose upon the spindles at $r$, and the flyers are stuck fast upon the top of the spindles; the threads are conducted through the eyes of the flyers $d$, and of the layers $l$, and are then made fast to the reel, $K$, upon which it will be seen that there are double the number of bobbins to that of the spindles represented, because on half of the number of the spindles in the opposite side, so that they may pass through each other. When the wheel, $d$, is put in motion, the spindles, $R$, in the manner of the wheel, $d$, is turned round, and is made up to the required length. The thread which works at $s$, and is carried by the pinion, $i$, is turned in a direction to the left, and for the final twist of the two or three threads together, and all in all, for twisting the raw threads together in the warp of silk-filk, and for working bagging, the reverse movement makes in motion in the machine, except that it will give twist in a contrary direction; for it is always contrary, when two or more threads are combined by twisting, that the twist of the whole thread shall be in the opposite direction to that twirl which draws them into one thread, in the same manner as for making ropes, organizes silk being in fact small rope, and black-filk or warp being only yarn. The silk which is intended to be dyed, is previously twisted very lightly in one direction, and of course in that direction which will suit the purpose for which it is ultimately intended; viz. whether for yarn or organizes.

The great mills for twisting filk, or generally is formed by Messrs Lombe, though very complicated, are in their operation, because the complexity arises from the great number of spindles which are actuated by the engine, every one of which produces its effect independent of the others, and in the same manner as the oval which we have described. A machine is contained in a circular frame, of which the diameter varies from 11 to 13, 15, and even 15 feet; but 15 feet is the general size of the oval machines. In the centre of the frame is a perpendicular axis or spindle, coming out through the floor of the chamber, and rising to the ceiling: it is put in motion, by a communication of wheel-work from a water-wheel, or otherwise from a hortic-wheel. The axis has upon it two, three, or four horizontal wheels, according to the height of the machine, which revolves with it, and are of a sufficient size to fill nearly all the interior of the circular frame, and act upon the pulleys or rollers of the spindles, which are supported vertically in the frame, and arranged round the machine, at equal distances, in a circle, the number being proportioned to the dimensions of the machine. The spindles are also arranged in as many different stages of height as there are wheels upon the vertical spindle; for the circumference of each wheel presses against the rollers of the spindles which are arranged round it; and thus, when the wheel revolves, it gives a very rapid motion to all the spindles at once, by the contact of the edge of the wheel, but without any strap, as in the oval. Each spindle has a bobbin filled with silk, fitted upon the top of it, and from this the silk is carried up to a horizontal reel, which is turned round freely by the machine, and draws off the thread gradually from the bobbin, the flyer, being all the while in rapid motion, twirls the thread upon itself; or, if two or three threads are previously wound together upon the bobbin, they will be twisted
twisted round each other. Each reed serves to take up the thread from several spindles which are situated beneath it; thus, in a mill of fifteen feet diameter, there will be fix spindles beneath each reed.

To explain this machine more clearly, we will give a description of one of thirteen feet diameter, which has four large wheels and flanges of spindles, two of which are for giving the first preparation to the organzine: the spindles revolve in a direction from right to left. The spindles of the other two flanges are for the finishing the twill, and also for twisting the single threads which are to be used for warp or for flocking-weaving; they revolve in a contrary direction to the former. The frame of the machine consists of two wooden circles of thirteen feet diameter, one placed upon the floor of the mill, and the other at a height of fifteen feet above, the two being united by fourteen upright pillars of wood, which altogether compose a large cylindrical frame or lantern. Each flange contains eighty-four iron spindles, placed vertically, and supported in the flange, which is formed of two wooden circles, extended round between the fourteen uprights of the lantern, and fixed one above the other, at about a distance of four inches asunder, so as to support the spindles between them, in the same manner as the pieces, G, H, of the oval last described.

The circles of the flange are of a rather less diameter than the two circles which compose the top and bottom of the lantern; so that the spindles will be rather within the circle of the frame of the lantern, and admit the wheels of the central axis to act upon them. For this purpose, each of the circles of the flange is made up by fourteen segments fixed between the uprights, and each segment supports six spindles, making up the number of eighty-four in the whole circle. The spindles, like those of the oval, are sharpened at the lower end, and the points rest in small holes made in pieces of glass, which are let into the lower circle of the flange, whilst the upper circle sustains the spindle at a height of four or five inches above the point, leaving full one-third of the length of the spindle projecting above, for the purpose of fitting the bobbin upon it. The upper circle of the flange is rather smaller than the lower, because the spindles do not pass through it, but through holes in small pieces of hard wood, which project from it, so as to be exactly above the pieces of glass which sustain the points of the spindles. Each spindle has a small roller fixed upon it in the space between the two circles of the flange, and it is the contact of this rim of the spindle which commences the revolutions of the spindles when the wheel revolves. In order to make the contact certain, the exterior rim of the great central wheel is made in several segments, and each segment has a constant tendency to recede from the central axis by the action of a weight, and thus press against the rollers of the spindles. In order to give the reverse movement of the spindles, which we have before spoken of in the description of the oval, the great wheels for two of the flanges are made differently from those which we have just described, so that the segments of the rim will act upon the outsides of the rollers of the spindles, instead of the inside: for this purpose the wheels are made larger than the flanges in which the spindles are placed, and from the rim of the wheel small rollers rise up to support the segments, which act upon the rollers of the spindles in front or without the circle, instead of the inside, as is the case with the other flanges, in consequence of which the spindles of these flanges turn in opposite directions. The reeds are placed over the bobbins, to take up the threads when twisted; and the rollers of the different spindles are made smaller or larger, as is required, to give more or less twist to the filk operated upon by them; for the velocity with which the spindles revolve, compared with the rate at which the reeds take up the thread, determines the degree of twist which the thread will have; and to render this equal, the reeds which draw off the filk from the bobbins of the spindles are turned regularly with the motion of the machine by means of wheel-work, which is more easily conceived than described: it is sufficient to state that it receives its motion from the central vertical axis. There is also a layer adapted to each reed, with a wire-eye to receive each thread; and the layers having a slowly reciprocating motion, distribute the threads regularly upon the reeds, in a similar manner to that first described for the oval. One of these reeds is placed between each of the uprights of the machine, so as to make fourteen reeds in the whole circle of each flange, and every reed serves to take the filk from the bobbins of fix spindles. The whole machine in the four flanges contains 336 spindles.

A machine of four flanges is so high, as to reach through two floors of the mill, and for this purpose the upper floor is made with a large round opening, to admit the machine; this floor serves the people who attend the machine, and change the bobbins when exhausted, and also remove the finished filk from the reeds.

The spindles in the upper flanges are usually devoted to the first twilling of the single threads for the organzine, and therefore turn the reverse way, as before mentioned; and as the filk is afterwards to be thrown, or re-twisted, they are drawn off from the bobbins by large bobbins of three inches diameter, and four inches long, instead of the reeds. These bobbins are fixed together upon a long spindle, situated horizontally, and turned by similar wheel-work to that which actuated the reeds; they have similar layers to conduct the filk regularly upon the bobbins from one end to the other, so that the operation is not at all different.

In many of the best filk-mills, they have abandoned the original method of turning the spindles, for the preparation of organzine, the reverse way, by making the action of the wheels upon the outside, instead of the inside, of the circle of spindles. Instead of them they employ two different machines, one for the first operation on organzine, and the other for the second operation, both of them constructed with the wheels within the machine: but the motion of the two machines is reversed to each other.

Fig. 5, represents a single spindle of a throwing machine, in which the same or its action as the great mill, is different in its construction. G and H represent portions of the rails or circles of the flange which support the spindle, and a a is a part of the rim of the great wheel of the central axle. This wheel is not made in segments, as before described, but is made very truly circular, and covered with leather on the edge, that it may act with more force to turn the roller, t, of the spindle. The point of the spindle rests in a glass cap, supported by the rail G, and the roller, t, is always made to press against the rim of the great wheel, a a, by a small lever, d, and a spring, which, after turning over a pulley, has the weight, e, to make it fall to t, to press the spindle always towards the wheel. In this machine, instead of the reel, the thread is taken up by a bobbin, K, at a point in a frame, m, which moves on pivots, and by a weight, m, is pressed down so as to make the bobbin bear upon the edge of a wheel, b, which is kept in constant and regular motion, by the same kind of movement which turns the reeds of the great machine. The intention of this is, that the action of the wheel, b, to turn the bobbin, being communicated by pressure against the part upon which the filk is to wind, will be constant.
After the flax is twisted into a rope and direction, it is intended for yarnc, or only to be used in a loom, or in the preparation of the yarn, it is prepared for warping, and must be wound on fresh bobbins, with two or three threads together, preparatory to twining them into the flax. In the original machines at Derby, this was done by women, who, with hand-wheels, wound the threads from two or three of the large bobbins, upon which the flax was gathered, through the reed, and added them two or three together upon another bobbin, of a proper size, returned to the twining machine. We have here an apparatus which is represented in fig. 3.

The whole machine itself is very similar to the winding-machine, fig. 2, but instead of this, the bobbins from the throwing-mill are placed in front of the machine, fig. 3, two or three in a row. The threads from these are passed over the rail, m, and be taken at the end, w, both which, being covered with cloth, have the same effect to clean the flax by drawing through them, as the fingers of the worker. But the bobbin upon which the two or more threads are to be wound together; it is turned by a wheel, F, upon which it rotates, the same as the bobbins of the winding-machine; and D is the lever, which, for convenience, is in this case placed behind the bobbin, B; and the wire-eye, d, which receives the three threads, is made to reach over to the front. The additional apparatus consists of a small piece of wood, c, which slides freely up and down, in a hole, through a fixed bar, f. On the top of the slider, e, is an eye of wire, through which one of the single threads of flax passes in its passage from the pieces m, n, to the bobbin B; there is one of these slides, e, for each of the three threads; r, is a lever moving on the centre c; the end i is immediately beneath the small slider, e, and the end v is formed to a hook, to catch into the notch which are made in the end of the bobbin B. A small counter weight, x, always causes the hook, e, of this lever to recede from the bobbin; but if any one of the three threads break, it suffers the slider, e, which belongs to it, to descend upon the end, r, of the lever, and deprives the end of the lever, s, of its support, e, in a situation to catch a tooth of the bobbin B, and stop its motion. By this means the winding of three threads together is rendered equally certain with the winding of one; for when any one breaks, the operation of winding on that bobbin stops, until the attendant repairs the broken thread, and puts the machine again in motion. We have lately been informed, that a machine for winding two and three threads together is becoming very common in the silk-mills; but we do not know if it is the same with this one, which however is not evidently impracticable.

The bobbins, being thus filled with double or triple threads, are carried back to the throwing-machine, and are there spun or twisted together, the manner of doing which does not differ from the operation which we have before described. In this second operation the flax is taken up by reels instead of bobbins, and it is made up into hanks. The degree of twist varies with the purpose for which the flax is intended; and the wheel which gives rotation to the thread for the purpose adapted to the degree of twist which the flax is desired to have. The flax, being now spun, require only the preparation of boiling to discharge the gum, and render the flax fit to receive the dye, and also to render it soft and pliable. The flax is boiled for about four hours, in a boiler filled with water, into which a small quantity of soap is put; this operation

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SILK.

in which state the weaver takes it, and mounts it in his loom.

For the subsequent operations of weaving we shall refer to the article WEAVING, because the weaving of silk goods is the same as for any other, except that finer and more beautiful articles are produced in this substance than in any other. Some information on the details of weaving mechanism will be found under our articles DRAPERY OF LOOMS, DRAW-LOOM, DIAPER, DIMITY, and DORNACK; and though these are rather the weaving of linen and cotton than silk, the same principles apply to silk, as will be more fully explained under WEAVING; where a description of weaving ribbons and figured silks will be given.

Silk is distinguished by different names according to its different states. Thus,

Silk, spun, is that taken from the ball, without fire, and spun into thread without any coction: such as is moh; if not all, that is brought into England from the Levant; i.e. from Persia by the way of Turkey, from Bengal in India, and from China. The raw spun silk is commonly worked up into two forms, called organze and tram: the former is made by giving a throw or twist to each thread of raw spun silk lingely, and then doubling two of these twisted threads together, and twisting them smartly together; this forms the warp or length of a piece when manufactured. The tram, or shoot, which makes the breadth of the piece, is formed by twisting two or more threads of raw silk flack. The waffe raw silk, or refuse in reeling, &c. is collected, carded, and spun, and called frog silk; this is doubled and thrown, and often made into a cheap sort of silk-frockings, which are very strong and durable.

In the French silk-works, the greatest part of this raw silk passes for better than a kind of fine frotta; yet, when spun, it makes a bright thread, and serves for the manufacture of stuffs of moderate value and luster. But the raw spun silks of the Levant, whence most of our come, are exceedingly fine and beautiful. The difference arises hence, that in France, the best balls are reeled off in boiling water, and only the refuse made into spun silk; whereas, in the Levant, there is no such thing as reeling or winding on the fire, but the silks are all sent in bales, or packs, as they are drawn from off the balls: so that they are only distinguished by their quality of fine, middling, and coarse.

Silk, boiled, is that which has been boiled in water, to facilitate the spinning and winding. This is the finest of all the sorts of silk manufactured in France, and is seldom used but in the richest stuffs; as velvets, taffeties, damasks, brocades, &c.

There is also another kind of boiled silk, which is prepared by boiling, to be milled; and which cannot receive that preparation, without being first passed through hot water. By the laws of France, it has been prohibited to mix raw with boiled silk; both as such a practice spoils the dyeing, and as the raw silk corrupts and cuts the boiled.

Silks, throwed or twilled, are such as, besides their spinning and winding, have received their milling or throwing. This they receive in a different degree, as they are paid oftener or seldomest over the mill; properly, however, throwed silks are those in which the threads are pretty thick-throwed, and twisted several times.

The throwed silk comes to us chiefly from Leghorn, Genoa, Naples, and Messina.

Silks, stack, are such as are not twilled, but are prepared, and dyed for tapety, and other works with the need.

Silk, Eastern or East Indian. That particularly thus called is not the work of the filk-worm, but comes from a plant that produces it, in pods, much like those of the cotton-tree. The matter this pod contains is extremely white, fine, and moderately glossy; it spins easily, and is made into a kind of silk, that enters the manufacture of several Indian and Chinese stuffs.

Silks, French. It is only in the most southern provinces of France that silk is cultivated, mulberry-trees planted, and worms bred. The principal places are Languedoc, Dauphiné, Provence, Avignon, Savoy, and Lyons. This last place, indeed, furnishes very few silks of its own growth; but it is the great staple whence the merchants of Paris, and the other cities, are to fetch them. At least, they are obliged to have them past through Lyons, if they bring them from other places, either by land or sea. There have been computed to enter Lyons, communibus annis, fix thousand bales; the bale valued at one hundred and sixty pounds weight; of which fix thousand bales, there are one thousand four hundred from the Levant, one thousand fix hundred from Sicily, one thousand five hundred from Italy, three hundred from Spain, and one thousand two hundred from Languedoc, Provence, and Dauphiné.

At the time when the manufactures of Lyons were in their prosperity, there were reckoned to be eighteen thousand looms employed in the silk manufacture; but in 1698, there were not reckoned four thousand. However, this manufacture afterwards revived, and a great part of Europe has been supplied from hence with brocade and rich silks. The decay has not been less notable at Tours; they had formerly there eight hundred mills for winding and preparing the silks; eight thousand looms to weave them; and forty thousand persons employed in the preparation and manufacturing of them; but these have been reduced to seventy mills, twelve hundred looms, and about four thousand persons. The revolution has, however, made such an alteration in the manufactures and trade of France, and they are still (1816) in so unsettled a state, that no correct estimate of them can be obtained.

Silks, Sicilian. The commerce of the silks of Sicily has been very considerable; and the Florentines, Genoese, and Lucque, are the people who have chiefly availed themselves of it. Great quantities were yearly brought thence, especially from Messina; part of which they used in their own manufactures, and sold the rest to their neighbours the French, &c. with profit. The Italians had this advantage, especially the Genoese, over other people, that, having large establishments in the island, they were reputed as natives, and paid no duty for the export.

Part of the Sicilian silks is raw, the rest are spun and milled; of which last kind, those of St. Lucia and Messina are the most valued. The raw unwrought silks were always sold for ready money; the others, sometimes, in exchange for other goods. See Sicily.

Silks, Italian. The silks brought from Italy are partly wrought, and partly raw and unwrought. Milan, Parma, Lucca, and Modena, furnish none but the latter kind; Genoa most of the former; Bologna affords both kinds. The finest Italian wrought silk comes from Piedmont, Novi, Bergamo, and Bologna; and is imported into England from the ports of Nice, Genoa, and Leghorn.

The silk we have from Italy is generally throwed, and serves for warp for our manufactures.

Silks, Spanish, are all raw; and are spun, milled, &c. in England, according to the several works in which they are to be used.

Silks, Turkish, are all raw. One advantage we have in the commerce of the Levant, in silks, wanting in those of Sicily, is, that the latter are confined to a particular season of the year; whereas the former are bought at all times. They
They are brought from Aleppo, Tripoli, Saida, and from the isle of Cyprus, Candia, &c. They are principal place of commerce, especially for the barks of Persia, & Smyrna.

The silk is brought either in caravans, from the month of January to September. The caravans in January are loaded with the fullest silks; those of February, March and April being less plentiful; the rest, the caravans. They all come from the several provinces of Persia, chief of Ghiilan and Shirv, and the city of Schrareh, about a hundred miles from the sea, and those of Isfahon, and a little about it. But the other provinces of Persia, including Aria and Anfall, are seldom or never exported.

Ardeou, or Ardebil, another city of Persia, not far distant from these silk countries, is the place where silks are laid up, and whence the caravans set out for Smyrna, Aleppo, Scasserdoon, and Constantinople; and it is the city, with Sambahan, that have always been esteemed the centre of the silk trade; which has been several times attempted to be removed from Smyrna, and the Mediter-

This new course of the Persian silks into Europe was first proposed by Paulo Centurio, a Genoese, to the earl Basil, under the pontificate of Leo X. The French had the fame design in 1628. The duke of Holleein, in 1633, sent ambassadors to the court of Perfa, purely with the same view. And in 1668, the earl Alexis Michael attempted the thing himself; but he was defeated by the rebellion of the Tatars, and the surpriz of Aftrakan.

In 1688, the commerce of Persian silks had nearly been removed from Smyrna by an earthquake, which almost overturned the whole city; and, if the attempt had been effectual, but for the vigorous means used by the Turks to prevent it. Smyrna, however, still remains in her ancient polieion; and the several nations of Europe continue every year to send their fleets, to fetch away the silks.

Skins, China, Japan, and India. Several provinces of China are fertile in mulberry-trees, and their climate is agreeable to the nature of silk-worms, that the quantity of silks there produced is incredible; the single province of Tchehong might supply all China, and even a great part of Europe, with this commodity. The silks of this province are the most esteemed, though those of Naskin and China be excellent.

The silk-trade is the principal in China, and it which employs the most hands; but the European merchants who deal in it, especially in wrought silks, are to be careful of the spining, &c. the waste being usually very great, as the French East India company have found to their cost.

Japun would not afford fewer silks than China; but the Japanese, a barbarous and distrustful people, have interdicted all commerce with strangers, excepting with the Dutch; who are admitted on certain impious terms, related by Taverner, but which, we read owe, we cannot credit. The Dutch have endeavoured to vindicate themselves from those by the pens of several famous writers.

Great quantities of both raw and wrought silk are furnished by other parts of Bengal, and by several provinces of Vol. XXXII. Vol. XXXII. which partly supply the Chinese, and send a very considerable quantity to Persia and India, the barks of which are very much esteemed by the Chinese and Persians; in which, for the same reason, as manufacturing places, they are either plaited into scarfs, or cut into pieces and fitted for the market by the silk-thrower.

Silk, Laws relative to. The duties on the silk-trade are under the old law, Gent. 9 & 10 Phil. V. in 2 do., 10s. per piece, that is, for every two pieces, brought into the port of London, or any other port in the dominions of the king, and landed under the acts, shall be forfeited to the king, and every person who shall buy, sell, or have in his custody, any silks or silks, shall be liable to the same penalties as are laid down in the act of 9 & 10 Phil. V., that is, he shall be liable to forfeit all the silks or silks, his hands, his goods, and his personal estate, to the value of five hundred pounds; and also to the payment of all the duties which shall be paid on such silks or silks, and to further penalties as the king may think fit to impose on any person who shall be conviction thereof.

However, some duties have been imposed on the trade in silks and silks, but they have been discontinued by the king, and the king of Great Britain, whether the same shall be brought into the dominions of the king, by any person who shall be convicted of any of the provisions of this act, shall be liable to the same penalties as are laid down in the act of 9 & 10 Phil. V., and to further penalties as the king may think fit to impose on any person who shall be conviction thereof.
fuch false to be to the king, and half to the officer who shall seize and secare the fame; and the fame goods shall not be delivered out of the warehous, till security shall be given for exportation, and that the fame shall not be landed again in any part of his majesty’s dominions.

By 5 Geo. III. c. 48, if any foreign manufa&ced silk-stockings, silk-mitts, or silk-gloves, shall be imported into this kingdom, or any part of the British dominions, the fame shall be forfeited, and liable to be searched for and seized as other uncustomed goods; and every person who shall import the fame, or be assisting therein, and the vendors and retailers in whose custody they shall be found, or who shall sell or expofe the fame to sale, or conceal with intent to prevent the forfeiture, shall, over and above the forfeiture of the goods, forfeit 200l., with costs; half to the king, and half to the officer who shall inform and proceute.

And when the goods seized (being out of the limits of the bills of mortality) shall not exceed the value of 20l., two Justices may proceed to the condemnation thereof. And the proceedings, in all other respects, shall be in like manner as in the cafe of ribsbands and laces above mentioned.

SILK, in Chemistry, deferves notice on account of a peculiar falt, or crystalline ftufcence, obtained from it by the nitric acid. In its natural state, or before it is bleached, it contains a yellow redinous matter, from which it derives its fine golden colour. When raw silk is infufed in water, a portion of the yellow matter is difolved, and a light amber-coloured liquor is produced. Pure alcohol extracts a much deeper yellow colour, and makes a tincture, that lofes none of its colour by long exposure to the fun, which bleaches the silk itself. Nitrous acid acts powerfully on silk, in proportion to its concentration. If two draffes of this acid are mixed with a pint of alcohol, and silk, either raw or bleached, be immerfed in it, and kept in digestion, in a moderate warmth, for twenty-four hours, the silk becomes of a dull yellowish-brown, which, after rinsing and washing with soap, and drying, turns to a fine golden yellow, which is very permanent. But when concentrated nitric acid is difiill’d off silk, and the remaining liquor duly evaporated, much oxalic acid is obtained; and the residue, if evaporated still further, yields, together with a little remaining oxalic acid, a quantity of yellow granular cryftals, very bitter, not acid, and forming the saliva and hands of a very deep yellow, not easily removed. If the liquor is previously faturat’d with potaff, and evaporated, another yellow fikly falt evaporates, which detones on coals like common nitre, and appears to be a triple combination of the former granular liquor with nitrate of potaff. The felt men&ced granular cryftals, examined with a magnifier, appear to be compofed of truncated octahedrons.

The above curious ftubefce was discovert by Welter, and called by him the ‘bitter principle.’ He fuppofes it to be generally produced by the action of nitric acid on animal matters; and it is perhaps the fame ftubfe which caufe the bitternefs of bile. Alk&n.

The spirit of raw silk, rectified with fome essential oil, is the medicine commonly known by the name of Gutta Anglicana, or English drops.

SILK, Spider. Within about a century the fecret has been found in France, of procuring and preparing filk from the webs of spiders; and the ufeing it in feveral manufa&ces has been attempted. This discovery is owing to M. Bon, in 1716, who published a differtation on the fubje&; whence what fellows is extracted.

Spiders are usually diftinguifhed, either with regard to their colour, as into black, brown, yellow, white, &c. or with regard to the number, or arrangement, of their eyes; some having fix, others eight, others ten. But with regard to the filk-spiders, M. Bon reduces them all to two kinds; those with long legs, and thofe with short: which left are thofe which furmih the finest raw filk. The filk-fpider makes a filk every whit as beautiful, glossy, and strong, as the filk-worm: it fpin’s it from the anus; but which are about as many as the filk-worm; and behind these, two others, all mutinous, and furnifhed with fphincters. These niples serve as fo many wire-drawing irons, to form and mould a virous liquor, which, when dried in the air, after being drawn through them, makes the filk. Each of these niples, M. Reaumur observes, contains a number of lefs and inffenfible ones; which one may be convinced of by prefling a spider’s belly between the fingers, to oblige the liquor to fly into the nipples; for by this means, applying the finger againft the anus, several diftiinct threads will be drawn out through the feveral perforations of each nipple. The threads are too fine to be counted with any certainty; but M. Reaumur reckons each larger nipple may fend forth a great many.

Hence we fee how the fpiders make their threads bigger or smaller: for as, before they begin to spin, they always apply more or fewer of the fiple nipples againft the body whence the web is begun; or, as they apply each more or lefs strongly; fo, as more or fewer of the minuter nipples come to take, the thread thus fpun will be a compound of more or fewer of the fingle threads. Indeed, as the threads come from the anus all joined together, they appear to be fingle; but M. Bon has diftinguifhed one of the finge ones to confift of fifteen or twenty diftiinct threads.

The threads are of two kinds: the fikl is weak, and only serves for that kind of web with which they catch flies. The fcond is much ftronger, and serves to wrap up their eggs in; which, by this means, are feltered from the cold, as well as from infects, which might otherwife gnaw and deftoy them. These threads they wind very loofely round the eggs, refembling the bags or balls of filk-worms, that have been prepared and loofened for the diftaff.

The fipder-bags are of a grey colour, when new; but when they turn blackifh, when long expos’d to the air; indeed, one might find other fpi&ers’ bags of other colours, and which would afford a better filk; but their fcarcity would render the experiment difficult: for which reafon, we confine ourfelves to the bags of the moft common fpiders, which are the fhort-legged kind. Thefe always find out fome place, securing from the wind and rain, to make their bags; as hollow trees, the corners of windows, or vaults, or under the eaves of houses.

By collecting a quantity of thefe bags, a new filk is made, inferior in nothing to the common filk. It takes all kinds of dyes, and may be made into all kinds of ftuffs. M. Bon had flockings and gloves made of it, which he prefented to the Academy, and others to our Royal Society.

For the manner of preparing the bags to get the filk, it is thus: after having gathered twelve or thirteen ounces of fhe bags, M. Bon had them well beaten for fome time, with the hand, and a flick, to get out all the dust; he then washed them in lukewarm water, till they left the water very clean; after this, he laid them to fleep, in a large vafe, with soap, and faltwater, and gum arabic. The whole was left to boil, over a gentle fire, for three hours. The bags were then washed in warm water, to get out the soap; and after all, laid to dry fome days, to fit them for
for carding; which was performed by the common folk-carders, but with cards much finer than ordinary. By this means, he had a filk, of a very particular kind, which was easily spun; and the thread from it was both stronger and finer than that of common filk; which proves, that all sorts of works may be made of it: nor is there any reason to fear, but it will stand any trials of the loom, after having passed that of the flocking-weavers.

The only difficulty, now, is in procuring a sufficient quantity of spider-bags to make an considerable work of it; which, M. Bon observes, would be no difficulty at all, had we but the art of breeding them, as we do silk-worms; for they multiply much more; every spider lays six or seven hundred eggs, whereas the silk-worms do not lay above one hundred; yet are these left to tender, &c. that one half die without making any bags, or are hindered, by some little accident, from making them; whereas the spiders hatch of themselves, without any care, in the months of August and September, in fifteen or sixteen days after they are laid; the old spiders that lay them dying from after. The young ones thus breed five or ten or twelve months without eating, and continue in their bags without growing, till the hot weather, putting their wired juices in motion, induces them to come forth, spin, and run about to seek food. Were a method, therefore, found of breeding young spiders in rooms, they would, doubtless, furnish a much greater quantity of bags than silk-worms do. For of seven or eight hundred young spiders, which M. Bon kept, hardly one died in a year; whereas of one hundred silk-worms, not forty lived to make their bags. M. Bon, having ordered all the short-legged spiders that could be found in the months of August and September to be brought to him, that they should be put in paper coffins, and pots; covering the pots with paper, which he pierced full of pin-holes, as well as the coffins, to give them air. He fed them with flies, and found, some time afterwards, that the greatest part of them had made their bags. The same ingenious person found, that spiders' bags, with regard to their weight, afford much more silk than those of the silk-worms: as a proof of which, he observes, that thirteen ounces yield near four ounces of clear silk, two ounces of which will make a pair of flockings; whereas flockings of common silk weigh between six and eight ounces. Nor is there any venom in the silk, or even in the spider, as many have imagined. M. Bon has been bit by them several times, without any manner of harm; and as for the silk, it is used very good for to stop bleeding, and cure wounds, the natural gluten of it acting as a kind of balsam. It likewise yields, by distillation, several specific medicines, particularly great quantities of spirits, and volatile salt, which being prepared after the same manner as that drawn from the bags of silk-worms, in making the gutta percha, or English drops, at one time so famous all over Europe, may serve to make other drops of greater efficacy, which M. Bon calls drops of Montpelier, and advises to be used in all sleepless diseases.

M. Reaumur, being appointed by the Royal Academy to make a farther inquiry into the new silk work, has raised several objections and difficulties against it; which are found in the Memoirs of the Academy for the year 1721. The sum of what he has urged amounts to this. The natural tierceens of the spiders renders them unfit to be bred and be kept together: four or five thousand being distributed into cells, fifty in some, one or two hundred in others, the two or three from killed and eat the lefs, so that, in a short time, there were scarcely left one or two in each cell; and to this

necessity of mutually eating one another, M. Reaumur attributes the scarcity of spiders, confiding the soft number of eggs they lay.

But this is not all; he even affirms, that the spider's bag is inferior to that of the silk-worm, both in bulk and strength; and that it produces less matter to be manufactured. The thread of the spider's web, he says, only bears a weight of two grains without breaking, and that of the bag bears thirty fix. The latter, therefore, is all probability, eighteen times the latter than the former, yet it is weaker than that of the silk-worm, which bears a weight of two drachms and a half; so that five threads of the spider's bag must be put together, to equal one thread of the silk-worm's bag.

Now it is impossible these should be applied jointly over one another, as not to leave little vacant spaces between them, whence the light will not be reflected; and of consequence, a thread, thus compounded, must fall short of the lustre of a solid thread. Add to this, that the spider's thread cannot be wound off, as that of the silk-worm may, but must of necessity be carded; by which means, being torn in pieces, its evenness, which contributes much to its lustre, is destroyed. In effect, this want of lustre was taken notice of by M. de la Hire, when the flockings were presented to the Academy.

Again: spiders furnish much less silk than the worms: the largest bags of these latter weigh four grains; the smaller, three grains; so that 2534 worms produce a pound of silk. The spider-bags do not weigh above one grain; yet when cleared of their dust and filth, they lose two-thirds of their weight. The work of twelve spiders, therefore, only equals that of one silk-worm; and a pound of silk will require at least 27,648 spiders. But as the bags are wholly the work of the females, who spin them to deposit their egg in, there must be kept 55,296 spiders to yield a pound of silk. Yet will this only hold of the best spiders; those large ones ordinarily seen in gardens, &c. scarcely yielding a twelfth part of the silk of the others: 280 of these, he thinks, would not yield more than one silk-worm; 661,552 of them would fearely yield a pound.

SILK-GrAfF, in Botany, a name used for two very different genera of plants, the abe, and dog's base.

SILK-Tail, or Bohemian Chatterer, in Ornithology. See ROLLER.

SILK, Virginian, in Botany. See PERSICIFLO.

SILK-Worm, Bander. This insect, which is a species of the phalana, (see Bombyx,) consists of eleven rings, and each of these of a great number of other smaller ones, joined to each other; and the head, which terminates these rings, is furnished with two jaws, which work and cut the food, not by a perpendicular but a lateral action.

The humour found in the body of this creature all seem approaching to the nature of the silk which it spins; for on being rubbed in the hands, they leave a hard or solid crust behind them. Under the skin there is always found a mucous rosy-coloured membrane, enveloping the animal, and supposed to be the new skin in which it is to appear, on throwing off the old one. The heart of this creature reaches from the head to the tail, running the whole length of the body: it is, indeed, rather a series of many hearts connected together, than one: the motion of the stomach and intestines is very evident in this whole chain of hearts; and it is an elegant sight to observe the manner of the vital fluid's passing from one of them to the other. The floumch of this animal is as long as the heart, reaching, like it, from one end of the body to the other. This large receptacle for food, and the founden
den palisade of it through the animal, are very good reasons for its great voracity.

In the sides of the belly, all about the ventricle, there is deposited a vast number of vessels, which contain the flaky juice: these run with various windings and meanders to the mouth, and are so disposed that the creatures can discharge their contents at pleasure at the mouth; and according to the nature of the juices that they are supplied with, furnish different sorts of fluid from them, all the fluid contents of these vessels hardening in the air into that sort of thread, of which we find the web or balls of this creature consists.

These creatures never are offended at any trench, of whatever kind; but they always feel a southern wind, and an extremely hot air always makes them sick. Malpighi de Bombaye.

SILKEBURG, in Geography, a town of Denmark, in North Jutland, with a castle, which was formerly very strong; 18 miles W. of Aarhus.

SILLA, in Ancient Geography, a river of India, which flows in a mountain of the same name, and so itself in the ground, without receiving any other river.

SILLA, in Geography, a large town of Africa, in Bambara, on the right bank of the Niger, within two short days' journey of Jenné, which is situated on an island in the river. This place was the boundary of Mr. Park's journey, and from hence he began his return homeward; 75 miles N.E. of Sego. N. lat. 14° 49'. W. long. 1° 34'.

Silla Point, a cape on the north-west coast of the island of Mindanao. N. lat. 0° 27'. E. long. 125° 51'.

SILLBAR, or Sellebar, a sea-port town on the west coast of the island of Sumatra, with a good and safe harbour; 30 miles S.S.E. of Bengoelen.

SILLAH-MEW, a handsome town of the Birman empire, situated on the Irrawaddy. It is flanked by widespread trees, and embellished with several temples. A smooth bank sloping to the river, and clothed with the finest verdure, adds much to its beauty. The soil around is in general but poor. Some fields are regularly fenced, and cattle in large herds graze in the neighbourhood.

SILLANGER, a town of Sweden, in Angermanland; 4 miles W. of Hernoand.

SILLANO, a town of Etruria; 8 miles S.S.E. of Volterra.

SILLEE, a ciree of Bengal, bounded on the north by Ramgur, on the east by Paccheta, on the south by Tomar, and on the west by Nagpour; its form is square, and each side is about 16 miles. Alto, the capital of the above ciree; 25 miles S.E. of Ramgur. N. lat. 23° 22'. E. long. 85° 57'.

SILLES, in Ancient Geography, a river of the Troade.

SILLE-LE-GUILLAUME, in Geography, a town of France, in the department of the Sarthe, and chief place of a canton, in the district of Le Mans; 18 miles N. of Le Mans. The place contains 2121, and the canton 11,835 inhabitants, on a territory of 2471/4 kilometres, in 10 communes. N. lat. 48° 12'. W. long. 0° 3'.

SILLEWOOD, a small island in the North sea, near the coast of Norway; 30 miles N.N.W. of Bergen.

SILLINGA, a town of Bengal; 35 miles S. of Doefa.

SILLON, in Fortification, an elevation of earth, made in the middle of the moat, to fortify it, when too broad.
The sillon is more usually denominated an envelope.

SILLS, in Agriculture, a term signifying the shafts of a cart, waggon, &c.

SILLY, in Geography, a rock on the south coast of the island of Jersey; 2 miles S. of Noirmont Point.

SILLYUS, in Ancient Geography, a town of Acha Minor, in Ionia, in the vicinity of Smyrna.

SILM, or CLEMISON, in Geography, a country of Africa, near the river Scherbro.

SILNO, a town of Lithuania; 4 miles N.N.W. of Grodno.

SILOE, in Ancient Geography. See Silloth.

SILOE, SIOLO, or Siloain, a fountain at the foot of the walls of Jerusalem, east, between the city and the brook Kidron, or Cedron. Josephus (De Bell. l. c. 26.) says, that when Nebuchadnezzar besieged Jerusalem, the waters of this fountain increased; and that the cale was the same, when Titus besieged the city; so that, during the siege, it abundantly supplied the Roman army, and furnished also a sufficiency for watering the gardens; though, before this event, water could hardly be bought for money. The prophet Isaiah (ch. viii. 6.) infinuates, that its waters flowed gently and without noise. St. John speaks of the pool of Siloam. (John, ix. 7.) The tower of Siloam, mentioned Luke, xiii. 4. is thought to have been near the fountain.

SI-LONG, in Geography, a city of China, of the second rank, in Quang-n. N. lat. 24° 34'. E. long. 105° 18'.

SILOON, a town on the north-east coast of Sumatra. S. lat. 1° 8'. E. long. 105° 51'.

SILOXERUS, in Botany, f. named by Labillardiere, from σιλοξερος, the style, and ὑπονοος, fouling, on account of the tumid base of that part. It would have been difficult to trace this derivation, without authentic information from the author himself. — Labill. Nov. Holl. v. 2. 57. — Clasts and order, Syngeneta Pohyamia-segregata. Nat. Ord. Compostae monocotaeae, Linn. Corystidea, Jull.

Gen. Ch. Common Calyx scarcely any, except the leaves surrounding the common compound receptacle; partial inferior, of from five to seven equal, obovate-oblong, concave, membranous leaves, containing several florets. Cor. compound uniform, discoïd, of from two to five tubular, monopetalous, regular, pitcher-shaped, five-toothed, perfect florets. Stam. Filaments in each floret five, very short; anthers linear, united into a tube. Pfl. Germen in each floret inerely pyramidal, tuberculated; lyle awl-shaped, swelling very much at the base; stigma two, obtuse, spreading. Peric. none, except the permanent partial calyx. Seeds solitary to each floret, inerely pyramidal, beft with rows of tubercles, and crowned with about twelve little teeth; down of one leaf, membranous, pellucid, in five ovate, acute, fringed lobes. Common Receptacle oblong, somewhat club-shaped, hairy, many-flowered; partial small, fcelar, the sepalis membranous, oblong, fearely longer than the florets.

Eff. Ch. Common receptacle hairy; partial chaffy. Partial calyx with from two to five perfect, equal, regular florets. Seed-down membranous, five-lobed, fringed.

1. S. humifusa. Labill. Nov. Holl. v. 2. 58. t. 209.—Native of Lewin's land, on the south coast of New Holland. A small, diffuse, herbaceous plant, with a tapering, apparently annual, root. Stems several, spreading, simple, leafy, an inch or two long. Leaves mostly opposite, simple, linear, obtuse, smooth, near an inch in length; several of them crowded under the heads of flowers, which are terminal, solitary, ovate or nearly globular, fearely an inch long. Nothing is mentioned concerning the colour, scent, or properties of this little inconspicuous, but singular, plant.

SILPERRY, in Geography, a town of Bengal; 2 miles S.S.E. of Ghitore.

SILPHA,
SILPHA.

SILPHA, in Entomology, a genus of insects of the order Coleoptera, of which the generic character is, Antennae elevated; the club pedate, shells margined; head prominent; thorax facet what flattened and margined: This genus of insects, from its habits, is derived from the trival name of the Coleopterae.

The several species are commonly found among decayed animal and vegetable substance, frequently also dug in earth, are various and other offensive matters they lay their eggs in: in the dead and putrid carcases of animals. The larvae are of a lengthened shape, and of an unpleasant appearance: They are generally roughed with minute spines and protuberances. There are about 13 species, in eight separate divisions or sections. The following are most worthy of notice.

S. A is characterized by a discolored and banded Ip., and a one-toothed Jaws; in which, as follows, are the following species:

S. [nonidentified] Black; shells with a yellow base behind: head-thigh toothed. It is found in South America.

S. [nonidentified] This is a black insect; the shells are rufous, with three railed lines; thorax rounded and punctured. This is an European insect, and found in our own country.

S. [nonidentified] This is brown; thorax, shells, and legs hvid. It is found in Germany.

S. [nonidentified] This, as its name imports, is an Indian insect; it is black; the shells are marked with two ferruginous bands; thorax one-toothed before.

S. [nonidentified] Black; with a green polish; shells frutice, truncate, one-toothed. This is an inhabitant of the Cape of Good Hope. Tail rufous; shells black, with three elevated lines, one-toothed at the future.

S. [nonidentified] This, as its name shews, is found in divers parts of America. It is depressed and black; thorax yellow and black in the centre. The shells are rugos and immaculate.

S. [nonidentified] This is black; the shells are marked with a single elevated line; the thorax is telfaceous. This and the following are English insects. According to Mr. Donovan’s figure and description, the shells of this species have three railed lines. It is distinguishable by its red thorax, every other part being black.

S. [nonidentified] Blackish; the shells are ridged with three railed lines, the thorax is ridged and sinuate behind. This insect consumes dead carcases, fish, and flesh of all kinds: when caught it emits a very fetid humour.

S. [nonidentified] This is of a size similar to the thoracica, but is totally black, and has the wing-veins marked by three rising lines; its larva, which may be found in gardens, is of a lengthened shape, and of a black colour.

S. [nonidentified] Black; shells smooth and sub-punctured. The shells are without railed lines.

S. [nonidentified] Black; the shells are punctured, with three railed lines; the thorax is truncate before. This species is figured by Donovan. The thorax has a blue-thinct.

S. [nonidentified] This is brown; the shells have three railed lines; the thorax is truncate before.

S. [nonidentified] The thorax of this species is emarginate and rough; the shells have three railed lines, sinuate at the tip. This is a beautiful species; the thorax is brown, with a silvery gloss; it is rough, with railed dots.

S. [nonidentified] This thorax is yellow, with a large black spot; the shells are yellow, with four black spots.

S. [nonidentified] Grey; the shells are smooth; the thorax is emarginate.

S. [nonidentified] This is characterized by a spot only in the Lcp., and a one-toothed Jaws.

S. [nonidentified] The shell is black; it is covered with two rufous spots; the body is black; the thorax is orange, brown, and at the tip, the abdomen is turberate.

S. [nonidentified] Rufous; the abdomen, with numerous rufous dots. This is a black insect; the shell is rufous. It is a very small insect, and is found in Germany.

S. [nonidentified] This is of a brown color; the legs are ferruginous. It is found in divers parts of Mexico.

C. Lip murcigal, cost; Jaws banded.

S. [nonidentified] Black; the shell is truncated, with two rufous spots. It is found in base parts of Germany. The antennae are long; the fore legs are perforate; the shells are a little shorter than the body; the abdomen acute.

S. [nonidentified] Black, polished; edges of the thorax and spots on the shells are angular. It is found in New Holland; the shells are truncated, shorter than the abdomen.

S. [nonidentified] This is also black and polished; the antennae and legs are yellow. It is found in many parts of Europe, but not in our own country. The shells are truncated, shorter than the abdomen; the body is black and immaculate; the abdomen pointed.

D. Lip emarginate, cost; Jaws banded.

S. [nonidentified] Black; the shell is marked with two rufous bands, the fore one spotted with black. It inhabits North America, and is a rather large insect; though less than the Grandis, which is an African insect, and so named on account of its size. This is black, and the shells are marked with two rufous spots.

S. [nonidentified] Black; the shells are marked with two ferruginous dots. This is found in England, and in many other parts of Europe. The larva is long, hairy, and grey.

S. [nonidentified] Black; shells frutice, with three rufous spots. This is found chiefly in the northern parts of Europe. It is reckoned a very beautiful species; the antennae are pitchy; the thorax is ferruginous at the edge; spot at the bale of the shells sinuate, the middle one is uniform; that at the tip is small and round; the body beneath is rufous.

S. [nonidentified] Rufous; the antennae, shells, and breast are black. This is found chiefly on trees.

S. [nonidentified] This is a black insect; the head, thorax, and legs, are ferruginous. The abdomen is black.

S. [nonidentified] This is of a fine scarlet colour; the shells are brassy and immaculate.

S. [nonidentified] Black; but the front, two spots on the shells, and legs, are ferruginous. This is found in divers parts of England, and is reckoned a small insect.

E. The Insects of this Section are characterized by a heart-shaped Lcp., emarginate and concolor.

S. [nonidentified] Black; front and edge of the shells are ferruginous. Sometimes they are marked with a ferruginous spot or two. It deposits its eggs in the carcases of other insects, and buries them under ground. They are very like the

S. [nonidentified] This insect, which is not uncommon in our
own country, is the most remarkable of the European species. It is distinguished by having the wing-leaths con-derably shorter than the abdomen, or as if cut off at the tips; they are also marked by two waved, orange-coloured transverse bars, the reft of the insect being black; the general length of the animal is about three-quarters of an inch. The vespifio seeks out some decaying animal substance in which it may deposit its eggs, and in order to their greater security, confines it under ground. Three or four of these insects, working in concert, have been known to drag under the surface the body of a mole in the space of an hour, fo that not a trace of it has appeared above ground. The eggs are white, and of an oval shape: from these are hatched the larvz, which, when full grown, are about an inch long, of a yellowish-white colour, with a fealy orange-coloured shield; or bar, across the middle of each division of the body. Each of these larvae forms for itself an oval cell in the ground, in which it changes to a yellowish chrysalis, resembling that of a beetle; out of which, in the space of three weeks, proceeds the perfect insect. This species is reckoned very elegant in form, but it generally diffuses a very strong and unpleafant smell; it flies with strength and rapidity, and is usually een on the wing during the hottest part of the day.

MORTUORUM. Black; shells marked with two ferrug-inous bands; the club of the antenna is black; the hind-thighs are unarmed. This is found in many parts of Germany, preying on carufes and fungi.

F. Lip square and emarginate.

* SCARABEEOIDES. Oval, black; the shells are marked with two ferruginous spots.

LUNATA. Oval, black; shells with a lunate yellow spot at the tip. It is about the fize of the lafd, and is found in Germany.

COLON. Yellow; the spots on the thorax, and marginal spot on the shells, black. It is found in Sweden. The head is black; the antenna are yellow; the club is black; the thorax is downy, with fix spots disposed in a ftreak; the abdomen is black, edged with yellow.

* ATOMARIA. This insect is smooth and black; the shells have crenate frizz; the legs are pale.

* MELANOCEPHALA. This is black and smooth; the shells are grey, with a common black spot at the bafe.

* UNIPUNCTA. This is black; shells yellowish, with a common black spot. The shells are fometimes immaculate.

* FEMARIA. Black, immaculate; the shells are very smooth. It is found chiefly in dung.

* MINATA. This is black and small; the shells are ftrate; legs of the fame colour. It is found in many parts of England.

* PLICARIA. This is oblong and black; the shells are abbreviated; the abdomen pointed. This is found chiefly among flowers.

G. The Insects of this Section have a long and entire Lip; the Antenne are ferrate.

* SAXICORNIS. Smooth, polished, and of a chefnut colour; the antenna are black.

DEPRESSA. Smooth, ferruginous; the shells are fubfrate, and the body is defpatted. It is found under the bark of oak-trees.

H. Lip and Jaw unknown.

Of this section there are no English species; it will be fufficient to mention the following.

INSIGNITA. Black; shells obfolutely frate, with two large scarlet spots. Common at Berlin; as is the next.

NIGRICANS. Blackish; the shells are smooth, with four yellow spots.

HISTEROIDES. Black; the antennae and legs are red; the shells are abbreviated with a red spot. It inhabits Upfal, and is the fize of a loupe.


Gen. Ch. Common Calyx ovate, imbricated, fquarros; its fcales ovate-oblong, reflexed for about half their length, projecting on all fides, permanent. Cor. compound, radian. Perfect florets in the dilf several, of one petal, funnel-shaped, five-toothed; their tube scarcely more flenfer than the limb; female ones, in the radius, fewer, lanceolate, very long, often three-toothed. Stam. in the florets of the dilf only. Filaments five, capillary, very fhort; anthers united into a cyndrical tube. Pif. in the florets of the dilf imperfect, German thread-shaped, very fnder; fyle thread-shaped, very long, villous; fagma fimple in the females, German inverfely heart-shaped; fyle fimple, fhort; ffigmas two, brifte-shaped, the length of the fyle. Peric. none, except the unaltered calyx. Seeds in the dilf none; in the radius folitary to each floret, somewhat membranous, inverfely heart-shaped, with a membranous, two-horned, emarginate border. Recep. chaffy, with linear fcales. Elf. Ch. Receptacle chaffy. Seeds comprefled, inverfely heart-shaped, bordered; their down bordered, with two horns. Calyx fquarros.

Fifteen species are defined by authors, hardly herbaceous perennial plants, generally rather large, with the afpect of Sunflowers; their leaves opposite, whorled, or alternate; the flowers yellow. The horns of the feed are wanting in some of the species.

S. laciniatum. Jagged-leaved Silphium. Linn. Sp. Pl. 1521. Ait. n. 1. Pursh n. 1. Linn. fil. fce. 1. 5. t. 3.—Stem bifid. Radical as well as ftem-leaves pinna- tifid; their fegments deeply toothed.—On the banks of rivers, in the western territories of North America, parti-cularly on the Miifippi, flowering from Auguft to October. Pursh. Collinson fen the feds to Linnæus. The ftem is from eight to twelve feet high, fimple, leafy, round, an inch thick, rough in the upper part with brilfly hairs. Leaves alternate, ifalked, two feet long, and one broad, with four or five remote lobes at each fide; ftrongly ribbed, rough. Flowers four inches wide; the ten fcales of their rough calyx armed with ftrong taper points.


The flowers are numerous, large, white, and fragrant. The flowers have five petals and five sepals. The fruit is a capsule containing many seeds. The plant is indigenous to the western United States and Canada, and is commonly found in rocky, open woods and along roadsides. Its flowers are used as a source of nectar for bees.

4. S. perfusum. Square-tubed Silphium. Linn. Sp. Pl. 153. Att. n. 3. Pursh n. 4. - Leaves opposite, triangular, toothed, alternate, ovate, rough. Native of the Allegheny mountains, flowering in July to October, according to Mr. Pursh, who considers it a variety of this the Silphium. Wild. Enum. 923. The flowers are arranged in a cluster, and are white, yellow, or orange in color. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

5. S. connatum. Round-tubed Perforate Silphium. Linn. Mant. 574. Wildl. n. 5. Att. n. 4. Pursh n. 5. - Leaves opposite, ovate, rough, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

6. S. Amuricum. Furry-leaved Silphium. Linn. Sp. Pl. 1502. Att. n. 5. Pursh n. 6. - Stem round, tufted, opposite, ovate, rough, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

7. S. pallidum. Dwarf Silphium. Michaux Boreali-amer. v. 2. 146. Wildl. n. 7. Pursh n. 7. - Leaves opposite, ovate, rough, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

8. S. integrifolium. Entire-leaved Silphium. Michaux ibid. Wildl. n. 8. Pursh n. 8. - Stem quadrangular, tufted, opposite, ovate, rough, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

9. S. leucophaeum. White-leaved Silphium. Pursh n. 9. - Stem simple, square, tufted, smooth, opposite, fleshy, ovate, alternate, ovate, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

10. S. trifoliatum. Rough-leaved Silphium. Linn. Sp. Pl. 1502. Wildl. n. 9. Att. n. 6. Pursh n. 10. (S. trifoliatum; Michaux Boreali-amer. v. 2. 146.) - Leaves several, alternate, ovate, rough, with unequal teeth-like teeth, ovate, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

11. S. teretifolium. Rough-leaved Silphium. Wildl. n. 11. Pursh n. 12. - Stem cylindrical, smooth, opposite, ovate, rough, with unequal teeth-like teeth, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

12. S. aurea-purpurea. Yellow-leaved Silphium. Linn. Sp. Pl. 1502. Pursh n. 13. - Stem simple, square, tufted, opposite, ovate, rough, with unequal teeth-like teeth, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

13. S. tennesseanum. Tall-leaved Silphium. Pursh n. 14. - Stem simple, square, tufted, opposite, ovate, rough, with unequal teeth-like teeth, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.

14. S. ovalatum. Retractile Silphium. Pursh n. 15. - Stem simple, square, tufted, alternate, ovate, rough, with unequal teeth-like teeth, on short stalks, clasping the stem. The flowers are yellow, and are arranged in a cluster. The fruits are dry and hard, containing many seeds. The plant is common in the eastern United States, from New York to Virginia.
Method of Culture.—They are all readily increased by parting the roots, and planting them out in the autumn or spring, where they are to remain in the borders and clumps. They may also be raised by planting the slips in the same manner: they should be afterwards managed as the perennial sun-flower. They are durable in the root, but decay annually in the stalk.

They afford a good variety and effect among other perennial plants in the summer season, when put out in a proper manner.

SILPHUN, in Ancient Geography, a country of Libya, which took its name from the plant. It commenced easterly towards Aziris and the isle of Platea, and extended westward as far as the Syrtis.

SILSTADT, in Geography, a town of Germany, in the county of Wernigerode; 3 miles N.E. of Wernigerode.

SILVA, a river of Ruffia, which runs into the Kama, near the town of Silva, in the government of Perm.—Alfo, a river of Ruffia, which runs into the Tchufovaia, 16 miles N.E. of Perm.—Alfo, a town of Ruffia, in the government of Perm; 12 miles N.W. of Solikammik.

SILVA Piano, a town of Switzerland, in the biflorop of Coire; 16 miles W.N.W. of Bormio.

SILVANEZ, a town of France, in the department of the Aveiron; 9 miles S. of St. Afrique.

SILVELLA, a town of Italy, in the department of the Upper Po; 3 miles E.N.E. of Cremona.

SILVER, a river of the King's county, Ireland, which rises on the north-west side of the Slech-Bloom mountains, and takes a northerly direction. It has this name in Beaufort's and Arrowimith's maps, but is called the Frankford river by Mr. Longfield, in his report to the Bog commisioners, from the small town of Frankford, which it passes. Mr. Longfield represents it as capable of being easily made navigable for canal boats, and all of being made to contribute to the drainage of the vall bags between which it flows. In one part of its course, a little before it joins the Brufna, the Macnartney aqueduct, a part of the Grand Canal, passes over it.

Silver, in the Arts, Manufactures and Commerce, and in Domestic Economy, is a white malleable metal, susceptible of a fine polish. In Chemistry, it is a simple inflammable body.

It is sometimes found in the native state, but more frequently combined with antimony, arsenic, or sulphur; forming the varieties of silver-ores; with which we shall begin, and then proceed to the alloy and analysis, physical properties, and chemical properties of silver.

Silver-ores contain that metal either native, or alloyed with other metals, or mineralized by sulphur, and sometimes with the mucric acid, the sulphuric acid, and in one rare instance with the carbonic acid.

Silver-ores principally occur in the rocks which have been denominated primary and transition rocks, and rarely in secondary rocks; but many rich argentiferous lead-ores occur in alpine lime-flone and secondary strata. The ores of silver are accompanied by calcarceous spar and sulphate of barytes, and sometimes with quartz, horn-flone, jasper, and fluor spar. It has been remarked, that the warmer regions of the globe afford the greatest quantity of gold, but the richest repositories of silver are situated either in high latitudes or in elevated regions. The most celebrated silver-mines of Europe are in Sweden and Norway, at no great distance from the polar regions; and those which are in warmer latitudes, are almost all situated near the summits of alpine mountains commonly covered with snow, as at Allemon in France, and the mines of Mexico and Peru, in the centre of the Cordilleras. Silver never occurs, like gold, in alluvial soil, or the sands of rivers. After the mineralogical description of the ores, we shall give a short account of the principal repositories of silver at present known.

Native silver, Argent natif of Haüy, polishes the characters of silver extracted from other silver-ores, but is generally less malleable. The colour is pure white, but the surface is commonly tarnished, and is of a yellowish-brown or greyish-black. Native silver occurs crystallized in cubes and octahedrons; the crystals are small, and are often aggregated, forming beautiful ramifications; the branches sometimes cross each other in a rectangular direction, and are radiated. It is sometimes in leaves and sometimes capillary, and when the filaments are much entangled, it becomes nearly compact. Native silver is also found in shapeless malleable of considurable size. In the year 1750, there was found in the famous mine of Hemmels Furnl, near Freyberg, in Saxony, a mass of native silver, which weighed one hundred weight and a quarter; in 1771 an equally large mass was found. It is also mentioned by Albin, in his "Meinblinbe Berg Arconicke," p. 30, "that at Schweinberg, in 1478, a rich silver vein was discovered; and so large a block of native silver cut out, that duke Albert of Saxony defended into the mine, and used this large block as a table to dine upon. It was melted into four hundred centers of silver; a centner is 110 lbs."

(Jamefon's Mineralogy.) Native silver is fusible into a globule, which is not altered by a continuance of the heat: it is scarcely ever pure: the metals with which it is alloyed are commonly gold, copper or arsenic, and iron. Native silver alloyed with gold is rare; its colour is intermediate between silver-white and brass-yellow; it often contains a considurable proportion of gold. The flones which form the matrix of native silver in the mine are very numerous; it sometimes appears to be infiltrated into the fissures, sometimes to vegetate on the surface, and in other instances to be intimately combined with the substance of the flone. It is found in almost all the silver-mines that are worked in Europe or America; but the masses discovered in America are not so large as some which have been found in Europe. The places, a most abundant ore in Peru and Mexico, consists of minute particles of native silver, intermixed with brown oxide of iron; but the particles are too small to be seen without a lens, and bear but a very small proportion to the masts. Silver rarely occurs in detached grains, like gold or platinum.

Antimonial silver-ore is composed of silver combined with antimony, without any other substance. Its colour is tin-white; it has a shining metallic lustre, which is often tarnished superficially reddish or yellowish. It is distinguished from native silver by its brittleness, being scarcely malleable: the structure is lamellar. It is commonly found crystallized in four-sided and six-sided prisms, having the sides deeply furrowed; its specific gravity is from 9.10 to 9.8. It melts easily before the blowpipe, giving a white smoke from the oxide of antimony, and leaving a globule of silver. Its conoidal parts are from .76 to .84 silver, and from 16 to 24 of antimony. Antimonial silver is rare, particularly the regular crystallizations of it. It occurs in veins with calcarceous spar and sulphate of barytes, and is accompanied by galena and native silver. The foliated structure of antimonial silver distinguishes it from white cobalt-ore, which has a granular structure; it differs also from arseneous pyrites, both by its structure and softness; the latter is extremely hard. Antimonial silver yields to the knife.

Arsenical silver-ore is harder than the former species; its structure...
Structure is less perfectly lamellar, the fracture more even, and the lustre weaker. It occurs in tabular, foliated, and kid-cray-shaped masses; before the blowpipe it yields the smell of garlic, peculiar to arsenic; a globule of silver more or less pure remains. The constituent parts of the ore are given by Klaproth as under:

Silber
Arsenic
Iron
Antimony

Arsenical silver-ore usually occurs with native arsenic; dark red silver-ore, brittle silver-plates, lead-glass, and brown blende, in calcareous spar. It is a native mineral.

Covellite silver-ore, or H GMOx: Argent muricatus. This mineral is distinguished by its transparency; it has a waxy or glistering lustre, is soft and tenacious, and yields to the nail. From these characters it is supposed to bear some resemblance to horn, whence its name. The most common colours of this mineral are pearl-grey, pulled to greenish or reddish-blue or brown; it acquires a brownish tarnish. Horn-silver occurs crystallized in small cubes, and is sometimes, though rarely, septarian and capillary; it is more commonly in laminae or small plates, or forms a coating on native silver. It is fusible in the flame of a candle. Under the blowpipe, on charcoal, it yields a globule of silver, and gives out a disagreeable odour, from the escape of the muriatic acid. Its specific gravity is from 4.25 to 4.50. Horn silver-ore is accompanied with native silver, black silver-ore, brown oxal of iron, quartz, and sulphate of barytes. It is supposed by some mineralogists to be the most recent formation of silver-ore. It occurs in veins in the silver-mines of Europe and America, and in Siberia, and is observed generally to occupy the upper part of the vein. According to Klaproth, it consists of 68 parts silver, 21 muriatic acid, a small quantity of sulphuric acid, with a portion of iron and earthy substanbes; but the latter may be considered as accidental. Horn-silver is rather a scarce mineral.

Vitreous silver-ore; Silver-glance, or sulphurated silver; Glaser, Werner; Argent sulphureux, Hauy. Its colour is a dark lead-grey; it is malleable, and may be cut with a knife; the surface, when cut, is shining, and has a metallic lustre; in its natural state it has often an indescent tarnish. It occurs in a variety of forms, in branches, fibres, small irregular masses, and laminae, and is also frequently crystallized; the crystals are commonly the cube or octahedron, and the dodecahedron, with rhomboidal faces; the fracture is flatly conchoidal. The specific gravity of this ore is from 7.0 to 7.5; its constituent parts are from 73 to 85 silver, and from 15 to 35 of sulphur. When raised to a red heat, the sulphur is gradually sublimed, and the silver appears in filaments, dendritic or reticulated. Many mineralogists suppose that capillary native silver owes its formation to the alteration of a similar kind of decomposition of vitreous silver-ore. This mineral occurs in veins, and is always accompanied with other ores of silver, and with galena, iron pyrites, brown blende, sulphate of barytes, calcareous spar, and quartz. It is found in almost all silver-mines in various parts of the globe.

Brittle vitreous silver-ore; Skened glasser, Werner; Argent noir, Hauy; differs from the former by its brittle, dense, splendour, and colour. The colour is intermediate between iron-black and dark lead-grey; it is brightly splendent externally; internally it alternates from shining to glistering; the lustre is metallic. It occurs massive and disseminated, and in thin small plates, and frequently crystallized in flat, prismatic forms, variously terminated, and in rectangular four.

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<table>
<thead>
<tr>
<th>Mineral</th>
<th>Species</th>
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<tbody>
<tr>
<td>Silver</td>
<td>60</td>
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<tr>
<td>Sulphur</td>
<td>32.5</td>
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<tr>
<td>Antimony</td>
<td>19.7</td>
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<tr>
<td>Oxygen</td>
<td>11.85</td>
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<tr>
<td>Sulphuric acid</td>
<td>59</td>
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</table>

Blind sulphurated silver-ore; Silver flavissimus, Werner; differs from vitreous silver-ore by its want of lustre: it occurs malleable, corroded, and in powdered form; the fracture of the former is uneven; the streak shining and metallic. It yields to the knife, and is fusible into a flag, containing globules of silver.

Red-silver-ore, or Ruby silver; Rothglaser, Werner; Argent rouge, and Argent amoniacus sulphureux, Fr. The colours of this mineral are various shades of red, passing from a bright-red to dark-red, and reddish-grey or black. When scraped, the powder is of a crimson colour. The crystallized varieties are translucent, or semi-transparent, and the transmitted light is a carmine, light blood, or coconulred-red. It occurs massive, disseminated, and in thin plates, and crystallized in hexagonal prisms, variously terminated, and in dodecahedrons, with triangular faces, nearly similar to the crystallization of calcareous spar, called dog-tooth spar. The primitive form of the crystal, according to Hauy, is an obtuse rhomboid, whose plane angles are 104° 28' and 73° 22', and the inclination of the faces 109° 28' and 70° 32'. The fracture is usually uneven, and imperfectly conchoidal; its lustre externally is shining, and metallic, internally glimmering, sometimes metallic. It is brittle, soft, yielding easily to the knife. Before the blowpipe it gives out a copious smoke, with an arsemetrical smell, and leaves a globule of silver. Its specific gravity is about 5.6. There are several minerals which have a red colour, and may at first sight be confounded with red silver, as the sulphur of arsenic, or realgar; but this mineral becomes yellow when powdered. Cinna bar has a greater resemblance, but the specific gravity is 7, and it is entirely volatile by the blowpipe. Red oxal of copper has a specific gravity of 3.9, and is usually accompanied with native copper, malachite, and brown iron oxiure; it also effervescs with nitric acid, and communicates to a solution of ammonia a blue colour. By these characters it may be known from red silver-ore. Werner has divided red silver-ore into two sub-species, the light and the dark. Klaproth analyzed this mineral, and found it to contain only silver, sulphur, antimony, and oxygen. Prout has shown that there are two kinds of red silver-ore, the one containing arsenic, and the other antimony. The constituent parts, as given by Klaproth and Vasquez, are
According to the analysis of Pronf, a variety of this ore contained nearly .75 parts of metallic silver, and .25 of metallic arsenic. Red silver-ore occurs in veins, but is always intermixed with other minerals, particularly with compact galena, cobalt, sulphur of arsenic, native arsenic, grey copper-ore, and sparry iron-ore; and has a matrix of calcareous spar, sulphate of barytes, fluor spar, or quartz. It is a common ore in silver-mines, both in Europe and America; the dark-red ore is considerably more productive than the light-red.

Silver amalgam consists of pure silver combined with mercury.

It has been found in the silver-mine of Salberg, in the province of Dalecarlia, in Sweden, in the mines of Duex-Ponts, in the Palatinate, and in some other places, either in thin plates or grains, or crystallized into octahedrons and dodecahedrons. It is sometimes semi-fluid. Its colour is silvery-white or grey, the fracture conchoidal, and the lustre metallic. It is soft, breaks when cut, and whitens the surface of gold or of copper; when rubbed upon them warm before the blowpipe the mercury evaporates, and leaves the silver pure. The constituent parts, given by Klaproth, are:

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<tbody>
<tr>
<td>Silver</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercury</td>
<td>64</td>
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White silver-ore has a near resemblance to compact galena. The colour is a light lead-grey, passing to steel-grey: it occurs massive and disseminated, and is generally intermixed with cubic galena. The fracture is most commonly even, but sometimes fine-grained and uneven, and also fibrous; the internal lustre is silvery and metallic, the fracture fibrous. It is soft and brittle. The specific gravity is 5.2.

Some mineralogists think this ore should be classed with the argentiferous ores of lead. According to Klaproth, different specimens from Hemmels Furlt, near Freyberg, contain, of the Dark-white silver-ore. Light-white silver-ore.

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<tbody>
<tr>
<td>Lead</td>
<td>41</td>
<td>48</td>
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</tr>
<tr>
<td>Silver</td>
<td>9.25</td>
<td>20.40</td>
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</tr>
<tr>
<td>Antimony</td>
<td>21.50</td>
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</tr>
<tr>
<td>Iron</td>
<td>1.75</td>
<td>2.25</td>
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<tr>
<td>Sulphur</td>
<td>22.0</td>
<td>12.25</td>
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</tr>
<tr>
<td>Alumine</td>
<td>1.0</td>
<td>7</td>
<td></td>
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<tr>
<td>Silex</td>
<td>0.75</td>
<td>0.25</td>
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Carbonate of Silver.—This ore has hitherto been only discovered in the silver-mine of Wincellaus, in Swabia: it occurs sometimes in maffes, and sometimes disseminated through other minerals. Its colour is a greyish-black; its fracture uneven, with a silvery metallic lustre; it is brittle and heavy, and effervesces with acids; it melts easily under the blowpipe. According to Mr. Selb, who first described this mineral, it contains

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<tbody>
<tr>
<td>Silver</td>
<td>72.5</td>
<td></td>
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<tr>
<td>Carbonate of antimony</td>
<td>17.5</td>
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<tr>
<td>Carbonic acid</td>
<td>12</td>
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It contains also a slight trace of copper.

Besides the above ores of silver, there are ores of other metals which contain a portion of silver, and have been classed by some mineralogists with silver-ores. An argentiferous variety of grey copper-ore, of an iron-black or steel-grey colour, has received the name of black silver-ore. It occurs massive, disseminated and crystallized in tetrahedrons; the fracture is small conchoidal, with a shining metallic lustre; it is brittle and brittle. An ore which is a combination of lead, bismuth, and silver, has received the name of bismuthic silver. Its colour is a light lead-grey: it occurs disseminated, but rarely ever in maffes; the fracture is fine-grained, uneven, with a silvery metallic lustre; it is soft and rather brittle; before the blowpipe metallic globules appear on the addition of borax, which unite; the button is brittle, and of a tin-white colour: the flux acquires an amber colour. According to Klaproth this ore contains:

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<tbody>
<tr>
<td>Lead</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bismuth</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>4.3</td>
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</tr>
<tr>
<td>Sulphur</td>
<td>16.3</td>
<td></td>
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</tr>
<tr>
<td>Copper</td>
<td>0.9</td>
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Argentiferous lead-ores are common in Great Britain and in various parts of Europe. Many of these ores are not sufficiently rich to repay the expense of extracting the silver. It is procured in considerable quantities in North Wales, the north-west parts of Yorkshire, and in the counties of Durham and Northumberland. Indeed, many lead-ores in these counties contain a much larger portion of silver than the average proportion of that metal in the ores of Mexico and Peru; but mineralogists do not class them with silver-ores.

Silver Mines in Great Britain.—Silver-ores, properly so called, are of rare occurrence in our island. A few years since, a vein of silver was worked with great profit in the parish of Alva, in the county of Stirling, in Scotland. The ores were native silver, and vitreous silver-ore. From forty to fifty thousand pounds sterling value was extracted before the ore was exhausted, after which the search to recover the vein proved fruitless, and since that time no silver-mines have been worked in that country. The silver-ores at Alva were accompanied with copper, lead, and cobalt-ores, with a matrix of calcareous spar, and sulphate of barytes. It is supposed by Dr. Miller that the veins traverse rocks of argillaceous porphyry.

Cornwall and Devonshire yield the richest argentiferous lead-ores of any part of Great Britain; but the quantity of these ores is small. In the former county a small quantity of native silver, with other silver-ores, have been occasionally found. We have been favoured with the following account of the present state of the silver-mines in these counties from Mr. Mawe, author of Travels in Brazil, who visited them in the summer of 1815.

From the lead-mines of Ben-Alten, in Devonshire, a large quantity of silver has been extracted. The vein is situated in killas, (see Slate,) and is filled chiefly with fluor spar and galena. It has been worked to the depth of 110 fathoms: the silver extracted from the north and south vein averages about 70 ounces to the ton of lead. Another vein, running in a more easterly and westerly direction, situated in the same killas, produces 170 ounces of silver in the ton of lead. The vein is worked under the river Tamar. These mines are of considerable importance; during the last five weeks, the silver extracted from the lead procured here exceeded fix thousand ounces. The works are extensive, and fail to be well conducted.

About four miles to the south-east of Callington is a silver-mine of another description: the vein is situated in a similar rock of killas or chlorite slate. The vein was first worked for copper, but native silver and lead-ore were discovered in it. The mine is called Huel Jewel: the thickness of the vein rarely exceeds three or four inches. In many of the cavities were found a considerable quantity of capillary native silver, with galena, red silver-ore, and sulphuret of silver.
SILVER.

The ores were exceedingly rich, and provided at the time an ample subsistence to the adventurers. The Husband copper mine, near Redruth, has produced a considerable quantity of native silver in a small vein, branching from the principal one. Some of the filers of silver were more than four inches long.

There is a lead-mine near Tavistock worked at the time, and a considerable quantity of silver is extracted from the lead, as it yields two ounces per ton.

Near Porriahsada, on the north coast of Cornwall, there was a mine formerly worked close to the sea, which produced lead-ores in various sizes, and a portion of born-silver, in specimens of which are in various cabinets. Mr. Mawe found some specimens of this rare mineral among the refuse of the mine.

At Comb-Marin, in North Devon, are some lead-mines, which were formerly celebrated for the silver, but at present they are not productive.

Argentiferous lead-ores are the common lead-ores of the northern counties and of Wales; they vary in the quantity of silver they contain, from a few ounces to 45, 60, or 80 ounces of silver per ton. Some few rare inclusions have occurred in the north-west part of Yorkshire, of their exceeding the latter amount. On the average, the argentiferous lead that is calcined to extract the silver does not contain 20 ounces per ton: by some it has been stated at 17 ounces.

According to Lehman, there are no known lead-ores in the world but what contain silver, except that of Villoch, in Carinthia. (Lehman fur les Mines.) But according to Dr. Watson, the quantity of silver necessary to defray the expense of extracting, and the loss of lead, was nine ounces per ton, when lead was at the price of 15fl. per ton. The price of lead is now 26fl. per ton, and though silver be also advanced, yet the difference in the relative prices of each, taking the above as a standard, is such, that to repay the expense of extraction, the lead should contain about fifteen ounces of silver in every ton.

It is not to be expected that the proprietor of any lead-mines rich in silver should be forward in declaring to the world the quantity of silver they contain. The proprietor of the lead-mine containing silver may indeed work the same without any apprehension of its being taken from him under the pretence of its being a royal mine; yet the crown, and persons claiming under it, have the right of pre-emption of all the ore which may be raised. There was an act of parliament passed in the sixth year of William and Mary, entitled, An act to prevent disputes and controversies concerning royal mines. This act declared, that every proprietor of a mine of copper, tin, iron, or lead, shall continue in possession of the same, and claims and persons claiming under it, should have the privilege of purchasing all the ore which may be raised out of such mine, at the following prices, when made clean and merchantable: for copper-ore, at the rate of 16fl. per ton ; for tin-ore, except that of Devonshire and Cornwall, 40fl. ; for iron-ore, 40fl. ; and for lead-ore, 9fl. The standard price then fixed, particularly for lead, was much higher than the ordinary price of the ore in which there was no silver. Owing to the existence of this act, it is probable that we are not acquainted with the quantity of silver at present extracted annually. We are informed, that the value of silver produced by the lead-mines of Colonel Beaumont, in Northumberland and Durham, is not less than 4000l. sterling per annum; and other large proprietors also extract a considerable quantity of silver from the lead-ores in the northern counties. At present we believe that there is no silver extracted from the Devonshire lead.

It appears from Hollinshed's Chronology, that silver was formerly extracted from lead in various parts of the land. In the reign of Edward I. it was made a practice of weight of silver was obtained in the course of three years, from a mine in Devonshire, which had been discovered towards the end of his reign: this mine is called a silver-mouth by the Welsh, but it appears to have been a mine of lead that contained silver. The lead-mines in Cardiganshire have at different periods afforded great quantity of silver: in Hugh Maddocks, it had to have ceased from the two lead mines, per month, and to have been enabled thereby to undertake the great work of bringing the New River from Ware to London. The same mine yielded, in the time of Charles I. eighty ounces of silver in every ton of lead, and part of the king's army was paid with this silver, which was melted at Shrewsbury. Sir J. Pettig's Essay on Metal Works.

A mint for the coining of Welsh silver had been previously established at Aberystwyth; the machinery was granted to Thomas Butcher, for the coining of half-crowns, florins, halfpence, twopence, and pence, and the mints were to be ramped with the oak-leaves on both sides. In 1664 nearly 3000 ounces of this Welsh bullion were melted at one time at the Tower. The Welsh Bullion in his History of Metals, published in 1671, makes mention, from his own knowledge, of two places in Craven, in the West Riding of Yorkshire, where formerly good argentiferous lead-ores had been procured. One of the places was Broughtme near the parish of Slaidburn; the ore held about the value of 67 pounds of silver in a ton; the other was at Skelhurton, near the parish of Gipbston; it had formerly belonged to a person of the name of Pudsey, who is supposed to have coined it, as there were many bullions in that country which the common people called Pudsey bullions. There are several smelting-houses at Holywell, in Flintshire, where silver is extracted from lead. According to Mr. Pennant, at one of the largest of these houses in the year 1754, more than 12,000 ounces of silver were produced, but in the subsequent years the quantity of silver appears to have considerably diminished. The silver extracted from lead is sold principally to the manufacturers at Sheffield and Birmingham.

The silver is extracted from the lead by the oxidation of the latter metal in a reverberatory furnace of a particular construction, for the admission of air on the surface of the lead in a state of fusion. A shallow vessel or cupel is filled with prepared fern-ashes rammed down, and a concave cut out for the reception of the lead, with an opening on one side for the mouth of the bellows, through which the air is forcibly drawn during the process. The French smelters cover the surface of the fumes with hay, and arrange symmetrically the pieces of lead upon it. When the fire is lighted, and the lead is in a state of fusion from the reverberation of the flame, the blad from the bellows is made to play forcibly on the surface, and in a short time a crust of yellow oxide of lead, or litharge, is formed, and driven to the side of the cupel opposite to the mouth of the bellows, where a shallow side or aperture is made for it to pass over; another crust of litharge is formed and driven off, and this is repeated in succession till nearly all the lead has been converted into litharge and driven off. The operation continues about forty hours, when the complete separation of the lead is indicated by a brilliant lava on the convex surface of the melted mass in the cupel, which is occasioned by the removal of the last crust of litharge that covered the silver. The French introduce water through a tube into the cupel, to cool the silver rapidly and prevent it from re-oxidising.
its spiritng out, which it does when the refrigeration is gradual, owing probably to its tendency to crystallize. In England the silver is left to cool in the cupel, and some inconvenience is caused by the spiritng, which might be avoided by the former mode.

The silver thus extracted is not sufficiently pure; it is again refined in a reverberatory furnace, being placed in a cupel lined with bone-ashes and exposed to a greater heat; the lead which had escaped oxidation by the first process is converted into litharge, and absorbed by the ashes of the cupel.

The last portions of litharge in the first process are again refined for silver, of which it contains a part that was driven off with it. The litharge is converted into lead again, by heating it with charcoal; part is sometimes fold for a pigment, or converted into red lead. The lofs of lead by this process differs considerably, according to the quality of the lead. The litharge commonly obtained from three tons of lead amounts to 98 hundred weight; but when it is again reduced to a metallic flte it seldom contains more than 52 hundred weight of lead, the lofs on three tons being about eight hundred weight. The Dutch are paid to extract the silver from the same quantity of lead, with a lofs of only fix hundred weight.

Silver-Mines of France—The mine of Allemont, ten leagues from Grenoble, in the department of Iere, is situated near the summit of a mountain, composed of thin beds of mica-flute and hornblende, curiously contorted and broken. Its elevation is about 3000 yards above the level of the sea. The veins are numerous, and run in all directions; the mineral appears to have filled also numerous fissures in the rock. The ores are native silver, vitreous silver, red silver-ore, and horn-silver. Silver appears also disseminated in a kind of ferruginous clay, and is accompanied with various ores of cobalt, antimony, arsenic, and nickel. The matrix was ferruginous clay and carbonate of lime, mixed with albite, epidote, and calcium fpar. The veins were much richer near the surface than at a great depth, and the working of this remarkable mine is at present nearly abandoned. Red silver-ore has also been found in the Voges, in the department of the Upper Rhine, in a vein of argentiferous copper-ore. Indications of silver have been traced in other districts of France. The lead-ores of some parts of France are also sufficiently rich in silver to repay the expense of extraction.

The silver-mines of Spain are the most ancient known in Europe. It appears, as well from the accounts of hisitors, as from the numerous veitles of ancient workings, that the operations were carried on to a considerable extent. The most remarkable mine was that at Guadalahar, in Andalusia, in the Sierra Morena, five leagues to the north of Seville; the ore which it contains is the red or ruby silver, in a matrix of compact galena. Since the discovery of South America no attention has been paid to the mines of Spain, though formerly fo productive both of silver and gold.

Germany.—The mining district of Freyberg, in Saxony, contains numerous veins that yield silver. The veins that traverse rocks of gneifs are generally composed of quartz, calcareous fpar, and fluor fpar; they inclose argentiferous lead, vitreous silver-ores, ruby silver, and grey argentiferous copper-ore. The mine at Annaberg, according to Klaproth, contains muriate of silver (horn-ore) mixed with much clay, which is imbedded in compact lime-flute. The mines of Schneeberg, in Mifnia, and of Hartz, in Hanover, contain argentiferous lead, accompanied with proper silver-ores.

Hungary.—The mines of Scheimitz and Creimitz, in Hungary, have been long celebrated, both for the richnes of their productions and the immense extent of the opera-

tions. The rocks in which the mining operations are carried on, are described as being composed of an argillaceous grey-flute, mixed with quartz or fclorite, or particles of calcareous fpar. To this rock baron Born has given the name of the metalliciferous rock, saxum metallicum: it is described by him as containing three principal veins, running from north to south, and parallel with the river Gran, following even the windings of the river. From this circumstance we should infer, that the river itself had originally taken the course of a fracture by another vein. The dip or inclination of all the veins is from west to east, varying from 30 to 70 degrees. In one part of the vein, called the spiritae vein, it is joined with an argentaceous white vein, which runs along with it on the hanging fide, and from the place of junction the vein is found to contain silver. In this white clay are occasionally found nodules of fpar and marlles of quartz, which yield from four to five ounces of silver in the hundred weight. The second great vein at Scheimitz has nearly the same characters as the first. The third great vein is more irregular in its inclination, and the ores are not so rich in silver, but in some parts it contains a considerable quantity of gold.

Some notion may be formed of the extent of the mining operations at Scheimitz, from the gallery or level called the Emperor Francis' Gallery, by which the whole of the royal mine is drained and cleared of water. This gallery, which forms a very considerable excavation, and is carried through hard rock, was a work of immense labour and difficulty; it is five English miles in length: it was begun in 1748, and finished in 1765.

The mountains round Kremnitz, according to baron Born, are composed of the same metallic rock already described; but according to Patrin, they consist of primitive trap. At this place very extensive operations, which were begun at least a thousand years ago, have been established on a large and rich gold vein, and some of its branches. The rock is a white folid quartz, mixed with fine auriferous red and white silver-ore, and with auriferous pyrites. At the depth of 160 fathoms, the vein continued rich and productive.

Konigberg is another mining-town of Hungary, some miles to the north-west of Scheimitz. The valley in which this place is situated is bounded on one fide by the same kind of metallic rock, and on the other, towards the north, by granite mountains. In the royal mine, at the time it was visited by baron Born, the vein was observed to run between the metallic rock, which formed its hanging fide, and the granite, which was its bedding or lower fide. The vein is grey quartz, mixed with auriferous pyrites. The first tram or fire-engine established in the Lower Hungarian mines was erected at Konigberg, in 1725, by Isaac Porter, an English engineer, who was then in the imperial service.

Bohemia.—The circle of Sattz, in Bohemia, abounds in various metallic ores, among which the ores of silver occasionally predominate. The prevailing rocks are gneifs and argillaceous schifils. The veins at Catharinesberg traverse gneifs, and generally run in a north and south direction, and parallel to the mountain in which they are situated. But there are also some powerful veins which cross the mountain. One of this nature is described, which seems to be infenibly blended with the mountain rock. The vein-flute is also of the same kind of rock, but occasionally assuming the characters of a variety of granite. It is observed, that the vein, which seldom exceeds a foot in width, diminishes in thickness when the containing rocks become harder; and when the fides are found incrusted with a ferruginous clay, it appears to be richer in ores. Fillures from the fides of the vein are found to improve it: a fine white clay, with quartz
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quartz embedded in it, indicates rich ore; but a coarse clay, detritus of quartz, especially when it increases in quantity, and occupies the whole vein, renders it unproductive, or entirely barren. The ore of the vein now described is rich silver and copper pyrites, with flour spar, blende, various copper-ores, and sometimes native silver and copper.

Janberry, a place in the same circle, has been long celebrated on account of its valuable mines. The prevailing rocks are described as grey micaceous and quartzose clay-flate, which at a great depth become mixed of an argillaceous nature, soft, fibrous, and of a black colour. The mountains around this place have a gentle declivity towards the louth, but run in lathy ridges to the east, north, and west, and are intersected by deep valleys. This inequality of surface affords great accommodation to the miners to open numerous galleries, which converge to the south, and to the valley in which stands the town of Janashbul. All the galleries and works of this district are divided into six different fields, belonging to the same number of companies, and they are drained by two deep drifts or levels; the one of which runs in a direct line 1000 fathoms; but including its several branches, its whole length is 4500 fathoms. The depth under the highest top of the mountain is 170 fathoms; the second great level, which runs through the space of 5000 fathoms, and in a direct line 1500 fathoms, is 20 fathoms deeper than the first; but the operations in the mines have been carried to a much greater depth; for at the time in which they were visited by Ferber, before 1774, the perpendicular depth under the surface was from 200 to 300 fathoms, and, excepting the mines in the Tyrol, were then considered as the deepest in the world.

The thickness of the veins varies from one inch to two feet; and the vein-fores are a whitish or bluish clay, argillaceous slate, and red horn-flake, or petro-filer, which is the matrix of the richest ores. The silver-ores which are found in this mining district are, native silver, which is attached to different vein-fores, and assumes various forms; vitreous silver-ore, which is dug out sometimes in very large masses, and is considered as a very rich ore; one hundred weight being commonly valued at 180 marks of silver; red silver-ore, sometimes beautifully crystallized and transparent, is attached to red horn-flake or calcarious spar; and white silver-ore has sometimes but rarely appealed.

The silver-mines of Bingen, in the circle of Erfurt, are in hills of a gentle declivity, and composed of grey or bluish clay-flake, in which appear figures of greenish lithomarge, or semi-indurated pot-flake. These mines were formerly rich in native silver, and other ores of that metal. A vein to the west of this place, which traversed a hard rock, contained redish-coloured felter, with galena, blende, and a little silver; but from the part where a vein containing white ar-tenacal pyrites came into the hanging-side, the vein produced native silver, vitreous, red, and white silver-ore. Another vein in the same place, which is from two inches to one foot in width, is observed to be richest where it is thinner. It is chiefly enriched by an undulating black clay mixture, which appears sometimes in the hanging side, and then it produces red and white silver-ore. When raised by veins running from east to west, it appears to be cut off and barren, till beyond the place of junction it again becomes productive in its former course.

Sweden.—The silver-mines of Salberg, in Weitmaraa, are about 28 English miles from Upfal. The ore is an argen-titerous galena, yielding from one ton to one and a half of silver per quintal; it is in compact litem-flake, and has been worked to the depth of 150 fathoms. The average profits an unit to about 4000, and one-quarter is paid to the king.

Porter's Travels.

Norway.—The silver-mine of Koppaflen, in Norway, is situated in mountains of moderate height, composed of nearly vertical beds of mica-slate with garnets, and of grey quartz mixed with fine black mica, and a little flour spar and red horn-flake. Other beds are composed of a ferruginous rock, which, in the upper part of the mine, is 33 feet thick, but in the lower not more than 6 feet thick.

The veins are from half an inch to two feet or more in thickness, and cut the strata transversely. The matrix of the ore is granular mica-slate, sometimes intermixed with flour spar. Extensive masses of native silver have sometimes been found in this mine; one is mentioned as weighing 22 lbs. The common ores are native silver and vitreous silver. The veins are most productive in the ferruginous rock. The annual produce is about 4000 lbs., weight of silver.

Africa.—The silver-mines of Ziineet are situated in that part of the Altana chain of mountains which lies between the Oby and Irntich, from 50 to 52° north latitude. The annual produce has been stated at 62,000 marks of silver, which is allowed with about 1.3 per cent. of gold. The mines of Nettishim in Darania, near the river Amur, yield argentiferous garnets, producing about 25,000 marks of silver, and containing about 0.4 per cent. of gold. The Russian merchants who trade to China bring back ingots of silver, from several ounces to a pound weight, in exchange for their commodities; hence it may be inferred, says Patron, that there are silver-mines on the frontiers of China. Patron, Hist. des Mines.

America.—The most productive silver-mines in the world are those of South America and New Spain. The silver of Peru, for many years after its conquest by the Spazines, yielded the greatest quantity of silver, but at present the mines of Mexico are the richest. The mines of America furnish both silver and gold; and in making an estimate of their riches, we must take an account of each of these metals. The following table, given by M. Humboldt, will show the distribution of their mineral treasures in the different parts of the new world; the kilogramme being 2 lbs. 3 oz. 5 dr. avoirdupois, or rather more than 2 lbs. 8 oz. troy.

<table>
<thead>
<tr>
<th>Kilogrammes</th>
<th>17,291</th>
<th>956,581</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viceroyalty of Peru</td>
<td>-</td>
<td>792</td>
</tr>
<tr>
<td>Viceroyalty of New Spain</td>
<td>-</td>
<td>16,099</td>
</tr>
<tr>
<td>Captaincy of Chili</td>
<td>-</td>
<td>2,867</td>
</tr>
<tr>
<td>Viceroyalty of Buenos Ayres</td>
<td>-</td>
<td>560</td>
</tr>
<tr>
<td>Viceroyalty of Grenada</td>
<td>-</td>
<td>4,714</td>
</tr>
<tr>
<td>Viceroyalty of Brazil</td>
<td>-</td>
<td>6,673</td>
</tr>
</tbody>
</table>

The above was the annual produce of the different districts, at the beginning of the 19th century; from which it appears, that the total weight of the precious metals from all the mines in America, reduced to English pounds troy, is 45,580 lbs. of gold, and the enormous quantity of 145,000 lbs. of silver; equal in weight to one-third of the tin produced by the mines in Europe. Dr. Adam Smith, in his "Wealth of Nations" values the gold and silver annually exported into Cadiz and Lisbon at only six millions troy, including not only the registered gold and silver, but that which may be supposed to be smuggled. This estimate is only two-fifths of the real annual amount.

The mountain of Potosi has for a while, since its discovery in 1545, a mine of silver equal in value to 1,346,000,000.

Welling.
SILVER.

The mountain is 18 miles in circumference; it is composed of flate, but has a conical covering of porphyry, which gives it the form of a fugar-loaf, or basaltic hill; it rises 697 toises, or 480 yards, above the surrounding plain. The richness of the veins has diminished, as they have been worked to greater depths. At the surface of the earth, the veins of Rica, Centeno, and Mendiceta, which traverse primitive flatc, were filled with native silver, and silver-ores throughout their whole extent. These metallic mafles rife in ridges or crests above the surface, the fides of the vein having been destroyed either by water or by fome other caufe. In 1545, minerals containing from 80 to 90 marces of fler per quintal were common. In the year 1574, according to Acosta, the average richness of the ore was eight or nine marces per quintal. In 1667, the mean wealth of the ores was not more than an ounce and a half to the quintal. The ores are now extremely poor, and it is on account of their abundance alone that the works are filling in a flourifhing flatc; for from 1574 to the year 1759, the mean quantity of fler in the ores has diminished in the proffion of 170 to 1; while the absolute quantity of fler extrated from the mines of Potosi has only diminished in the proportion of 4 to 1.

About fix miles from Pafo is the mountain Jauvichora: it is diftinguifheda by the name of the Silver mountain. It is about half a mile in diameter, and only about 30 yards in depth: it is composed of brown iron-flone, which is interlaced with pure silver. This flone does not yield more than nine marces of fler in 500 lbs.; but there is a friable white clay met with in the middle of this mafs of ore, which yields from 200 to 1000 marces of fler in every 50 cwt. The mountain is penetraded in all directions, without any attention to fecurity; fo that it is expected it may fall in, in the course of a few years. According to Helms, this mountain yields annually 200,000 marces of fler.

The veins of fler of Potosi are in flatc, which Humboldt confiders as primitive: this flatc is covered with a clay porphyry, containing garnets. The mines of Gualgayoc, in Peru, are in the Alpine lime-flone. The veins which furnith nearly all the fler exported from Vera Cruz are in flatc, porphyry, grauwacke, and Alpine lime-flone: the principal of thefe veins are thoie of Guanaxto, Zacatecas, and Catoree. The vein of Guanaxto yields more than one-fourth of the fler of Mexico, and a fixth part of the total produce of America. This vein is, in fome parts, from 147 to 150 feet in width, including the branches, and has been wrought from Santa Hafella and San Bruno to Buena-Vella, a length of 42,000 feet. The most celebrated mines in Mexico are elevated from 6000 to 9000 feet above the level of the fea. In the Andes, the mines of Potosi, Ocuro, Pas, Pafo, and Gualgayoc, are in regions higher than the loftite fummits of the Pyrenees. A mafs of rich fler-ore has been discovered near the small town of Micucampa, at the absolute height of 13,450 feet. The great elevation of the Mexican mines is pecuiliar advantageous to the working of them, as the climate is temperate, and favourable to vegetation and cultivation.

The part of the Mexican mountains which at prefent contains the greatest quantity of fler, lies between the twenty-fifth and twenty-fourth degrees of latitude; and it is not a little remarkable, that the metallic wealth of Peru should be placed at an almost equal latitude, on the othere fide of the equator. In the vall eft extent which separatesthe mines of La Pas and Potosi from thoie of Mexico, there are no others which throw into circulation a great mafs of the precious metals, but thoie of Pafo and Chota. The smallness of Panama and the mountains of Guatemala contain, for a length of 600 leagues, vaft tracts of ground, in which no vein has hitherto been worked with successe.

The province of Quito, and the easter part of the kingdom of New Granada, from the eighth degree of south latitude to the seventh degree of north, are equally poor in metallic wealth. It would not, however, fays Humboldt, be correct to infer that thefe countries, which have been convulsed and torn by volcanoes, are delitute of the precious metals. Numerous metallic repositories may be concealed by beds of basalt, and other rocks of fuppofed volcanic origin. It should, however, be remarked, that none of the fomes, which Humboldt enumerates as very maffiverous, are by other geologists considered of volcanic origin, particularly flink-flone-porphyry, and other porphyries containing hornblende, but diftinguished by the abfence of quartz and common felpar.

The mines of Huantaaya are celebrated for the great quantities of native fler they formerly produced. They are situated in an arid defert, and furrounded by rock-falls, near the fhores of the Pacific ocean, at no great diftance from the small port of Yquique, in the audence of Lima. Thofe mines are a remarkable exception to the great elevation of fler-mines in Spanifeh America, being placed on a low and gentle declivity. Their produce is native fler, vitreous fler, and horn fler; the annual amount is about 50,000 lbs. troy of fler, or 80,000 marces.

The fler-mining operations of Chili, according to Humboldt, are in general not productive; but the vein at Ufpalata contains paos so rich, that the produce is from 2000 to 3000 marks in every 5000 lbs., or from 40 to 60 marces per quintal. Molina, in his History of Chili, defcribes the vein at Ufpalata, on the Andes, as being nine feet in thicknes. It has been traced 90 miles, and is fuppofed to extend 300 miles. From the main vein there are branches on each fide, which extend to the neighbouring mountains; fome of thefe branches are 30 miles in length. This is the largest metallic vein which is at prefent known in the world.

According to Humboldt, the greateft part of the fler extrated from the bowels of the earth in Peru is furnifhed by a fpecies of ore called the paos, of an earthly appearance, which M. Klapproth analyzed, and was found to confifd of almost imperceptible particles of native fler with the brown fide of iron. In Mexico, on the contrary, the greateft quantity of fler annually brought into circulation is derived from vitreous fler-ore, grey fler-ore, horn-ore, and black and red fler-ores. Native fler is not extrated in fufficient quantity to form any confiderable proportion of the total produce of the mines of New Spain. It is, fays this traveller, a very common prejudice in Europe, that great mafles of native fler are very common in the mines of Mexico and Peru, and that in general the mines of mineralized fler, defigned to amalgamation, or to fmelting, contain more oounces, or marces of fler, to the quintal, than the fler-ores of Saxony or Hungary; but he adds, I was furprifed to find that the number of poor mines greatly exceeds thoie of the mines which, in Europe, would be esteemed rich. It is at firft difficult to conceive how the famous mine of Valenciana, in Mexico, can regularly supply 30,000 marces of fler per month, as the vein confifds of fulphured fler, difteminated in almost imperceptible particles through the matrix. In the formation of thefe veins, it should appear that the distribution of fler has been very unequal, being fometimes concentrated at one point, and at other times dilutened in the vein through the matrix or gangue; for, in the midft of the poorest ores are
are found considerable masses of native silver. Although the new continent has not hitherto produced large masses of native silver equal to what have been found in the old, the metal is more abundant in a state of perfect purity in Mexico and Peru than in any other quarter of the globe, not as masses, but in particles disseminated through the enormous quantity of the ore called porphyry. The result of a general investigation of the riches of silver ore is, that the mass of it in the latter is not more than from three to four ounces of silver in every sixteen hundred pounds of ore. According to this result, the ore contains, on the average, two ounces and two-thirds per quintal. It had formerly been asserted, that the ores were worked in Mexico that did not contain one-third part of silver. The miners of Peru are not richer on the average than those of Mexico. The district of Guanaxto has been, before mentioned, as furnishing more than one-third of the silver annually extracted in America; the riches of the mines here being superior to the celebrated repartimiento of Potosí: they are all worked in one extensive vein. Among these mines, that of the count Valenciana is one of the richest: the average produce of silver is four ounces of silver from a quintal of ore.

The whole weight of silver from the vein of Guanaxto, on an average of 1786 to 1788, is 556,900 mares or 364,911 lbs. troy; and in thirty-eight years the weight of gold and silver, from the same vein, has been 127,000,000 pounds troy. In average years it yields from 500,000 to 600,000 mares of silver, and from 1500 to 1600 mares of gold. It has been doubted by some persons whether this be really a vein, or a metallic bed, as in parts of it the ore is parallel between the beds, or strata of the rock. It pales through both flat and porphyry, and is metalliferous in both. Though it has been before stated that the extent of this vein is more than 42,000 feet; yet the enormous mass of silver which it has supplied for the last hundred years, sufficient alone to change the price of commodities in Europe, has been extracted from an extent of less than 2000 feet; for where this vein is not widened by branches, its general width may be estimated at 38 to 48 feet. It is for the most part separated into three masses, divided by banks of mineral matter, or by part of the matrix delineate of ore.

At Valenciana the vein continues undivided to the depth of 557 feet, and then divides into three branches; and its width, from the floor to the roof, is from 16 to 106 feet. Of these three branches of the vein, there is in general only one which is rich in metals. Sometimes, when these three branches unite, the mine is uncommonly rich. In this celebrated vein there is a certain middle region, which may be considered as a repartimiento of greater riches, for above and below this region the ores are poor in silver.

At Valenciana the rich minerals have been in the greatest abundance, 300 and 1100 feet below the mouth of the gallery.

The labour of the miner is entirely free throughout the whole kingdom of Spain, and no Indian or Míscar can be fined to work in the mines. The Mexican miner gains from 17 to 18 d. per week of six days. The men employed in agriculture do not gain more than a third of that sum. The miners work nearly naked, and are searched in the most inadunate manner on leaving the mine. They frequently conceal fragments of native silver and silver-ores in their hair, under their arm-pits, in their mouth, and even in the anus, into which they force cylinders of clay containing the metal. These cylinders are called hare. A registrar is kept of the silver found in different parts of the body. In the mine of Valenciana, it was found that eleven men, at a great part of the time in the mine, from the year 1774 to 1788, had concealed 281,000 pounds troy of silver, named of the same silver, by amalgamation with mercury, and by the quantity of silver extracted by mercury, gold, and copper, occasioned by the amalgamation of mercury in the mines of that name, the quantity of silver varied by some persons, but it was generally being very uncertainly.

The Mexican mines then appear to follow any fixed principle in the labour of the miners devoted to the amal-}

The payment of the workmen is almost uniformly the same that they built the mines, which is another they had only be carried with mercury; and it is frequency this danger in fear of mercury which determines the miner in the choice of his method. In general they excite the large silver as galena, and the mixed minerals of chalcocite and vitriol copper.

The panes the vitreous, red, and cinnabar silver-ores, the grey copper-ore rich in silver, and the mica ore, differentiated in small quantities, in the mines, they find it more profitable to amalgamate.

All the metallic wealth of the Spanish colonies is in the hands of individuals. The government produces another mine than that of Huaca Velosa in Peru, which has been long abandoned. The individual receives from the king a grant of a certain number of mines, as the director of a vein or bed; and they are only held to pay very moderate duties on the minerals extracted. These duties have been valued on the average throughout all Spanish America at 11 per cent. of the silver, and three per cent. for the gold. In the space of a hundred years, the annual produce of the Mexican mines has increased from twenty-five to one hundred and ten millions of francs. The produce of the mines in Peru has of late years been rather decreasing, which Humboldt attributes to its being worse governed than Mexico. The proceeds of extraction seems also to be conducted upon worse principles than in New Spain, though in neither of these districts is melting, or amalgamation, performed with such skill; or, according to M. Humboldt, the quantity of mercury annually consumed in New Spain exceeds two million one hundred thousand pounds troy. The mercury is separated from the amalgam by distillation; but in the whole proses, the Mexican's waste eight times more than would be necessary, were the proceeds conducted in the same manner as at Freyberg.

The following table will shew the annual produce of gold and silver in the mines of Europe, northern Asia, and America, as given by M. Humboldt, in killograsses. It may be regarded rather as an approximation to the real amount, than as a very accurate statement, the amount of English silver not being included; perhaps this may be estimated at 400 lbs. troy.

<table>
<thead>
<tr>
<th>Region</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>12,927</td>
<td>52,070</td>
</tr>
<tr>
<td>Northern Asia</td>
<td>335</td>
<td>21,760</td>
</tr>
<tr>
<td>America</td>
<td>17,224</td>
<td>79,528</td>
</tr>
</tbody>
</table>

The killograss, it has been before stated, is rather more than 2 lbs. 8 oz. troy. It is impossible to value the quantity of gold and silver annually extracted on the whole globe; for we are separated from the amount of what is procured in the interior of Africa, and the central parts of Asia, Tonquin, China, and Japan. The quantity of gold and silver largely brought by the Dutch from the latter country proves that it is rich in the precious metals. We may draw the same conclusion respecting the northern frontiers of China and other parts of Asia, and the quantity of gold.
gold-dust brought to the western coast of Africa, leads us to believe, that the countries south of the Niger contain large quantities of this metal, though we have little information respecting the silver of the African continent.

Affay and Analysis of Silver-Ores.—Pure native silver requires no other alloy than fusion, with a little potash to free it from its earthy matter. In the humid way the silver may be dissolved in nitric acid, and precipitated by common salt. The precipitate may then be fused with soda in a crucible, by which the silver is obtained pure, and the muriate of soda sublimed. The auriferous silver-ores may be treated with potash, by fusion in a crucible: the alloy of silver and gold is first obtained, and the two metals may be separated by the process of parting. See Refining and Assaying.

Those ores which consist of silver combined with antimony or arsenic, or both, are first roasted, to drive off the arsenic and antimony, the silver remaining pure. The process is much facilitated by the use of nitre, for the purpose of oxidizing the metals to be dislocated.

The humid analysis of this ore requires more particular treatment.

The ore commonly called arsenical is first to be coarsely powdered, and then distilled vinegar poured upon it, to dissolve the lime of the calcareous spar adhering to it.

A given quantity of the ore so washed is now to be finely powdered, and nitric acid poured upon it: this oxidizes the metals, dissolving the greatest part, and leaving a yellowish residuum. To this part the dissolved muriate of soda is to be added, which precipitates the silver. This precipitate being washed and dried, will give 77 per cent. of pure silver. To the liquid from which the last was precipitated add a solution of potash; a light brown precipitate is now formed, which, on drying, becomes of a deep brown, and by ignition assumes the form of powder of a whitish-grey colour: this is the arseniate of iron. This substance contains iron and arsenic, in the proportions of 50 to 43 or 44. This is shown by treating the arseniate of iron with charcoal exposed to a red heat; the arsenic is reduced, and sublimed, while the black oxyz of iron remains.

The yellowish residuum left in the first solution is to be digested with muriatic acid: if a white powder remains undissolved, it will be found to be muriate of silver, and must be added to that first obtained. To the muriatic solution add a solution of carbonate of potash, and a yellowish-green precipitate is formed; to this precipitate, when washed and dried, add muriatic acid by a little at once, till the powder is dissolved; add a large quantity of water to this solution, which will produce a white precipitate; this being separated and dried will be pure oxyz of antimony, affording $\frac{3}{4}$ of pure antimony. What remains in solution, after the last sublimate is separated by the water, may be precipitated by pure potash, and will be found to be oxyz of iron; which, when treated with charcoal, like the first obtained, may be added to the fame to make the whole of the iron afforded by the mineral. In this way the arsenical silver-ore afforded, according to Klaproth, the following analysis:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>12.75</td>
</tr>
<tr>
<td>Iron</td>
<td>44.25</td>
</tr>
<tr>
<td>Arsenic</td>
<td>35</td>
</tr>
<tr>
<td>Antimony</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>106</td>
</tr>
</tbody>
</table>

The sulphuretted ores in the large way sometimes merely require to be roasted to drive off the sulphur; the heat being urged affords a button of pure silver. This is the case with the variety called Silver-glance.

The brittle silver-ore contains a very small portion of antimony and copper. The metallic button obtained by heat will require to be expelled with lead, in order to get the silver pure; it may, however, be made tolerably pure by treating the button with nitre, by which the base metals are separated.

To effect the humid analysis of brittle silver-ore, the powder is dissolved in dilute nitric acid with a gentle heat. By this treatment a residuum is left equal to $\frac{1}{16}$ of the whole. The solution is to be treated with muriate of soda, like the last.

If the presence of an alkaline sulphate does not form any precipitate with the remaining solution, the mineral does not contain lead; to the solution an excess of ammonia, and a greyish-white precipitate will be left, which is the oxyz of iron, often containing a little arsenic. If copper be present, ammonia will give to the remaining solution a fine blue colour, and that metal may be separated by a rod of clean iron.

It now remains to examine the first residuum which was unaffected by the nitric acid; this is to be digested with nitro-muriatic acid: the residuum left after this treatment will be found to be pure sulphur. The nitro-muriatic solution is now to be diluted with a large quantity of water; a white precipitate falls down, which, when washed, dried, and ignited, will be found to be oxyz of antimony, of a brown colour.

Klaproth found 100 grains of this ore to yield as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>66.5</td>
</tr>
<tr>
<td>Antimony</td>
<td>10</td>
</tr>
<tr>
<td>Iron</td>
<td>5</td>
</tr>
<tr>
<td>Sulphur</td>
<td>12</td>
</tr>
<tr>
<td>Copper and arsenic</td>
<td>1</td>
</tr>
<tr>
<td>Extraneous matter from the mine</td>
<td>1</td>
</tr>
</tbody>
</table>

The white silver-ores afford nearly the same ingredients with the last; and the mode of analysis will be similar in the dry way.

The light-white and dark-white silver-ores contain lead and alumine, and require a different treatment. After the silver is precipitated by common salt, a quantity of muriate of lead is formed at the time, which, on concentration, affords the muriate of lead in bright filky crysralls. When these are collected till the liquid will afford no more, a solution of sulphate of soda is to be added, which precipitates the remainder of the lead in the state of sulphate of lead. This powder, being washed and dried, contains $\frac{3}{4}$ of its weight of metallic lead. The remaining liquid being super-saturated with ammonia, as in the analysis of the brittle silver-ore, a light brown precipitate is formed: this precipitate is oxyz of iron and alumine. To separate the latter, dissolve the precipitate in nitric acid: separate the iron by prufliat of potash, or prufliat of lime, and afterwards the alumine with soda. The prufliat of iron, heated to a red heat, is decomposed, leaving the black oxyz of iron, which contains $\frac{3}{4}$ of metallic iron.

The first residuum left by the nitric acid, besides antimony and sulphur, which constituted the residuum of the brittle silver-ore, also contains lead. By the frequent addition of muriatic acid with the application of heat, the lead is separated in crystalls of muriate of lead; obtaining, by this means, a solution of the muriates of lead and antimony.
SILVER.

The residue is sulphur. The muriatic solution decomposes this; the compound is then treated with cold water, and the precipitate in an excess of water, with the addition of black lead, 

iron, silver, or zinc, to the cold liquid on the cupel, allows a small portion to be taken out of the flask. The solution still contains a small portion of lead in the oxalate. By adding a solution of silver nitrate, the lead is precipitated in the state of sulphide, according to its weight of metallic lead. The precipitate, being washed, dried, and ignited, is precipitated in the state of oxalate of lead, yields 

which reduces the metal. The analysis of the light white silver-ore, by Klaproth, gives of

<table>
<thead>
<tr>
<th>Metal</th>
<th>Oxalate (g)</th>
<th>Proportions (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>22.64</td>
<td>22.64</td>
</tr>
<tr>
<td>Lead</td>
<td>47.26</td>
<td>47.26</td>
</tr>
<tr>
<td>Antimony</td>
<td>7.88</td>
<td>7.88</td>
</tr>
<tr>
<td>Iron</td>
<td>2.25</td>
<td>2.25</td>
</tr>
<tr>
<td>Sulphur</td>
<td>17.25</td>
<td>17.25</td>
</tr>
<tr>
<td>Alumine</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Siles</td>
<td>1.75</td>
<td>1.75</td>
</tr>
</tbody>
</table>

The dark silver-ore, by the same, is

<table>
<thead>
<tr>
<th>Metal</th>
<th>Oxalate (g)</th>
<th>Proportions (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>9.25</td>
<td>9.25</td>
</tr>
<tr>
<td>Lead</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Antimony</td>
<td>24.5</td>
<td>24.5</td>
</tr>
<tr>
<td>Iron</td>
<td>1.75</td>
<td>1.75</td>
</tr>
<tr>
<td>Sulphur</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Alumine</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Siles</td>
<td>1.75</td>
<td>1.75</td>
</tr>
</tbody>
</table>

The orogenic silver-ore, which is muriate of silver, is easily reduced in the dry way by fusing with soda, in a crucible capable of fusing the metallic silver. The soda takes the muriatic acid, forming muriate of soda, which escapes in white fumes, and the silver is left pure.

In the humid way, it is first fused in a glass retort with carbonate of potash. The mass is then dissolved in hot water, and the solution filtered. The precipitate is then dissolved in nitric acid, leaving behind a red powder. This powder, being treated with nitromuriatic acid, leaves behind a small portion of muriate of silver, which must be accounted for in metallic silver, as before directed. Ammonia, being added to the nitromuriatic solution, precipitates a red powder, which is oxalate of iron. To the nitric solution, from the mass treated with carbonate of potash, muriate of soda is now to be added; which precipitates the silver in the form of muriate, from which the metallic silver may be either calculated, or obtained by fusion with soda. The aqueous solution from the fused mass is now to be saturated with acetic acid. If alumina be present, it will be precipitated. The liquid part is now to be evaporated to dryness. If alcohol be added to the dry mass, it dissolves the acetate of potash. The precipitate is then dissolved in water. To this, muriate of barytes is to be added, which, if sulphuric acid be present, will cause a precipitation of sulphate of barytes, the sulphuric acid of which is to be considered as a product of the ore, and will be equal to one-third of the weight of this precipitate, when washed and dried. The remainder of the same mass which was dissolved in water may be considered as residue of potash, the acid of which is the more part of the analysis; and will be equal to one-third of the latter.

Physical and Chemical Properties of Silver — pure, when pure and newly polished, is of a pale yellowish colour, and becomes more white when the plate is in a dried condition. Its hardness is nearly that of copper. Its specific gravity is nearly equal to that of gold. At a heat of red, it can be worked with great facility by the hammer. Various articles, in the manner of working iron. After being reduced into very thin sheets, it can be bent into pieces of one-eighth of an inch in thickness; and can be drawn into wire finer than a horsehair. A wire of one-thousandth of an inch will require 336 lbs. to break it, when exerted in the direction of its length. At a temperature of redness, these pieces can be united either by the hammer, or by pressing them together with friction by a steel burrisher.

It melts at the temperature of 216° of Wedgwood, or 471° Fahrenheit. If the heat be raised, the metal becomes more liquid, and boils. This is occasioned by its assuming the elastic form, in which state it acts, and is condensable on the surface of bodies held over it, as has been observed with gold.

In purifying silver on the cupel, it is observed, that when it is removed from the furnace, and put at the point of condensation, a small explosion ensues, giving to the surface of the button an appearance as if some elastic fluid had been diffracted from it. It has been discovered by Mr. Samuel Lucas, of Sheffield, that the elastic fluid which is separated, produces the phenomenon in question, is pure oxygen gas.

By keeping silver long in a state of fusion, at a very high temperature, it becomes oxidised.

Macquer converted silver into a vitreous oxalate by exposing it to the heat of a porcelain furnace.

Silver is readily inflamed by electricity, and converted into an oxalate of a greenish-yellow colour.

The most direct way to obtain the oxalate of silver is by dissolving the silver in nitric acid, and precipitating it with lime-water. The precipitate is at first white, in which state it may be considered a hydrate of the oxalate. When heated, the water escapes, and it assumes a greenish-yellow colour, inclining to grey. If the heat be raised, the air being excluded, the oxygen is drawn off, leaving the metal in a state of purity: 100 parts of silver have been found to contain 7.5 of oxygen; hence, if the atom of hydrogen be 1, that of silver will be 100. No combination of silver with azote or carbon has as yet been discovered.

It combines with sulphur with great facility; the mere contact of the metal with flour of sulphur is sufficient to give the surface a yellow colour. If the silver be in thin plates, and stratified in a crucible with the same, a red heat the combination soon takes place, and the mass fuses, forming a sulphuret of silver, of a violet colour, sometimes in cristals of the shape of a needle.

This substance is brittle, but sufficiently soft to be cut with a knife. It is decomposable by heat. The sulphur escapes, leaving the metal in a state of purity. This compound is an atom of silver equal to 100, united to an atom of sulphur 15.

Sulphuret of silver is also formed by exposing the metal to sulphuretted hydrogen gas. The small quantity of the latter exiling in the atmosphere is capable of soon commurating a yellow, and ultimately a purple colour to polished silver.
Mr. Proust found this tarnishing matter to be a fulphuret of silver. The thinneft coat of gum, or of varnish, completely defends the surface of silver from tarnishing.

Silver combines with phosphorus, forming a phophuret of silver. This combination is effected by heating in a crucible equal parts of silver and phosphoric glafs, with one-fourth their weight of charcoal powder; or, what is better, fau-daff. This compound is of a white colour. It is brittle, but may be cut with a knife. It is, like the fulphuret, decomposable by heat.

Silver combines with several metals, forming alloys. The alloy of silver with gold, when the former is in a very small quantity, is of a much paler colour than gold. Thence, like all other compounds, are doubtlesse definite, and hence we should expect, that when these metals combine in the ratio of the weights of their atoms, which will be 100 silver to 140 of gold, the alloy would be the most perfect. And the next perfect would be two atoms of one to one of the other. It is itated by Mufchenbroeck, that the hardeft alloy of these two metals is with two parts of gold to one of silver.

Silver, as well as rendering gold much paler, gives it a greenish tinge. This alloy is more fusible than gold, and hence is employed as a folder for that metal.

Silver does not form any fliking alloy with platinum. Indeed it rather appears to be a mixture than a combination. As is the cafe with lead and zinc, the two metals separate, when kept fome time in a flate of fufion. This fact is corroborated by the circumstance, that silver can scarcely be made to unite two pieces of platinum together, when used as a folder, while gold can be employed for that purpofe with the greatest success. For the other alloys of silver, see the refpeftive metals.

Salt of Silver.—Thefe confift of the oxyd of silver combined with an acid, fome of which only are fusible in water. The prefence of the fusible fats of silver is easily detected by muriatic acid, or any fusible faltine compound with that acid, by occafioning a defne white precipitate, which foon changes to a purple colour when exposed to the fun’s light.

The infusible fats of silver have the property of coating bright copper with silver, when rubbed upon it with a little moifure. Salts of mercury would give the fame white appearance, but this would be diftinguifhcd from silver by being capable of difipation by heat. Salts of silver become black with the hydro-fulphurets of the alkalis. And gallic acid gives a brown precipitate.

Sulphate of Silver.—Sulphuric acid has no action upon silver at the common temperature. When, however, this metal is boiled with the acid, the silver becomes oxydated, fulphurous acid gas is difengaged, and sulphate of silver is formed, which is a white mafs, sparingly fusible in water, except an excess of sulphuric acid be prefent. The latter, on evaporation, affords cryftals of a brilliant filvery white-ness, in the form of needlefs or fine prills. This falt is fusible in nitric acid.

When heated, it firft fules, and if the heat be raised, it is decomposed, fulphuric acid and oxygen escaping, leaving the silver in its metallic form.

This falt is decomposed by the alkalis and earths, and all those fusible fats, the acids of which form infusible compounds with silver. Bergman has flated, that 100 parts of metallic silver, precipitated from nitric acid by fulphuric acid, give 134 of the sulphate. Allowing the 100 of silver to have taken 7 of oxygen, there will remain 28 for the fulphuric acid. This, in 100, will give fulphuric acid 22, and 78 of oxyd of silver. If this falt be compos’d of one atom each of acid and base, then, by Dr. Wolffen’s fcale, the proportions would be 25.5 acid, and 74.5 oxyd of silver. Dalton’s numbers would give very nearly the fame reftult.

Sulphate of Silver.—This falt, like the laft, is sparingly fusible in water. In other refpects, it is but little known.

Nitrate of Silver.—The nitric acid acds with confiderable violence on silver, affording red fulminating fumes, occafioned by the copious difengagement of nitric oxyd. If the acid and the silver be pure, the folution becomes clear and colourles, with redufum; if the acid contains muriatic acid, which is often the cafe with the acid of the shops, then a defne white powder will fall down, which becomes purple in the fun-fhine, and is the muriate of silver; if the silver contains gold, a purple powder will be left at the bottom of the veffel; if it contains copper, the solution will be of a green colour, of greater or lefs intenfity, depending upon the quantity of that metal.

The folution of silver affords cryftals on evaporation: they are of a prismatic form, but differ in their number of fides; they do not change by expoſure to the air, but are very fusible in water. These cryftals, when heated, firft melt; the heat being raised, the water of cryftallization escapes, but the mafs still remains liquid: in this flate it is frequently ca.ll into moulds, in which it affumes a fold form on cooling. These ficks, which are employed in surgery under the name of lunar caufir, are of a grey colour, and when broken exhibit a cryftalline appearance.

A more violent heat than that required for its fufion decomposes it, nitrous gas and oxyen being difengaged.

This decompoſition is much more rapid when it is heated in contact with inflammable matter. If thrown upon burning coals, it detonates. If filk, cotton, leather, ivory, and many other bodies, be moistened with nitrate of silver, and the part be afterwards moistened, when a stream of hydrogen gas is applied to it the silver becomes reduced, and appears with its metallic lustre. A ftick of phophorus dipped in nitrate of filver foon becomes coated with metallic silver.

This falt has the property of detonating with sulphur or phophorus, by being ftruck smartly with a hammer.

Nitrate of silver is decomposed by all the earths and form fults, and by the alkalis, by combining with the acid. Ammonia, however, does not only precipitate the oxyd, but afterwards combines with it, forming a compound having alarming fulminating properties. The following is the procefs recommended for its preparation.

From the nitrate of filver precipitate the oxyd by means of lime-water: separate the oxyd, and dry it upon blotting-paper: upon this oxyd pour pure caufic ammonium: let this remain for twelve hours. If a pellicle be formed upon the surface, add a little more ammonium, which will take it up. A black precipitate will be found at the bottom of the veffel, which is the ammoniate of silver, and is the fulminating fubftance to be obtained. This precipitate is to be carefully collected, and laid in very small quantities upon separate bits of blotting-paper, to dry. When dry, the lighted touch or rubbing motion caufes a violent explosion. Thofe unaccustomed to it should begin with the smalllefs poftible quantities, as ferior accidents have happened by exploding it in too large quantities. The liquid part from which the fulminating was separated will be found to be a folution of the fame: if it be heated in a glafs retort, a portion of it is decomposed, and the gafeous products difengaged: in a little time, small brilliant cryftals of the fame fulbitance appear: these
there freqvently detrate with such violence, as to break the vessel in which they are contained.

The theory of their appearance is, that the excess of the silver combines with the hydrogen of the hot, distilled water, which, with the arsenic gas of the fumes, are in an immeasurable to slowly electrify by the caloric set free, as to produce the explosive effect on the surface of the substance. It is requisite to say that the silver is left in the metallic form.

Nitrate of silver is decomposed by all these metal larvae a superior attraction for oxygen. The oxygen of the silver is given to the decomposing metal, which also combines with the acid. Copper, if employed, precipitates the silver as a white metallic powder, the result being nitrate of copper in the place of nitrate of silver. The precipitate is not pure silver, since copper will always be detected when the precipitate is re-dissolved.

Mercury has also the property of precipitating silver from the nitrate, producing the appearance which has been termed the Arsenic Disease. Lavoisier recommends one part of silver to be diffused in nitric acid, and the solution to be then diluted with twenty parts of distilled water; to this add two parts of mercury. The mercury gradually occupies the place of the silver, and the latter is precipitated in the form of vegetables, from which the name has been derived.

The vegetable appearance is caused by the growth of the crystals being from the extreme points of that already formed, as is the case with the growth of vegetables. The mercury, and the smallest portion of precipitated silver, form a Galvanic combination. The silver now in solution is reduced upon that already formed, in consequence of its rate of electricity being negative, that of the mercury being relatively positive, by which it attracts the acid. This process would doubtless be facilitated by dropping a small bit of metallic silver upon the mercury, added to nitrate of silver. This would form a Galvanic combination, and the bit of silver would become an immediate rallying point for the silver in solution. If a little of a dilute solution of nitrate of silver be spread upon a pane of glass laid in an horizontal position, and a common pin be laid in the middle of the covered part, in a few hours, beautiful ramifications of silver extend from every side of the pin; sometimes to the distance of an inch. This is also to be explained by Galvanism.

Mixture of Silver.—When nitric acidified, or any soluble muriate, is added to nitrate of silver, a dense and bluish-white precipitate is thrown down, which is muriate of silver. Although white when it is just precipitated, it soon assumes a purple tint by exposure to the light, and the change is quicker as the light is more intense: hence this substance has been employed to measure the degree of intensity of light, by the time in which the change of colour takes place.

It may be said to be insoluble in water: this property, and its conspicuous appearance in other respects, renders the nitrate or sulphate of silver so valuable as a test for muriatic acid. The latter, on combining with the silver, forms the salt in question.

When the salt is exposed to heat, it easily melts on cooling, it becomes solid. It is a semi-transparent mass, of a grey colour, and of a heavy appearance, from which it has been called hestancrea, or burn-silver. If fused with a great heat in a crucible, it becomes so thin a fluid as to sink through the pores of the crucible. It is not decomposed by any of the acids or the alkaline, but when heated with the carbonate of potash or soda, the acid is disengaged. It diffuses an electric amber, forming a transparent solution: thus, by exposure to the air, undergoes considerable change. A pellieule forms on the surface, which is first of a bluish colour, and afterwards black. This pellieule, on evaporation, is turned to be muriate of silver in a crystalline form. This was with Sir Humphrey Davy discovered, and is described by Dr. Micaldi, who placed the test flask on a white tile, covered the latter tile with some fumes of silver. Sir Humphrey placed the vessel over the tile, and Dr. Thomson, in a similar manner, to test for fume.

The composition of this salt, according to Broun, is

| Muriatic acid | 7.5 |
| Oxid of silver | 6.5 |

By the atomic theory it should be constituted by

$$7.5 + 18.8 = 26.3$$

The muriatic acid, and which would give

| Oxid of silver | 8.17 |
| Muriatic acid | 18.83 |

Sir Humphrey considers it as a compound of one proportion of chlorine, 67, and one proportion of silver, 205, which will give

| Silver | 75.3 |
| Chlorine | 24.7 |

Considering the 24.7 of chlorine as oxymuriatic acid, which would be 18.8 muriatic acid, and 5.9 oxygen, then by mixing this oxygen to 75.3 of silver, would give 81.2 of oxid of silver, and 18.8 of muriatic acid in the 100, which nearly agrees with the above. The property which this salt has of becoming black by the action of light, has rendered it useful for marking linen. Very improper ingredients have been used for this purpose. The nitrate of silver is employed to write with upon the linen, which is very proper; but the part is often prepared by a solution of soda or potash, instead of a solution of muriate of soda (common salt). The following will be a recipe which cannot fail of success: dissolve 30 grains of lunar calx in one ounce of distilled water; this will be for the writing liquid. For the preparing liquor, dissolve half an ounce of common salt in four ounces of water; and in the same disolve half an ounce of gum arabic. Mix the part to be marked with the latter, and dry it till the writing will not run. The letters will then appear of a blueish-white, but become perfectly black by exposure to light.

The fluoride, borate, phosphate, carbonate, and arsenate of silver, are insoluble powders, having no striking properties, or but little known. The arsenic is formed by adding arsenate of potash to any soluble salt of silver. It falls down in the form of powder of a yellow colour. Its solubility, and its conspicuous colour, have been taken advantage of by employing nitrate of silver as a test for arsenic.

The chlorate of silver is an insoluble salt, of a green colour; it is formed by adding chromate of potash to nitrate of silver. It, however, becomes purple by exposure to air and light.

Acetate of silver is a soluble salt, formed by adding the acetic acid to oxid of silver. The solution affords prismatic crystals.

The rest of the salts are but little known.

Silver, in Medicine, is called livia, the moon; and has been much extolled for its virtues by chemical writers. But
crude silver, however comminuted or attenuated, has not been observed to produce any medicinal effect. It is not soluble in any of the fluids of the animal or vegetable kingdom.

Several preparations have been made from silver; particularly a

**Silver Pill, or Pilula Lunaris**, which is a chemical preparation of silver, formerly highly commended as an athermal, and as a purgative remedy for dropsies, and in many other invertebrate ulcerous diseases.

The method of making it is this: disolve an ounce of pure nitre in distilled water; then disolve an ounce of crystals of silver, made in the common way, with pure silver and aqua fortis, in three times the weight of water, so that the solution may be perfectly limpid; mix the two solutions together, they will become a clear homogene liquor; evaporate this to a pellicle, and crysals reforming nitre will float; pour off the remaining nitre as before, and the remaining nitre will float with the silver, in form of crystals, again, upon a second evaporation: let these crysals be dried upon a paper, and then placed in a glass vessel in a very gentle heat, enough to make them smoke, but not run; stir it with a piece of glass all the time, and keep it over the fire, till no more fumes arife; thus the acid spirits will be driven off, and the silver remain of a very bitter taste and purging quality. It must be kept in a dry close vessel.

This discovery has been made to serve to many other purposes, besides its uses in medicine, and has furnished the dishonest pretenders to alchemy with one of their most cunning methods of deceit. They have been able, by this means, to conceal silver in nitre, and that in a very large proportion, as in one-tenth part of the whole quantity; and this nitre being projected in an equal quantity on melted lead, gives an increase of one-tenth part in silver, which remaining upon the tell, will deceive the ignorant, as if a tenth part of the lead were converted into pure silver. People who are upon their guard, may, however, discover the cheat, by dissolving the pretended nitre in ten times its weight of water, and putting a polished plate of copper into the solution; for every particle of the silver will then be precipitated out of the liquor upon the copper, and to the bottom of the vessel.

The medicinal use is this: the dried mass, consisting of the farts of silver and nitre, is to be reduced to a fine powder; this powder, applied to ulcers, acts in the manner of the lapis infernalis, or silver-caustic, only much milder: but for internal use, the quantity of two grains of it is to be ground to a fine powder, with fix grains of loof-fugar, in a glass mortar; this is to be then mixed with ten grains of the crumb of bread, and formed into nine pills: these are to be taken by a grown person upon an empty stomach, drinking after them four or fix ounces of hot water, sweetened with honey. It purges gently, and brings away a liquid matter like water, often unperceived by the patient. It is said to kill worms, and perform great things in many obstinate ulcerous disorders. It purges without griping, but it must not be used too freely, nor in too large a dose, for it always proves weakening, and in some degree corroive upon the stomach; but this inconvenience is greatly alleviated by rob of juniper. Boerh. Chem. part ii. p. 297.

However, with this affiduus, it is at best a dangerous medicine, and as such is deservedly excluded from practice.

**Silver, Tartar of**, is made by dissolving thin silver plates, or silver shot, in spirit of nitre; and pouring the solution into another vessel full of salt-water. By this means, the silver is immediately precipitated in a very white powder, which they wash several times in spring water. This powder they put into a matras; and pour rectified spirit of wine, and volatile falt of urine, upon it. The whole is left to digest in a moderate heat for fifteen days; during which, the spirit of wine affumes a beautiful sky-blue colour, and becomes an ingredient in several medicines. This is also called potable silver, argentum potabile.

Silver is likewise converted into crysals, by means of the same spirit of nitre; and this is called spirit of silver.

The lapis infernalis argentous is nothing but the crysals of silver melted with a gentle heat in a crucible; and then poured into iron moulds. See CAUSTIC; Lunar.

**Silver Ale.** See Ale.

**Silver Balsam, in Botany, a species of Anthyllis; which see.** See also Barba Jovis.

**Silver Coin.** See Coin, and Money.

**Silver Fir.** The name of a tree of the pine kind. See Pine.

**Silver, Green and Herring.** See the adjectives.

**Silver, Inflammable, a chemical preparation of the lapis infernalis made by a small heat.** The process is this: take an ignited piece of Dutch turf, after it ceases to smoke; place it with its upper flat surface parallel to the horizon; make a little cavity in the middle, and therein put a drachm of dry lapis infernalis; it will immediately melt and glow, and finally it will take flame, and hiss and thine like nitre: after the flame ceases, pure silver will be found in the hollow, as much in quantity as was used in making so much lapis infernalis.

This curious experiment shews the physical manner in which acids do but superficially adhere to silver, and the manner in which acids operate, when united to metals, while surrounding their metallic mass, they arm the ponderous principles of them with spicula: it shews also the immutability of silver dissolved in an acid, and the various ways in which it may be concealed, yet still have its action; it also shews the difference of potable silver, while existing in a saline form, by means of an adhering acid, from that potable silver of the adepts, where the principles of silver are supposed converted into a fluid, that will mix with the juices of the body, and cannot be reduced to silver again; but the great thing to be here observed is, that the acid spirit of nitre, adhering in a solid mass of silver, is, in this state, as inflammable, on coming in contact with an ignited combustible body, as crude nitre itself: this seems to happen with silver alone, which is unchangeable with spirit of nitre. Hence also we see one way, by which silver may be obtained pure from other adhering matters, by bare burning: the acid here acts neither upon the mercurial part of the silver, nor on its fixing sulphur. Boerh. Chem. part ii. p. 297.

**Silver, King's.** See King's Silver.

**Silver-Leaf** is that which the gold-beaters have reduced into thin fine leaves, to be used by gilders, &c. See Gold-Leaf.

**Silver, Quick.** See Mercury.

**Silver, Rep.** See Rep Silver.

**Silver, Salt.** See Salt Silver.

**Silver, Shell,** is made of the shreds of silver leaves, or of the leaves themselves: and used in painting and silvering certain works. It is prepared after the same manner as shell-gold. See Gold.

**Silver, Slough.** See Slough Silver.

**Silver, Smoke.** See Smoke Silver.

**Silver-Tree, in Botany.** See Protea.

**Silver-Weed, a species of Potentilla; which see.**

**Silver-Weed, in Agriculture, a term applied to wild tanfey; a plant which grows naturally upon cold stiff land in
in mold parts, and is a sure mark of the verity of the foil. Its flake is spread upon the ground, and feeds off roots from its parts; by which means, and by frequent dustings of its seeds, it swarms through the whole humus, to form new plants, and put the land to a great expense. Its leaves are composed of several leaves or squares, which are generally placed along the petiole, and terminate by an odd one; they are jagged at their edges, and are of a silvery, especially on their under side. It has been noticed by Mr. Ray, that the root is somewhat of the tap-rooted or parthipal kind, and that they are very fond of feeding upon it.

Silver. White-bart. See White-bart Silver.

Silver Wire, is silver drawn through the holes of a wood drawing iron, and by this means reduced to the finest of a thread or hair. The manner of drawing it, is under the article Gold Wire. See also Wire, and Drawing.

Silver Bluff, in Geography, a headland on the coast of South Carolina, at the mouth of the river Savannah.

Silver Caves, a cluster of rocks, 10 miles S. of Grand Caves.

Silver Creek, a river of America, in Kentucky, which runs into the river Kentucky, N. lat. 37° 41'. W. long. 84° 49'.

Silver Grain, in Vegetable Physiology, is described by Mr. Knight, Phil. Trans. 1807, 144, as consisting of numerous thin plates, "diverging in every direction from the medulla to the bark, having little adhesion to each other at any time, and lies during spring and summer, than in autumn and winter; whence the greater brittleness of wood in the former season." The same writer remarks, that these plates are visible in every wood which he had examined, except some of the palm tribe; but are of different width in different kinds, lying between, and predominate upon, the sap-velelts of the allium. It may be observed, that in the oak "every tube is touched by them short distances, and from distances, and may be diverted from its course. If thieves," continues Mr. Knight, "are explicable under changes of temperature, or from any cause arising from the powers of vegetable life, I conceive that they are as well placed as is possible, to propel the sap to the extremities of the branches; and their brittle temper, after the tree has ceased to live, teaches me to believe, that they are not made to perish whilst it continues alive." In support of this opinion, we would remark, that the plates in question are found where the spary coats of the sap-velelts either no longer exist, or have lost their elasticity. See Circulation of the Sap.

Silvering, the covering of any work with a thin coating of silver. This operation is recommended by two circumstancse; viz. the superior beauty of silver to that of the cheaper metals, and also its superior wholeness to copper, brass, or lead, for culinary purpores, as it is not corroded by vinegar and other weak acids.

Silvering may be performed on the same substances, and by similar methods with gilding; which see. But as works of this kind are liable to tarnish and peal, they are seldom used. But when this is the case, the coating of silver should be much thicker than that of gold, because, otherwise the friction which is necessary for removing the tarnish, would soon wear off the silver from the most prominent parts, and expose to view the subent copper or brass. In order to avoid this inconvenience, some have recommended, when silvering is admitted, a strong varnish, formed of some of the compositions of mastic, sandarac, the gums animal or copal, and white resin, to be put over it.

The varnish recommended in silvering leather may be applied to other purporses. See Lacquer.

The silver powder, called argyrum musenum, may be either tempered, in the manner of the small gold, with warm water, or rubbed over a ground properly tawed, and it will take a very good polish from the roots of the hair, but it did not seem much better with a little more varnish over it than was by silver powder alone.

The best silvering, when they are used for this purpore, must not be mixed, as is the case of gold, with yellow, or black, nor with brass, only with iron; white lacquer, whose varnish may be mixed with a small quantity of varnish, in a little water, and this mixed with take-white, or white lead, when the varnish of oil is put in; but white, or tubed paper clay, with a little lamp black added to it, is the proper matter to be brushed over, for silvering, or wherever the silvers or lacquer are used.

It is useful to silver metals, wood, paper, &c.

The only metals to which silvering is applied are copper and brass, and very rarely iron; and there are three modes of performing this operation, viz. by small amalgam, by burnished silver, and by silver in substance. The first is performed by adding plates of copper to a liquid of nitrate of silver, which will precipitate the silver in its metallic state, and very finely divided; scrape this from the copper, and let it be well washed and dried. With half an ounce of this powder, of common salt and 3/4 of ammonia, two ounces, and one dram of corrosive sublimate, well rubbed together, make a paste by the addition of a little water, then clean the vessel to be silvered with a small quantity of diluted aqua fortis, or by pouring it with a mixture of common salt and tartar. Rub it, when perfectly clean, with the paste already mentioned, until it is entirely covered with a white metallic coating; which coating is an amalgam produced by the decomposition of the corrosive sublimate by means of the copper, to the surface of which it applies very quickly and expeditiously. The copper thus silvered over is then to be washed, dried, and heated nearly red, for the purpose of driving off the mercury; the silver remains behind and adheres firmly to the copper, in a plate capable of receiving a high polish.

The second method of silvering is that by luna cornes. For this purpose, prepare the luna cornes in the usual manner, by pouring a solution of common salt into nitrate of silver, as long as any precipitation occurs, and boiling the mixture; then mix the white curdy matter thus obtained with three parts of good pearl-salt, one part of washed whiting, and a little more than one part of common salt. After the surface of the brass, cleared from scratches, has been rubbed with a piece of old hat and rotten flesh, in order to remove any greasy, and then moistened with salt and water, a little of the composition, being well rubbed on with the finger, will prettily cover the surface of the metal with silver. Then wash it well, rub it dry with soft rag, and then, as the coat of silver is very thin, cover it with transparent varnish to preserve it from tarnish. As this kind of silvering is very imperfect, it is only used for the faces of clocks, the scales of barometers, or similar objects. (See Luna Cornes). The third mode of performing this operation is by means of silver in substance; and of doing this there are three different methods. The first is by mixing together 20 grains of silver precipitated by copper, two drachms of tartar, two drachms of common salt, and half a drachm of alum; and rubbing the composition on a perfectly clean surface of copper or brass will cover it with a thin coating of silver, which may be polished with a piece of soft leather. Another mode, better called French plating, consists in burning down upon the surface of the copper successively layers of half-silver to any required thicknesses. Although the silver in this operation is more solid than
than in any of the former modes, the process is tedious, nor can the junctures of the leaves of silver be always entirely concealed. But the best method of all is the English plating, for an account of which see Plated Manufacture.

Aikin’s Dict.

Brafs may be silvered, by boiling it with filings of good pewter and white tartar, in equal quantities. There are several other methods of silvering, for which see Smith’s Laboratory, p. 37, 1802; also Handmaid to the Arts, vol. i. p. 437, &c. See Gilding of Metals.

The following is the recipe in practice with buttonmakers for covering the inferior kinds of plated buttons: 3 lbs. of sulphate of zinc; 3 lbs. of common salt; 1 oz. of corrosive sublimate, and 2 ozs. of muriate of silver. This is made into a pulpy flake with water, and the buttons smeared over with it. They are then exposed to a certain degree of heat, whichfirft causes the surface to be covered with an amalgam of silver and mercury, and then expelling the latter, which requires nearly a red heat, the copper retains a permanent coating of silver. This is afterwards to be cleaned and burnifhed, by which it acquires a silvery lustre, which, for a time, appears like durable plating. The salt and the sulphate of zinc appear to be of no other use than to dilute and give a pulpy conftance to the mass.

Silvering in the cold is performed by the following composition: 3 lbs. of cream of tartar; 3 lbs. of common salt; and 1 oz. of muriate of silver, which is the precipitate formed by adding common salt to nitrate of silver, till no more is precipitated. This composition is made into a flimer pulp. The surface of the copper or brafs to be silvered must first be cleaned with diluted acid, and then made dry, and kept free from grease. The surface, being now rubbed with the above pale, will assume a white colour, by the silver adhering to it. This process is generally employed for silvering clock-faces, and the scales of instruments.

The surface should always be varnifhed to prevent its tarnifhing, as the silver is too thin to bear cleaning. See Button.

Silvering of Leather. See Lacque and Japanners’ Gilding.

The proceeding in silvering the leather is in all respects the fame as when it is to have the appearance of gilding, except that, instead of the yellow varnish, a clear colourless one is to be used, where the appearance of silver is to be preferred.

The most common varnish for this purpofe is only parchment fize, made warm, and laid on with a fponge. Howevcr, the more hard and transparent the varnifhes are, and the more they are of a reifinous nature, the more brilliant and white, and the more durable, will be the silverly and polifhed appearance of the silvered leather. Some, infted of the parchment fize, use that made of linfkglas.

Silvering of Mirrors, is the application of a coating of quicksilver to their posterior surface, in the manner briefly defcribed under the article Looking-Glafs. The management of the silvering is, in this cafe, extremely fimple, and is thus detailed in Aikin’s Dictionary. A perfectly flat slab of free-flone (or sometimes of thick wood), a little larger than the largest plate, is inclosed in a square wooden frame or box, open at the top, and with a ledge rising a few inches on three sides, and cut down even with the flone on the fourth. A small channel or gutter is cut at the bottom of the wooden frame, serving to convey the wax mercury down into a vessel below, fet to catch it. The flab is also fixed on a centre pivot, fothat one end may be raised by wedges (and of courfe the other depreffed) at pleasure, when working freely in the box.

The flab being firft laid quite horizontal, and covered with grey paper fretched tight over it, a fheet of tin-foil, a little bigger than the plate to be silvered, is spread over it, and every creafe smoothed down carefully; a little mercury is then laid upon it, and spread over with a tight roll of cloth, immediately after which as much mercury is poured over it as will lie on the flat surface without fpilling. That part of the flab which is opposite the cut-down fide of the wooden frame is then covered with parchment, and the glafs plate is lifted up with care and flid in (holding it quite horizontally) over the parchment, and lodged on the surface of the flab. The particular care required here is, that the under surface of the glafs should from the firft junct dip into the surface of the mercury (fkimming it off as it were), but without touching the tin-leaf in its passage, which it might tear. By this means no bubbles of air can get between the glafs and the metal, and also any little dust or oxys floating on the mercury is swept off before the plate without interfering. The plate being then let go, links on the tin-foil, fqueezing out the superfluous mercury, which paffes into the channel of the wooden frame above-mentioned. The plate is then covered with a thick flannel, and is loaded over the whole surface with lead or iron weights, and at the same time is tilted up a little, by which till more of the mercury is squeezed out. It remains in this fituation for a day, the flope of the fhone flab being gradually increafed to favour the dripping of the mercury. The plate is then very cautiously removed, touching it only by the edges and upper fide, and the under fide is found uniformly covered with a soft papty amalgam, confiting of the tin-leaf thoroughly foaked with the quickfliver, and about the thickens of parchment. It is then fet up in a wooden frame, and allowed to remain there for ferveral days, the flope of its position being gradually increafed, till the amalgam is sufficiently hardened to adhere fo firmly as not to be removed by flight scratches, after which the plate is finifhed and fit for framing.

It is a confiderable time before the amalgam has acquired its utmost degree of hardnefs, fo that globules of mercury will often drip from new mirrors fome time after they have been fet up in rooms; and violent concussions of the air, fuch as from the firing of cannon, will often detach portions of the amalgam. Thence can never be perfectly replaced by any patching, as the lines of junction with the old amalgam will always be marked by white feams, even when looking into the glafs. See Foliating of Looking-Glafs.

Silvering of Paper. See Chine or Paper.

SILVERIUS, pope, in Biography, the fon of pope Hormida, was placed in the pontifical chair in the year 536, upon the death of Agapetus. Belifarius, the famous general of Juttinian, having loon after taken poftefION of Rome, the emprefs Theodora resolved to take this oppor- tunity of retorting Anthemius, patriarch of Constantinopole, and his party, who had been condemned for heresy by the council of Chalcedon. She wrote to Silverius, urging him to recognize Anthemius as lawful bishop, to which he gave a positive refufal. Upon this the empress made an engagement with the deacon Viglius, that he should be raised to the popeom on condition that he would anathematize the council of Chalcedon, and re-admit Anthemius and his party; and he, at the fame time, sent ordina to Belifarius to depose Silverius. To furnish a pretext for this act, an accufation of treafon was brought against the pope, having invited the Goths to repofle themselves of Rome. This change was most probably invented for the purpofe, and without the smallest foundation; and Belifarius, without acting upon it, fet for Silverius, and endeavoured by
perfusion to get him to comply with the emperor's requisition, but he resisted him. Finding, however, that he had not strength to oppose his envoys, he took sanctuary in a church, but being artfully drawn from it, he was driven from the city and banished in the year he had been elected pope. When arrived at Patara, a city in Lycaia, the place of his exile, the bishop of the place met him, and, indignant at the treatment he had experienced, undertook to lay the case before the emperor, then at Corinth, and, from his representations, Julian ordered the caufe to be re-heard. Silverius, immediately receiving this order, went to Rome, where his uneasy conduct and perfunctory appearance greatly disconcerted Vigilus, who had intruded into his chair. Through the intrigues, however, of Vigilus with Antonia, the wife of Belisarius, Silverius was put into his hands, and carried to the island of Palmaraz, on the coast of Liguria, where he died, from want or hardship, in or about June, in the year 538, though Borutius maintains that he held a tyton of four bishoprics in the island, at which he excommunicated Vigilus, and that he did not die till June 540. In the church of Rome he is honoured as a martyr to orthodoxy.

SILVERMINES, in Geography, a small town of the county of Tipperary, Ireland, which obtained its name from productive lead-mines in the neighbourhood, from which much virgin silver was formerly obtained. These mines, the property of Lord Durlacs, are no longer wrought, and are thought to be exhausted. Silvermines is north of the Keeper mountains, and gives name to a lower ridge of hills. It is 77 miles S.W. from Dublin, and about 5 miles S. from Nenagh.

SILVES, a town of Portugal, in the province of Algarve, situated on a river of the same name, containing 1600 inhabitants; formerly more considerable than at present, and from the year 1188 to 1250 a bishopric, which was afterwards removed to Faro; 15 miles E.N.E. of Lagos. N lat. 37.10'. W long 16'.—Alviso, a river of Portugal, which runs into the Atlantic, a little below Villa Nova de Portimao.

SILVESTER I., pope, in Biography, was elected to the see of Rome in January 314. In that year was held the council of Arles, to which Silverst was invited, but he excused himself on account of his age, and sent two prelates and two deacons as his deputies. To the general council of Nice, in 325, he also sent deputies, which council was convened by the emperor, and met and the 17th, nor did the letter précede at it. It was during this pontificate that the hierarchy of the Christian church, as it has ever since existed, formed upon the model of the civil government of the empire, took its origin. Silverst died 7, 335, after having held the papal see nearly twenty-one years.

SILVESTER II., pope, previously named Gerbert, was born of an obscure family in Auvergne, in the 10th century. At an early age he entered himself as a monk in the monastery of St Gerard, Auvergne. After laying a foundation of all the sciences cultivated in that ignorant age, he travelled for improvement, and visited Spain, in order to hear the Arabian doctors in their universities. At length he rendered himself so distinguished, that he was appointed by Hugh Capet preceptor to his son Robert. At Rome he became known to the emperor Otto II., who placed him at the head of the abbey of Bobbio, about the year 970. Having resided there some years, he returned to France, but visited occasionally Italy. In one of those visits he met with Otto II. at Pavia, who took him to Ravenna, where he held a solemn deposition on a mathematical quesion with a Saxon, very eminent for his learning. He was afterwards made preceptor to Otto III., while in the imperial court while he was still a minor. In the year 971, Hugh Capet promoted him in the archbishopric of Rheims; but this elevation was a figure of speech, and after much toying, he was sent to the see of Arles, the natural see of Languedoc, in France, who had been formerly defiled by him. It was in the year 972, and at the法兰克ic of Otto III. was ferred upon by the archbishop of Ravenna, the death of pope Gregory V. in 973, he was elected to the papal dignity, when he assumed the name of Silverst. The acts of his pontificate were few, and not at all important. In the year 998, he is said to have entered on St Stephen, king of Hungary, the royal title, with the same crown, the papal bullion of that kingdom, and to have consecrated the perpetual benediction of the holy see, with power to dispose of all ecclesiastical benefices. An extraordinary influence of ecclesiastical suzerain in this period was exercised by Anemar, which, if it may be relied on, proves both the great power of the church at that period, and the disposition to abuse it. Guy, count of Languedoc, having imprisoned Grimald, bishop of that city, for taking possession of a disputed monastery, and afterwards released him, the bishop repaired to Rome, and complained to the pope, who cited Guy to his presence. The case being heard, the count was condemned by the pope and debarred to the tail of a wild horse, and dragged away till he was torn to pieces, the execution of which sentence he escaped by compromising the affair with the bishop, his accuser, and taking flight along with him. Silverst died in the year 1005. He was a very meritorious character, a promoter of learning, and a proficient in various branches of the sciences. He spent much time and large sums of money in the collection of books from various parts of Europe, composed himself a number of works, particularly in arithmetic and geometry, and with his own hands made globes, a clock, and an astrolabe. Living, as he did, in the very depths of the dark ages, he felt and the superstition of magical practices, and several ridiculous stories are related to this pope. There were, however, periods who knew how to appreciate his character; he was noticed by Otto II. as a well learned man, and eminent in the higher branches of philosophy. He wrote a great number of letters on various topics, of which 160 of them were printed at Paris in 1611. One of these, written in the first year of his pontificate, is a call to the church universal, for delivering the Christians in Palestine; in other words, a project for a crusade.

SILVESTRE GRANUM, or CONCUS SILVESTRIS, a term used by four authors to express the same person; and by others for a course or bad kind of conchlea, produced in the province of Guntamula, in New Spain; it is by some supposed to be the seed of a plant, but it is really an inch, as the true cochlea is, only that the scarlet colour it yields is greatly inferior to the other. See Conchlea.

SILVILM, in Ancient Geography, a place of Italy, in Peucetia, E. of Venusia. The name is formed from Silva, a grove, found in this place, and probably the "Salus Bactria" mentioned by Homer.

SILVULM, in Geography, a small island in the Adriatic, N lat. 43° 37'. E long. 14° 10'.

SILLES, or, according to the orthography of Poullens, Silvius, in Ancient Geography, a people of the isle of Albion, who possessed, besides the two English counties of Hereford and Monmouth, Radnorshire, Brecknockshire, and Glamorganshire, in South Wales. The northern part
of Herefordshire has been supposed to some to belong to the Ordovices. The name of this ancient Britih nation is derived, by some of our antiquaries, from Caer, a word, and *uerc*, men, because they inhabited a woody country; and by others, from the British words *ex heul iir*, which signify brave or fierce men. Tacitus has conjectured, with little probability, and no sufficient evidence, that the Silures had come originally from Spain,grounding the conjecture on a supposed, or perhaps fancied resemblance between them and the ancient Spaniards, in their persons and complexions. It is much more probable, that they, as well as the other ancient inhabitants of Britain, had come from some part or other of the neighbouring continent of Gaul. But from whencesoever they derived their origin, they reflected no dishonour upon it, as their povertv have not degenerated from them. The Silures were unquestionably one of the bravest of the ancient Britih nations, and defended their country and their liberty against the Romans with the most heroic fortitude. For though they had received a dreadful defeat from Offorius Scapula, and had lost their renowned commander Caractacus, they still continued undaunted and implacable; and by their bold and frequent attacks, they at length broke the heart of the brave Offorius. But all their efforts were at last in vain. They were repulsed by Aulus Didius, further weakened by Petlius Cerealis, and at last totally subdued by Julius Frontinus, in the reign of Vespasian. As the Romans had found great difficulty in subduing the Silures, so they took great pains to keep them in subjection, by building strong forts, and planting strong garrisons in their country. One of the most considerable of these fortifications, and the capital of the whole country, was Ica Silurum, now Caerleon, on the river Wifk, in Monmouthshire. Here the second legion of the Romans, which had contributed greatly to the reduction of the Silures, was placed in garrison (as some antiquaries have imagined) by Julius Frontinus, to keep that people in obedience. It is however certain, that this legion was very early, and very long stationed at this place. Ica Silurum was, in the Roman times, a city not only of great strength, but also of great beauty and magnificence. This is evident from the description which is given us of it by G-raldus Cambrensis, in his topography of Wales, several ages after it had been destroyed and abandoned. "This (Caer Leon, or the city of the legion) was a very ancient city, enjoying honourable privileges, and was elegantly built by the Romans, with brick walls. Many vestiges of its ancien splendour are yet remaining; stately palaces, which formerly, with their guided tiles, displayed the Roman grandeur. For it was first built by the Roman nobility, and adorned with sumptuous edifices; also an exceeding high tower, remarkable hot-baths, ruins of ancient temples, theatres encompassed with stately walls, partly yet standing. Subterraneous edifices are frequently met with, not only within the walls (which are about three miles in circumference) but also in the suburbs; as aqueducts, vaults, hypocausts, flaves, &c." This description of Caer-Leon was composed in the twelfth century, and therefore we have no reason to be surprized that its present ruins are now so entirely destroyed, that they are hardly discernible. On the banks of the river Wifk, besides Ica Silurum, there stood two other Roman towns; Burrium, now Usk, and Gobannium, now Abergavenny. Venta Silurum, now Caer-Gwent, near Chepilow, in Monmouthshire, was also a considerable Roman town, of which there are some faint vestiges still remaining. Blestum, in the thirteenth journey of Antoninus, is supposed to have been situated at Monmouth and Magna, in the twelfth journey, at Kencheller, or as others think, at Ledbury, in Herefordshire. When the Roman territories in Britain were divided into five provinces, the greatest part of the country of the Silures was in that province which was called Britannia Secunda. Henry's Hist. vol. i.

**SILURUS**, in Ichthyology, a genus of fishes of the order Abdominales, of which the generic character is as follows: The head is naked, large, broad, and compressed; the mouth is furnished with cirri, resembling the feelers of insects; the gape is very large, extending almost the whole length of the head; the lips are thick, jaws furnished with teeth; the tongue thick, smooth, and very short; the eyes are small; the gill-membrane is characterized with from four to seventeen rays; body elongated, compressed, without scales, mucous; lateral line near the back; the first ray of the dorsal or pectoral fins serrate, with serrated spines. There are twenty-eight species, divided into sections, according to the number of their cirri, as follows: the fishes in section A have two cirri; in section B, four; in section C, six; in section D, eight; and in section E, the fishes are without cirri.

The name is of Grecian origin, and is derived from the words *σῖλης*, to move or shake, and *κίρυς*, a tail. It is given to this fish, from its remarkable quality of being almost continually moving its tail in the water.

**Section A. Two Cirri.**

**Species.**

**Militaris.** The specific character of this is, that its second dorsal fin is fleshy; cirri bony, toothed. It inhabits many rivers in Asia; feeds on smaller fishes, and grows to a large size. It is from twelve to eighteen inches long; the head and fore-parts are broad and depressed; the mouth is very wide; the teeth are small and numerous; the eyes are large; on each side the head, near the nostrils, a very strong subcerebrum, spine, or bony process; first ray of the dorsal fin excessively large, strong, and sharply serrated, both on the middle part and towards the tip; the tail slightly bilobate, with rounded lobes. It is a native of the Indian rivers.

**Inermis.** Second dorsal fin fleshy; fins unarmed. It inhabits the rivers of Surinam. This is differentiated by some naturalists from the sublivesibale Silurus. It is transferrably banded with brown spots, with unarmed fins, and flexuous lateral lines. It is about twelve inches in length; the head is bony, but smooth, and it is destitute of spinous processes. It is a native of the Indian and South American rivers.

**Section B. Four Cirri.**

**Species.**

**Asotus.** The back of this fish has only one fin; it inhabits Asia; there are two cirri above the mouth, and two beneath; the teeth are numerous; the dorsal fin is without spinous rays; the first ray of the pectoral is serrate; the anal fin is long, and connected with the caudal.

**Chilensis.** Second dorsal fin fleshy; the tail is lanceolate; it inhabits the fresh waters of Chili; it is about ten inches long; the body is brown; beneath it is white. The flesh is said to be excellent.

**Bagre.** Second dorsal fin fleshy; first ray of the dorsal and pectoral fins setaceous. It inhabits South America.

**Calliglythis.** Second dorsal fin one-rayed; a double row of scales on the sides. It inhabits the small running streams of Europe, and when these are dried up, it crawls across meadows in search of water; it is said to perforate the sides of referrers, for the purpose of making its escape.

**Section**
SILURUS.

Section C. Sea Cms.

Species.

Clavus, or European Silurus. This is also called the great or common silurus, and may be considered as the largest of all European rivers, on which, growing, till it attains, to the length of about eight, nine, or even fifteen feet, and to the weight of 6, 7, or 8; Beyond its true general length, however, it is not very thick. The head is broad and depressed; the mouth black, of a long horizontal form, with the lower jaw very thick and short. It is of a rugged, dirty brown, with a blackish-blue spot on the upper side, and composed of a number of long, slender blackish cirri, which are attached towards the tail, and the sides of the upper part of the river which it frequents; with the pectoral fins, webbed, of toes, rocks, legs, or other similar limbs. In this situation, or姿态, with its considerable height, and only a very short tail, the fish is reduced, and becomes a ready prey to the fishers. The color of this species is dark olive, variegated with regular spots of black; the abdomen and lip are of a pale flesh-colour, and the fins are tinged with violet. It is an inhabitant of the larger rivers of Europe, as well as the parts of Asia and Africa, but it appears to be most plentiful in the north of Europe. It is not much esteemed as food; the flesh being of a glutinous nature; but from its cheapness, it is in much request among the interior ranks of society, and eaten either fresh or salted. The skin, which is smooth, and distensible of apparent scales, is cried and stretched, and after rubbing with oil, becomes of a beauty transparency and strength, and is used in some of the northern regions instead of glasses for windows.

The silurus is not a very prolific fish, depositing a small quantity of spawn, consisting of large globules, or ova; these, as well as the newly hatched young, are frequently the prey of other fishes, frogs, &c., and thus the great increase of the species is prevented. The ova are said to be hatched in about a week after their emission.

Electricals. The dorsal fin is single and fleshy. The head is depressed; the eyes are moderate, covered with the common skin; the teeth are crowded, small, and sharp in each jaw; the nostrils are very minute; each side approximate; upper lip bearded with two cirri, the lower with four, of which the exterior ones are longer. It inhabits the rivers of Africa. It is about twenty inches long; the body is long and broad on the fore part, depressed, pale ash-colour, with a few blackish spots towards the tail; when touched, it communicates a tripping shock, attended with a sort of trembling and pain in the limbs, but less violent than that given by the Torpedo, which bee. The flesh of the electrical silurus is eatable.

Felix. The second dorsal fin of the fish of this species is fleshy; it has 25 anal rays; the tail is bifid. It inhabits Carolina; the body above is bluish.

Galeatus. The second dorsal fin of this fish is fleshy; it has 24 anal rays, and the tail is entire. It inhabits South America. The head is covered with a hard corneous shield; the spiny rays of the pectoral and dorsal fins are rigid.

Carinatus. Second dorsal fin fleshy; the lateral line is spiny; the cirri under the lower lip are connected. It inhabits Surinam; the body is compressed.

Nigricus. The second dorsal fin of this fish is fleshy; the anal rays are ten in number. It is found in the Nile; is fourteen inches and a half long; the body is of a brownish-grey; the sides of the head are bluish; the end of the nose, under part of the head, pectoral fins and cirri, are tinged with red; there is a semicircle of red fin at the commencement of the tail.

Columbus. Second dorsal fin fleshy; anal rays eleven. It inhabits in the rivers of South America and Africa; is from twelve to fifteen inches long; the body is of a blackish-grey, beneath it is white; the head is in high esteem; the head is depressed, rounded on the fore part; a third part as long as the whole body; the fins are all spotted with black.

Asita. The second dorsal fin is fleshy; it has eighteen and rays. It inhabits India, and appears to be of a mixed kind between permaris and viviparous.

Cataleptus. Second dorsal fin single; a single row of scales on the sides; the tail is bifid. It inhabits South America and India.

Ceratophysus. Second dorsal fin of one ray; a single row of scales on the sides; the tail is entire. It inhabits South America.

Section D. Eight Cirri.

Species.

Asperdo. Dorval fin single, five-rayed. It is found in the rivers of America. The base of the lateral cirrui broad; the back cirrus; the anal fin reaching to the tail; the tail is forked.

Mythus. The dorsal fin is single, and single-rayed. It inhabits the Nile; the tail is forked.

Anguillaris. Dorval fin single, seventy-rayed. It is found in the Nile; the upper part of the head is greenish; the body above the lateral line is marked with blackish and grey; the belly and lower jaw are of a reddish-grey; the pectoral fins are transversely divided by a broad red band.

Batracus. Dorval fin is single, and sixty-rayed. It inhabits Asia and Africa; the tail entire.

Undecimalis. The dorsal fin is single, and eleven-rayed. It inhabits Surinam; the tail is forked.

Catus. Second dorsal fin single, and twenty-rayed. It inhabits Asia and America.

Cous. Second dorsal fin fleshy, anal eight-rayed; tail forked. It inhabits Syria; the cirri are shorter than the head.

Docmac. Second dorsal fin fleshy, anal ten-rayed. The length of the fifth of this species is about three feet. It is of a grey colour, whitish beneath: the head is depressed; body convex above; mouth furnished with eight beards, the exterior ones of the upper lip extending half the length of the body; the lateral line is straight, and situated nearer the back than the abdomen; the first ray of the dorsal and anal fins long and forked, with flat tips. It is a native of the Lower Nile, towards the Delta.

Bajad. Second dorsal fin fleshy, anal twelve-rayed. It is about a foot in length; the colour is glaucescent; the head obtuse, depressed, and marked on each side, before the eyes, by an unequal pit or depression; the upper jaw is longer than the lower; exterior beards of the upper lip very long; lateral line at first descending, but straight; above the pectoral fins on each side is a very strong spine, forked in a reversed direction; the fins are radiant; the second dorsal or adipose fin is long; the tail is long, directed towards the tip, and forked. It is a native of the Nile.

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Section E. *Without Cirri.*

**Species.**

**Cornus**us. First ray of the first dorsal fin serrate; pectoral unarmed. It is not more than eight or nine inches long; the shape is oval; body carinated beneath; the fin is straight, compressed, a little recurved at the tip, and about half the length of the body; the first ray of the first dorsal fin extending as far as the middle of the tail, and serrated beneath for about half its length. It is a native of the Mediterranean.

**Imberbis.** The gill-covers with two spines on the hind part. It inhabits Japan, and is about six inches long; the body is funnel-shaped, reddish, and coated with scales. It is a native of the Indian and South American rivers.

**Silurus** is also a name given by some authors to the sturgeon, called by others *acipenser*, but by the generality of writers *florus*.

**Silurus Mons**, in *Ancient Geography*, a mountain of Hispania, in the vicinity of Beticca.

**SiliuuM**, a town of Aifa Minor, in the interior of Pamphylia. Ptolemy.

**Silvum**, in *Botany*, a name borrowed from Dioscorides, whose *coleos* is described as a large kind of thistle, eatable when young, if defried with oil and salt. A liquor, which exuded from its root, was given, in the dose of a drachm, mixed with water, to excite vomiting. Gartner, after Vaillant, has applied the name in quitation to a genus of his own, under which he brings together *Carduus marianus* and *Cnicus cernus* of Linnaeus, two very different plants.

**Sim**, in *Geography*, a river of Russia, which runs into the Yenisei; 6 miles N. of Balagovetschkenko; N. lat. 60° 10'. E. long. 90° 40'.

**Sim**, or *Cyma*, in *Architecture*, a term used by Wol- fius, and some other writers, for what we otherwise call *cymatum*, or *sinuam*.

**Simaba**, in *Botany*, the name of a shrub in Guiana, described by Aublet, 400. t. 153; for which, being barbarous, Schreber has substituted the more legitimate, if not more harmonious, one of *Zwingera*; fee that article hereafter.

**Simethus**, or *Simetus*, now *Giaretta*, or St. Paul, in *Ancient Geography*, a river in the eastern part of Sicily, which passed through the territory of the city of Leontini, and which was celebrated by the poets. The nymph Thalia, after her amour with Jupiter, is supposed to have been converted into this stream, which, to avoid the rage of Juno, sunk under ground near mount *Etna*, and continued this subterraneous course to the sea. In the time of the Romans it was navigable. It takes its rise on the N. side of *Etna*, and surrounding the west skirts of the mountain, falls into the sea near the ruins of the ancient Morganto. It does not now sink under ground; but throws up near its mouth great quantities of amber, which the peasants gather, and carry to Catanea, where it is manufactured in the form of croffes, beads, Saint's, &c. and is sold at very high prices to the superstitious people on the continent. There is a large sandy beach, that extends from the mouth of this river a great way to the S. of Catanea, and was, without doubt, continued the whole way to the foot of the mountain Tau-rimum; but it was broke in upon, at a remote period, by the lavas of *Etna*, which, from a low sandy shore, have now converted it into a high, bold, black iron coast.

After piercing through the lava, beds of shells and sea-fand have been discovered.

**Simalisceva**, in *Geography*, a town of Russia, in the government of Kolivan; 40 miles S.S.E. of Kolivan.

**Simana**, in *Ancient Geography*, a town of Aifa, in Bithynia, situated between two rivers.

**Simancas**, in *Geography*, a small town of Spain, in the province of Leon, near the confluence of the rivers Piuerga and Duero, celebrated for a white wine, that is very much esteemed. In the time of Philip II. it was a strong place, in which he ordered the archives of the kingdom to be kept. It was taken by the Moors in the year 967; 8 miles S.W. of Valladolid.

**Simar**, a town of Hindoostan, in the circuit of Gohud; 14 miles E. of Gohud.

**Simara**, one of the smaller Philippine isles; 24 miles E. of Mindanao. N. lat. 12° 5'. E. long. 121° 49'.

**Simaria**, a town of Naples, in Calabria Ultra; 4 miles N.E. of St. Severina.

**Simaroma**, a name given by the Spaniards in America to a species of vanilla, called also *bagourd-vanilla*. The pods of this kind are every way smaller than those of the true kind, and have very little liquor or pulp in them when broken and contain very few seeds. These are greatly inferior to the true kind, having scarcely any smell. It is not yet certainly known whether this species be the fruit of a different kind of vanilla-plant from the common, or whether it be the fruit gathered at a different season, or from a plant growing in a different soil. See *Vanilla*.

**Simarones**, in *Geography*, a town of the island of Cuba; 105 miles E. of Havanna.

**Simaruba**, or *Simaruba*, in *Botany*, is the bark of the roots of a tree, first imported into Europe in the year 1715, but not long ago botanically ascertained to be a species of the *Quassia*; which fee.

**Simarouba**, or *Simarriba*, in *Materia Medica*. This bark, according to Dr. Wright's account of it, is rough, scaly, and wanted. The infuse, when fresh, is a full yellow, but when dry, paler: it has but little smell: the tafte is bitter, but not disagreeable. Macerated in water, or in rectified spirit, it quickly impregnates both menstrua with its bitternefs, and with a yellow tincture. It feems to give out its virtue more perfectly to cold, than to boiling water; the cold infufion being rather stronger in tafte than the decoction; which, left, of a tranparent yellow colour whilft hot, grows turbid and of a reddifh-brown as it cools. The milky appearance, which Juffieu fays it communicates to boiling water, Dr. Wright has not obferved in the decoction of any of the fpecimens which he has examined.

The bark was first fent from Guiana to France, in 1713, to the count de Porchertrain, then fecretary of flate, as a remedy of great efteem in dysentery. In the years 1718 and 1723, an epidemic flux prevailed very generally in France, which refifted all the medicines usually employed in fuch cafes; small doses of ippecacua, mild purgatives, and all afftringents, were found to aggravate, rather than to re- lieve, the difafe: under these circumftances, recourse was had to the bark simaruba, which proved remarkably succifeful, and firft eftablifhed its medical character in Europe. Dr. Wright fays, "'t molt authors who have written on the simaruba, agree, that in fluxes it refores the left tone of the intertines, allays their fpasmodic motions, promotes the fcrotions by urine and perifpiration, removes that lownefs of spirits attending dysenteries, and difpoles the patient to sleep; the gripes and tenefmus are taken off, and the floofs are changed to their natural colour and confiftence. In a moderate dose it occasions no disturbance or uneafinefs, but in large doses it produces ficknefs at the stomac and vomiting."

*Modern*
Modern physicians have found from experience, that this medicine is only successful in the third stage of dyestery, where there is no fever, where too the flux is no way hurt, and where the gripes and tenesmus are only continued by a weakness of the bowels. In such cases, Dr. Mann gave two or three ounces of the decoction every five or six hours, with four or five drops of laudanum; and found it a very useful remedy. The late Dr. T. Punge, Dr. Hock Saunders, and others, preferred the cortex fumaruba in old and obstinate dysesthsias and diarrhœas, especially those brought from warm climates. Fluxes of this sort, which were brought home from the hedges of Martinique and the Havannah, were completely and speedily cured by this bark.

The urine, which in these cases had been high-coloured and scanty, was now voided in great abundance, and peroration restored. Dr. James Lind, at Haslar Hospital, says, that the fumaruba produced these effects sooner, and more certainly, when used in such quantity as to nauseate the stomach. Dr. Hock Saunders remarks, that if the fumaruba did not give relief in three days, he expected little benefit from its farther use, but others have found it efficacious in fluxes, after a continued use for several weeks. My own experience, and that of many living friends, are convincing proofs to me of the efficacy of this medicine, and I hope the fumaruba bark will soon be of more general use."

Dr. Wright recommends two draughts of the bark to be boiled in twenty-four ounces of water to twelve; the decoction is then to be strained and divided into three equal parts, the whole of which is to be taken in twenty-four hours, and when the fumaruba is reconciled to this medicine, the quantity of the bark may be increased to three draughts.

To this decoction some join aromatics, others a few drops of laudanum to each dose.

Dr. Cullen says, that the virtues ascribed to fumaruba have not been ascertained by his own experience, or that of the practitioners in Scotland. Wood's Med. Bot.

SIMAROW, in Geography, a town of Hindooistan, in Bahar; 13 miles S.S.W. of Arrah.

SIMARUM MUSCULUS, in Anatomy, a name given by some of the old writers to a muscle, called by the moderns the ferratus magnus.

SIMAS, in Ancient Geography, a promontory in the Euxine sea, on which Venus had a temple.

SIMATIUM, or SIMATESE, in Architecture. See Cymatium.

Simatium and cymatium are generally confounded together, yet they ought to be distinguished; the latter being the genus, and the former the species.

Simatum, of Sima, camous, according to Celsius, is the leaf and uppermost member of grand cornices, called particularly the great doucie, or guila reta; and by the Greeks, epigastia.

In the antique buildings, the simatum, at the top of the Doric cornice, is generally in form of a cavetto, or femfis; as we see particularly in the theatre of Marcellus. This form modern architects have imitated; but, in the Ionic order, the simatum is always a doucie.

The simatium, or doucie, then, is distinguished from the other kinds of cymatia, by its being camous or flat-nosed.

SIMBALATH, in the Materia Medica, a name given by Avicenna and others to the spikenard, or nardus Indica.

The exact interpretation of the word is spigerica, and Avicenna, under this general name, distinguishes it into several kinds; the first he calls abardin, or nardin. It has been supposted by some that he means the Indian spikenard by this word; but, on the contrary, it appears plainly that he means the Celtic nardus: he calls it: the nardus Ranna, and says that it is of European growth. After this he mentions the Asiatic nardus of several kinds, which is the Indian spikenard, growing in different places, and each as used to be brought thence in different degrees of perfection.

SIMBANAI, in Geography, a tract of country in Asia, adjoining with woods, and uncultivated, lying between the kingdom of Wushih to the north-west, Fouta Terr to the north, Bandou to the north-east, and Tenda to the south-west.

SIMLING, a town of Atesta, in Ludamar; 5 miles S.W. of Jarra.

SIMELSK, a town of Roffia, and capital of government, on the Volga; 385 miles E.S.E. of Moscow. N. lat. 54° 25'. E. long. 48° 30'.

SIMBERSKOE, a government of Russia, bounded on the north by Kazan, on the west by Nizhgorodskoe and Penzeuskoe, on the south by government of Saratov, and on the east by Uplinskoe; about 180 miles from east to west, and 140 miles from north to south. N. lat. 52° 20' to 55° 30'. E. long. 45° to 51°.

SIMBOLAN, a town of South America, in the province of Tucuman; 85 miles S.E. of Rioja.


Def. Ch. Stem annual, a foot high, simple, slender, erect, round, with some appearance of angles. Leaves scattered, near to each other; linear, thread-shaped: the upper ones simple, half an inch long; lower an inch long, in two deep, pointed, smooth divisions. Calyx terminal, four inches in length. Flowers solitary, drooping, on short stalks, with a short, linear, leafy bracteae under each. Calyx a perianth of one leaf, bell-shaped, permanent, in five linear equal segments. Corolla of one petal, ringent, white; tube bell-shaped, longer than the calyx; upper lip of the limb reflexed, cloven; lower long, three-lobed, straight, its middle lobe reflexed. Filaments four, inserted into the corolla, two of them long. Anthers four, black, united into a quadrangular compressed plate. German ovate. Style thread-shaped. Stigma capitate, ovate, nearly globose, oblique. Fruit not observed. The aspect of the plant is exactly that of a Refeds or Polygala; it moreover approaches the character of Columnea, as to the combined anthes, but differs in many other respects." Found on mount Kurma, and no where else, by Forskall, whose description has not enabled any learned botanist to guess at the plant, except that Jussieu thinks it may be akin to Vironica, or to Aublet's Pinipes. We should rather suspect an affinity to Anthericum.

SIMCOE LAKE, in Geography, a lake of Upper Canada, formerly lake Aux Claires, situated between York and Guelph, and communicating with Lake Huron. It has a few small islands, and several good harbours.

SIMELLIUM, a Latin term used by some to signify a table, with ranges of little coverets in it, for the disposing of medals in chronological order. The word is bis ill written; it should rather be simelium, as being formed of the Greek simelion, curiosities, or a cabinet of precious things.

We more usually say, a cabinet of medals, than a simelium.

SIMENA.

SIMENAU, in Geography, a town of Paphia, in the province of Oberland; 8 miles E. of Salced.

SIMEON, in Scripture Biography, a son of Jacob and Leah, born in the year 1775 B.C. (Gen. xxix. 37.) Simeon and Levi revenged the affront, sustained by the defilement of their half-sister Dinah on the part of Schechem, the son of Hamor, by entering the town of Schechem, and killing all the men they found; after which they brought away Dinah, in the year 1739 B.C. (Gen. xxxiv. 25.) It has been thought that Simeon was the most cruel to his brother Joseph, and that he advised his brethren to sell him. (Gen. xxxvii. 20.) The conjecture is founded on the circumstance of his being a retained prisoner in Egypt (Gen. xlix. 24.), and of his being treated with greater rigour by Joseph than the rest of his brethren. Jacob, on his death-bed, manifested peculiar indignation against Simeon and Levi. (See Gen. xlix. 5.) Accordingly the tribes of Simeon and Levi were dispossessed in Israel. Levi had no compact lot or portion; and Simeon received for his portion only a district dismembered from the tribe of Judah (Joth. xix. 1, 2, &c.), and some other lands which were over-run by those of this tribe on the mountains of Seir, and in the defart of Gedor. (1 Chron. iv. 24. 39. 42.) The Targum of Jerusalem, and the rabbins, who have been followed by some of the fathers, have affirmed, that the greater part of the scribes and men learned in the law were of this tribe; and as these were dispersed throughout Israel, we perceive the accomplishment of Jacob’s prophecy, which foretold that Simeon and Levi should be scattered among their brethren. It has been suggested, however, that the dispersion of Simeon and Levi, which Jacob meant to be a degradation, was in the progress of events over-ruled so as to be an occasion of honour; for Levi had the priesthood, and Simeon had the learning or writing-authority of Israel; in consequence of which both these tribes were honourably dispersed throughout Israel. According to the testament of the twelve patriarchs, a book indeed of no authority, Simeon died at the age of 120 years.

The sons of Simeon were six, and are enumerated Exod. vi. 15. Their descendants amounted to 59,300 men, at the Exodus (Num. i. 22.) but the number of those that entered the Land of Promise amounted only to 23,200, the rest having died in the desert. (Num. xxxvi. 14.) The portion of Simeon was well and south of that of Judah; having the tribe of Dan and the Philistines north, the Mediterranean west, and Arabia Petrae south. Joth. xix. 1—9. Calmet.

Simeon is also the name of that aged and pious person, mentioned Luke, ii. 25, 26, to whom Jesus Christ was presented by his parents in the temple, and who pronounced upon them his blessing. It is believed, with good reason, that he died soon after he had borne his testimony to Christ. Some, indeed, have pretended, that this Simeon was the same as Simeon the just, the son of Hillel, and master of Gamaliel, whose disciple St. Paul was.

Simeon, or Simon, was also the name of our Lord’s cousin-german, son of Cleophas and of Mary, the sister of Christ’s mother, probably the same with him who is named Simon by St. Mark (ch. vi. 3.) He was probably one of our Lord’s first disciples. -According to Eusebius, he was unanimously elected bishop of Jerusalem, after the death of St. James, A.D. 62. When the emperor Trajan made strict inquiry for all who were of the race of David, Simon was accabloue A'ticus, the governor of Palestine; and having endured many sufferings with a fortitude which astonished observers, at the age of 120 years, he was crucified about A.D. 107; so that he had superintended the church of Jerusalem about 43 years. The Latins place his feast February 18, the Greeks April 27.

Simeon, in Biography, the son of Jochai, a very celebrated man among the Jews, was a scholar of the rabbi Akiba, and flourished about the year 120. At the insurrection excited by Barchocheba, he fled, through fear of the Romans, and retired to a cave, where he concealed himself twelve years, in the course of which he is said to have composed his works, entitled “Sohar,” which is an expansion of the five books of Mosis. This, from its abstract manner, and the matter being clothed, according to the Egyptian method, in hieroglyphical images and very florid language, is not easily understood. There are several editions of it, but its exact age is not known. It contains things that are very old; but it is admitted by Christians, as well as Jews, who held it in esteem, to be the production of more authors than one, and to have been enlarged, from time to time, by various additions. Gen. Biog.

Simeon, surnamed Metaphraxes, an ecclesiastical writer, lived in the tenth century, under Leo the philosopher and his son Constantine Porphyrogenitus. He was a native of Constantinople, and rose to high employments at court, having been secretary to the emperors, and the medium of communication between them and foreigners. His writings indicate a man conversant in ecclesiastical affairs. He derived his surname of Metaphrastes, or Translator, from his occupation of writing again, in a different style, not transplanting, the lives of the saints. In this business he evidently meant to give a panegyric, rather than a true history: whence he has made additions and alterations at pleasure, so that the subjects are represented not as they were, but as he imagined they ought to be. His “Lives of the Saints” have several times been translated into the Latin language. Simeon likewise composed sermons, hymns, and prayers, with various pieces of the religious kind, of which some have been printed, and others remain in manuscript.

Simeon, named Stylites, a distinguished person in the annals of fanaticism, was born about the year 392 at Sifon, a town on the borders between Syria and Cilicia. He was the son of a shepherds, and followed the fame occupation to the age of thirteen, when he entered into a monastery. After some time he left it, in order to devote himself to a life of greater solitude and austerity, and he took up his abode on the tops of mountains, or in caverns of rocks, fasting sometimes, it is said, for weeks together, till he had worked himself up to a due degree of extravagance. He then, to avoid the concourse of devotees, but probably to excite still greater admiration, adopted the strange fancy of fixing his habitation on the tops of pillars, whence the Greek appellation; and with the notion of climbing higher and higher towards heaven, he successively migrated from a pillar of 6 cubits to one of 12, 20, 36, and 40. This feat was considered as a proof of extraordinary anxiety, and multitudes flocked from all parts to pay their veneration to the holy man, as he was denominated. Simeon palled 47 years upon his pillars, exposed to all the inclemency of the seazons. At length a horrible ulcer put an end to his life, at the age of 69. His body was taken down from his last pillar by the hands of bishops, and conveyed to Antioch, with an escort of 6000 soldiers; and he was interred with pomp equal to any thing that had been displayed for the most potent monarchs. He has been enrolled among the saints, either in the Greek or Latin churches. These honours produced imitators, whose performances surpassed the original. One of them inhabited his pillar 68 years.

8 The
The madder remained in vogue till the twelfth century, when it was supplanted.

SIMON BEN JOCHAI. See CARRARA.

SIMERCEHLT, in Geography, a town of Bohemia, in the circle of Bollelaw; 4 miles N. of Melnik.

SIMEREN, a river of Syria, which runs into the Euphrates, at Rojekia.

SIMERING, a town of Austria; 4 miles S.S.E. of Vienna.

SIMI, or Simi, an island in the Mediterranean, between the island of Rhodes and the continent of Asia; 6 miles N. of Rhodes. N. lat. 36° 10'. E. long. 37° 34'.

SIMIA, in Natural History, a genus of the clava and order of Mammalia Primates, of which the generic character is, that the individuals have four front teeth in each jaw, which are approximate; the tusk is shorter, longer, and more remote; the grinders obtuse. The animals of this genus greatly resemble man in the uva, eye-lashes, hands, feet, fingers, toes, nails, and other parts of the body; they, however, differ widely in the total want of reason: they have retentive memories, are imitative, and full of gesticulations; chatter with their teeth, and grin; they macerate their food in the cheeks before they swallow it: they are filthy, lascivious, thieves, gregarious, and the prey of leopards and serpents, the latter pursuing them to the summits of trees and swallowing them entire.

This race of animals, which is very numerous, is almost confined to the torrid zone: they fill the woods of Africa, from Senegal to the Cape, and thence to Ethiopia: a single species is found beyond that line, in the province of Barbary: they are found in all parts of India, and its islands; in Cochinchina, in the south of China, and in Japan; and one kind is met with in Arabia: they swarm in the forests of South America, from the sierras of Darien as far as Paraguay.

These animals, from the structure of their members, have many actions in common with the human kind; most of them are fierce and untameable; some arc of a milder nature, and will have a degree of attachment: they feed on fruits, leaves, and insects; inhabit woods, and live in trees: they go in large companies. The different species never mix with each other, but always keep apart: they leap with great activity from tree to tree, even when loaded with their young, which cling to them: they are not carnivorous, but, for the sake of mischief, will rob the nests of birds of the eggs and young: and it is observed, that in those countries where apes most abound, the feathered tribe discover singular sagacity in fixing their nests beyond the reach of these invaders.

Mr. Ray first distinguished the animals of this genus into three classes, viz. the simia, or apes, such as want tails; the cercopitheci, or monkies, such as had tails; and papionces, or baboons, those with short tails.

From Ray, Linnaeus formed his method, which was followed by M. de Buffon, who made a farther sub-division of the long-tailed apes, or true monkies, into such as had prehensile tails, and such as had not.

The genus is divided into the following sections:

Section A. Apes without any tail.

— B. Baboons with short tails.

— C. Monkies. Tails long, not prehensile; cheeks pouched; haunches naked.

— D. Sapajous. Tails prehensile; no cheeks pouched; their haunches are covered.

— E. Sagoons. Tails not prehensile; no cheeks pouched; haunches covered.

Of the whole genus, says Dr. Shaw, it may be observed that the baboons are uniformly of a less size, and well disposed. The larger apes are also of a less useful temper, except the orang-outang and the gibbons. The monkies, properly so called, are extremely various in their disposition: some of the smaller species are lively, harmless, and entertaining; while others are as remarkable for the mischievous malignity of their temper, and the capricious uncertainty of their manners. It is no easy task to determine with exact precision the several species of this extensive genus; since, exclusive of the varieties in point of colour, they are often nearly allied, so as to make it difficult to give real and distinctive characters. We shall, as usual, follow Gmelin’s Systema Naturae of Linnaeus, in which there are sixty-four species delineated.

Section A. Apes without Tails.

Species.

THOUGHTINES, of Angola Ape. The generic character is, that the head is conic, body brawny, back and shoulders hairy, the rest of the body smooth.

SATYRUS; Orang-outang. Ruddy-brown, hair of the forehead reversed, haunches covered. Befides this there are two varieties: 1. Without cheek-pouches, or callosities on the haunches. This variety always walks erect. Its trivial name is Pongo. It inhabits Java and Guinea, and is from five to six feet high. 2. The other variety resembles the former, but is above half as high: it is docile, gentle, and grave, and by some thought to differ from the other only in age.

Of these animals, the species which has most excited the attention of mankind is the orang-outang, or, as it is often denominated, the satyr, great ape, or wild man of the woods. It is a native of the warmer parts of Africa and India, and also of several of the Indian islands, where it resides principally in the woods, and is supposed to feed, like most other of this genus, on fruits. The orang-outang appears to admit of considerable variety in point of colour, size, and proportion; and there is reason to believe, that in reality there may be two or three kinds, which, though nearly approximated to general similitude, are yet specifically distinct. The specimens imported into Europe have rarely exceeded the height of two or three feet, though full-grown ones are said to be six feet in height. The general colour seems to be of a dusky brown; the face is bare; the ears, hands, and feet nearly similar to the human; and the whole appearance is such as to exhibit the most striking approximation to the human figure. The likeness, however, is only general, and will not bear the test of examination; and the structure of the hands and feet, when observed with anatomical correctness, seems to prove that the animal was principally designed by nature for walking on four legs, and not for an upright posture, which is only occasionally assumed, and which is thought to be the effects of instruction rather than truly natural.

The manners of the orang-outang, when in captivity, are gentle, and perfectly void of that divulging ferocity which is often conspicuous in some of the larger baboons and monkies. It is mild and docile, and may be taught to perform a variety of actions in domestic life. But, however docile and gentle when taken young, and instructed in its behaviour, it is possessed of great ferocity in its native state, and is considered a very dangerous animal, capable of readily overpowering the strong man. Its swiftness is equal to its strength; and hence it can rarely be obtained in its full-grown state.
M. Volfnaer's account of the manners of the orang-outang brought into Holland in 1776, and presented to the prince of Orange, is nearly as follows. It was a female, about 2½ Rhenish feet. It th ewed no symptoms of fierceness and malignity, and was of rather a melancholy appearance. It was fond of company, and th ewed a marked preference to those who took daily care of it, of which it seemed very sensible. When the company retired, it would frequently throw itself on the ground, as if in despair, uttering lamentable cries, and tearing in pieces the linen within its reach. Its keeper having sometimes been accustom ed to fit near it on the ground, it took the hay off its bed and laid it by its side, and seemed, by every demonstration, to invite him to be seated near. Its usual manner of walking was on all fours, but it could walk on its two hinder feet only. One morning it got unchained, and was seen to ascend the beams and rafters of the building with wonderful agility, and it was with the utmost difficulty retaken and secured. During its state of liberty it had taken out the cork from a bottle of Malaga wine, which it drank to the last drop. It would eat every thing that was offered, but was not observed to hunt for insects like other monkeys; it was fond of eggs, but fifth and roasted meat seemed its favourite food. It had been taught to eat with a spoon and fork. Its common drink was water, but it would drink any kind of wine. At the approach of night it lay down to sleep, and prepared its bed by shaking well the hay on which it slept, and putting it in proper order, and laffy covering it with a overlet. This animal lived seven months in Holland. On its first arrival, it had but little hair, except on its back and arms, but on the approach of winter it became well covered, and the hair on the back was full three inches long. The whole animal then appeared of a chestnut-colour; the skin of the face, &c, was of a moufle-colour, but about the eyes and round the mouth it was of a dull fhef colour. It was imported from the island of Borneo. See orang- outang.

In Dr. Gmelin's edition of the Syllena Natura, fays Dr. Shaw, the smaller variety, or the jockey, in its left flabby or more naked state, is given as a distinct species under the name of S. tragalodes. The print published many years past, by the name of Chimpanzee, is of this kind. (See Chimpanzee.) The animal described in the 35th volume of the Phil. Trans. is by Gmelin referred to the orang-outang; but Mr. Pennant describes it under the title of Golek. It has a pointed face; long and flender limbs; arms, when the animal is upright, not reaching lower than the knees; head round, and full of hair; grows to the height of a man. It inhabits the forests of Mewa, in the interior parts of Bengal. In its manners it is gentle and modest, distinguished from the orang-outang by its slender form. In colour it is entirely black. In the Philological Transacti ons the description is as follows. "The animal is said to be the height of a man, the teeth white as pearls; the arms in due proportion, and the body very gentle."

Lab, or long-armed Ape, has its haunches naked; its arms as long as its body; it is found in India, is gentle, slothful, impatient of cold and rain, and is four feet high. There are two other varieties, of which the first is about eighteen inches high, the face and body brown. The second has its body and arms covered with silvery hair; the face, ears, crown, and hands, are black. It inhabits the forests of Deval, in Bengal; is playful, gentle, and elegant; about three feet high. The lar, or, as it is sometimes denominated, the gibbon, is distinguished by the length of its arms, which, when the animal stands upright, are capable of touching the ground with its fingers; hence its trivial name. Notwithstanding the apparent ferocity of the lar, and the deformity of its figure, which is extremely well given by Dr. Shaw, it is of a tractable and gentle nature, and has even been celebrated for the decorum and modesty of its behaviour. Considered with respect to the rest of the genus, it ranks among the genuine apes, or those which have not the leath velvety of a tail; and, says the naturalist already quoted, alarms the fear of mankind, by too near an approach to the real primates of the creation.

Sylvanus; Pigmy. Haunches naked; head roundish; arms shorter. It inhabits Africa and the island of Ceylon; is mild and easily tamed; it uses threatening gestures when it is angry, challengers when pleased, falutes after the manner of the Hottentots, and drinks from the palm of the hand. The face is short and flat; the forehead tranferfully projecting at the regions of the eye-brows; the skin is rough; the hair on the neck and fore-arms revered; it is about eighteen inches high.

Nimus; denominated by Buffon the Magot, and by Pennant the Barbary Ape. Its haunches are naked, and the head oblong. Habits Africa; is fond of the open air, deformed, dirty, and melancholy. It a good deal resembles the S. sylvanus, but its fnaus is longer, colour paler, nails rounded, and is about three feet and a half high. This is what is commonly seen in the exhibition of such kind of animals; it is not remarkable for docility or good temper; but, by force of discipline, it is made to exhibit a greater degree of intelligence than many others. Its colour is an olivaceous-brown, paler or whiter beneath; the face is of a swarthly flesh-colour. The hands and feet have nails resembling the human. It is deft of any real tail, but there is commonly a short skinny appendix in the place of one.

This animal inhabits many parts of India, Arabia, and all parts of Africa, except Egypt, and a small number is found on the hill of Gibraltar, which breed there. These apes are very ill-natured, mischievous, and fierce, agreeing with the character of the ancient cynocephali; they are often exhibited to play tricks; assemble in great troops in India; and will attack women going to market, and rob them of their provisi ons. The females carry their young in their arms, and will leap from tree to tree with them.

Nemestrina; Beard thin; colour grey; eyes hazel; haunches naked. It inhabits Sumatra and Japan; is lively, gentle, tractable, and impatient of cold. The face is naked and tawny; the nose is flat; lips thin, with hairs resembling whiskers; hair on the body olive-black; belly reddish-yellow; it is about two feet high. This species is figured by Mr. Edwards, who was in possession of the living animal, and who, in order to compare his specimen with a much larger animal of the same species, carried it to Bartholomew fair, and he said they seemed highly delighted with each other's company, though it was the first time of their meeting; the best figure of this species is said to be that given by Buffon.

Apeida; Little Baboon. Thumb close to the fingers; nails oblong, thumb-nails rounded; haunches covered. This is an inhabitant of India. The nails are oblong and compressed, except the thumb and great toe-nails, which resemble those of a man; the tail is scarcely an inch long; the face is brown, with a few fattered hairs.

Simia; Great Baboon. Mouth with whiskers; nails acuminate; haunches naked. This is found in the island of Borneo; it is laicous, robust, and fierce; it feeds on frutta.
It is chiefly fed on leaves and seeds; it makes great havoc in the produce of cultivated lands. "The head is oblong, reflecting that of a dog, but more obtuse; the neck is long; the tail is short and everted; the cheeks are red, edged with purple; it is from three to four feet high in its sitting posture. It is extremely fierce and will attack its preserver, and it is much larger than its fields. It is also very destructive to the crops, and its appearance has been described as grotesque and formidable. The region surrounding the tail is of a considerable size on each side and callous. It is a native of Bar neo, and inhabits the hotter parts of Africa.

MOMENIUS: Tufted Ape. Beard thin; cheeks tumid, naked, blue, obliquely furrowed; hairs naked, red. It inhabits India. Its, an upright posture, is full five feet high. It is the most remarkable of the whole genus for brilliancy and variety of colour. The general tinge is a rich and very deep yellowish-brown; the hair, if viewed near, are speckled with yellow and black. The form of the face is large, and with the front ending somewhat abruptly; the whole length of the nose, down the middle, is of a deep blood-red; but the parts on each side are of a fine violet-blue, marked by several oblique furrows. The remainder of the face is of a pale bluish-yellow. On the top of the head the hair rises, in a remarkable manner, into a pointed form, and beneath the chin is a pointed beard of a light-orange-yellow. Round the back of the neck the hair is much longer than in other parts, and inclines downwards and forwards, somewhat in the manner of a wreath or tippet. The hands and feet are of a dusky colour, and are furnished with broad pointed claws. It is a native of the interior parts of Africa, but has been found in India.

MADRASIAN: Ribbed-noose Ape. Beard thin; cheeks blue, flat; haunches naked. It inhabits Ceylon. It washes and grooms like men, when in trouble; it is libidinous, ugly, and disgusting. The general likeness which it bears to the former species is such as to give the idea of the same animal in a less advanced state of growth, and with less brilliant colours. The chin is furnished with a small sharp-pointed beard of a pale orange-colour. The feet are armed with claws, and have no flattened nails. This baboon is not uncommon in exhibitions of animals.

FORCARIUS: Hog Baboon. The head of this species resembles that of a hog; the snout is naked; the body of an olive-brown; the haunches are covered, and the nails are acuminate. It is said to be three feet six inches in length; its colour is of a deep olive-brown; the face is large and black; the nose is truncated at the end, somewhat like that of a hog.

SYVATICA; Wood Baboon. Face, hands, and feet naked, black, smooth; nails white. It inhabits Guinea, and is about three feet high. It is of a robust frame. Its general colour is ferruginous, owing to the alternate black and brown rings with which every hair is marked, and which give a kind of speckled appearance to the whole. The nails on the hands are long, but rounded at their extremities; those on the toes longer and acuminate. The face on each side the tail is large, bare and red; the tail is about three inches long.

VARIEGATA; Yellow Baboon. This species is of a bright yellow colour mixed with black; the face is long, black, naked; the hands are covered on the back with hair. It very much resembles the Sylvia, and is found in Africa. Above the eyes are several long dusky hairs: it is about two feet high.

CINEREA; Cinerous Baboon. The face of this is dusky; the beard is of a pale brown; the crown is variegated with yellow; the body is brown. It is found in divers parts of Africa, and is about two feet high.

LAVEA; Blue-faced Baboon. The face of this species is bluish; it has two broad flat ears behind; the beard is pale brown. Over the eyes are long hairs; the ears with a tuft of hair behind each; the hair is black mixed with a yellow-brown; this is three feet high.

PROCTES; Brown Baboon. The face is of a dirty white, furrowed with faint bright yellow. The upper part of the body is brown; under ears; tufted, almost bare; it is naked beneath. This species, according to La Cépède, is the same with the long-legged baboons described in the addition to Buffon. The figure there given is the same that in Mr. Percival's Quadrupeds.

The distinguishing characters of the animal seems to be the great length of its limbs.

CHRISTA; Cretted Baboon. It is covered with the hair on the crown of the head and back is long and shaggy. The body is covered with long black hair; the breast is white; the face, hands, and feet are black and naked; the tail is tapering, and about seven inches long; the animal is two feet high. It is an inhabitant of India.

SECTION C. MONKEYS WITH LONG TAILS, THAT ARE NOT PREHENSILE; THE CHEEKS ARE POWdered, AND THE Haunches naked.

CYNORHUSAURUS; Dog-tailed Monkey. It has a beard; the face is long; the forehead high; it has a white band over the eyes; male genitals coloured; the nails are convex. It is about two feet high, and is said to be faithful, retifles, and laconical. The face of this animal appears uncommonly mild and placid. It was very fond of fruit, which it should occasionally rub over its body in a very ridiculous style.

HAMADRYAS; Tartarian Monkey. This is defended as cunous; the ears are hairy; the nails sharp; the haunches red. It inhabits Africa, is fierce and very singular in its appearance. The face is prominent; the nose smooth and red; the ears are pointed, and almoht hidden in fur; the hair on the sides of the head, and as far as the waist, long and shaggy; the nails of the fingers are flat, those of the toes acute and narrow; it is about five feet high. There is a variety, of which above the forehead is prominent, terminating in a ridge. It inhabits the Cape of Good Hope, is very gregarious, pillages gardens, and is watchful of surprise; the head is large; the nose is long and thick; the ears short; the crown is covered with long upright hairs; the body is rough and hairy; the tail is about half the length of the body, arched at the end; the nails are flat and rounded; the haunches are red, and the animal is from four to five feet high.

CEPTER; Lowando. The beard is black; the body color is white. There is a variety with a white beard. It is found in Ceylon, is wild, ferocious, and mischievous. The tails of this species are long and large; the head is surrounded with a broad mane; the body is long and tapering, it is between three and four feet high.

SIHINUS; Wanderer. The beard of this animal is long and black; and the body is black. There are three other varieties of this species. The first has a white beard, it is found in Ceylon, and other parts of India. The second is of a jet black colour; the beard is white, and very long; it inhabits Guinea, and is about two feet high. The third has a white beard, which is triangular, short, and pointed, extending on each side beyond the ears. It inhabits Ceylon, is harmless, and lives in the woods; it feeds on leaves and buds, and is easily tamed; the body is black; the face and
hands are purple; the tail is long, ending in a dirty white tuft.

**Fauns; Malbrouck.** This species is bearded; the tail is bushy at the end; it is an inhabitant of Bengal; the face is grey; the eyes are large; the eye-lids are fuscous, instead of eye-brows; the ears are large, flesh-coloured; body is blackish; the breast and belly are white; the beard is hoary and pointed: it is scarcely a foot high.

**Cynomolgus; Long-tailed, bearded monkey, with callotactis behind, rising bid ft oolrids, and arched tail.** This by Pennant is called the Hare-lipped monkey, who includes in the species the cynomolgus and cynocephalus of Linnaeus. It is of a thick clumsy form, resembling the Barbary ape, except in having a long tail. It varies in size very greatly; some specimens scarcely exceed the size of a cat, while others are full as large as a grey-hound. The colour also is various, being sometimes olive-brown, at other times grey-brown. The head is large; the eyes are small; the nose thick, flat, and wrinkled; on each side the tail is a bare space; the under sides of the body, and the infides of the limbs, of a light ash-colour. It is a native of Guinea and Angola. The oolrids are divided like those of a hare.

**Cynocephalus; Dog Monkey.** This has no beard; it is of a yellowish colour, has a projecting mouth, a straight tail, and bald haunches. It is found in divers parts of Africa, and resembles the S. imus, except that it has a tail.

**Diana; Spotted Monkey.** This species is bearded; the forehead is projecting; the beard is pointed. This is described by Mr. Pennant as of a muddling size, and of a reddish colour on the upper parts, as if tined, and marked with white specks; the belly and chin are whitish; the tail is long. According to Linnaeus, it is of the size of a large cat, and is black, spotted with white; the hind part of the back is furrowous; the face is black; from the top of the nose is a white line, passing over each eye to the ears in an arched direction.

**Sapea; Green Monkey.** This animal has no beard; it is of a yellowish-green colour; the face is black; the tail is grey; the haunches naked. It inhabits the Cape de Vernd, the Cape de Good Hope, and other neighbouring countries. The body in the upper parts is a mixture of grey, green, and yellowish; throat, breast, belly, and thighs are white; the hairs are long and reverber; the eye-brows are black and brightly; the tail is straight, as long as the body, and hoary; the feet are cinereous; the nails round, thoof the ears ovate. It is about the size of a cat.

**Cephus; Mouflache.** Tailed; cheeks bearded; crown yellowish; feet black; tail rufly at the point. It inhabits Guinea. The body above is brown; beneath it is of a blueish-white; the head with white erect hairs; eye-brows with a white tranverse arch; upper eye-lids white; hair on the cheeks standing out; the mouth is blueish; under the ears are two large tufts of yellow hairs, like muffachios.

**Ethiop; White eye-lidded Monkey.** This is without tail and beard; the fore-top is white, erect; the arch of the forehead is white. There is a variety, of which the neck and cheeks are surrounded with a broad collar of white hair. It is found in Madagascar. Its face is thick and round; the eyes are surrounded by a prominent ring; the eye-lids are naked, very white; the ears are black, almost naked; the tail is arched, covered with long bulby hair: it is about eighteen inches high.

**Aygula; Egret.** This is tailed, the beard is scanty; the colour is grey; crown with an erect tuft of hair revered longitudinally. It inhabits India and Java. The body is a good deal like that of a wolf; the throat, breast, and belly whitish; the tail is longer than the body, cinereous, and tapering; the face is flattish, whitish, naked; the nose is depressed; the ears, and distant from the mouth, with a double furrow on the upper lip; the cheeks are a little bearded; the hairs are turned back; the eye-brows are gibbous, briskly, prominent; the feet are black, semi-palmate; the nails of the thumbs and great toes are rounded, the rest oblong; the ears are pointed; an arched summit from the ears towards the eyes and back to the base of the lower jaw, and a longitudinal seam on the fore-arm. There is a variety that has a rounder head; the face is less black; the body is of a paler brown.

**Nictitans; Tailed, bearded, black, sprinkled with pale spots; the nose is white; the thumb very short; the haunches are covered. This is called the Nodding monkey. There is a variety of it having a long white beard. It inhabits Guinea, is playful, and continually nodding its head. The face is hairy; the mouth short; the orbits naked; the irids of a pale yellow; the hair is black, with a few pale rings; lips and chin whitish; the tail is straight, cylindrical, longer than the body; the thumb is not longer than the first joint of the fore-finger.

**Sinica; Chinese Monkey.** Tailed, bearded; fore-top horizontally placed, and flading the whole head. There is a fore-top erect, having the appearance of a round black bonnet; the body is brown; the legs and arms black. The species is found in Bengal, and the variety in India. The tail is longer than the body; the hairs of the former and great toes are rounded, the rest oblong; the upper parts of the body are pale brown, mixed with yellow; the lower whitish. It is about the size of a cat.

**Nemius; Cochinchina Monkey.** This is without tail and beard; the cheeks are bearded; and the tail white. It inhabits, as its trivial name imports, Cochinchina, also Madagascar, and other places. The face and ears are of a light red; the forehead is marked with a double brown band, covered with black hair; the hair surrounding the face is whitish, mixed with yellow; neck, on the upper part, with a wreath of the fame colour as that of the forehead; the shoulders and upper parts of the arms black; hands and groin whitish; thighs on the upper part and toes black; feet to the knees brown; it is from two to four feet high. From this species is procured the bezwar of the ape.

**Mona; Varied Monkey.** This species is tailed and bearded; it has a prominent whitish-grey semi-lunar arch over the eye-brows. It inhabits Morocco, and the warmer parts of Asia; is gentle, docile, and patient of cold. The head is small and round; the face is bright, and of a tawny brown; the hair on the crown is yellow, mixed with black; it has a dark band from the eyes to the ears, and to the shouldlers and arms; tail is greyish-brown; the rump is marked with two white spots on each side. It is eighteen inches high.

**Rubra; Red Monkey.** This species is tailed and bearded; the cheeks are bearded; the crown, the back, and the tail, are of a deep blood-red. There are two other varieties; the first has a yellow beard; the band over the eyes is black; the second has a white beard; the band over the eyes is white. This is found in Senegal, Congo, and other hot parts of Africa. The crown is flat; the body and legs are long; the hair on the upper parts is of a bright red, beneath it is of a yellow-grey; over the eyes to the ears is a band. One variety is black; and another is white;
white; the tail is longer than the body. It is some eighteen inches to two feet in length.

**Callicebus.** This is tailed and bearded; the cheeks are bearded; the ears, neck, and tip of the feet black. It inhabits India. The body is of a bluish-green, and elegant. A variety is of a black colour. The head is roundish; the face is tawny, with a few black hairs; the ears are like those of the human subject; the breast, belly, and thighs on the inside are of a dullish green-colour; it is extremely gentle and playful, and is of the size of a cat.

**Patareia:** Agile Monkey. This animal is tailed and bearded; its back, upper part of the tail, anterior parts of the legs, a little dark olive; its face is black, and the nose is marked with a triangular white spot. It inhabits Guinea, and is like the lad, gentle and docile; it is little more than a foot high, though the tail is twenty inches long.

**Macaca:** Negro Monkey. This is tailed and bearded; the cheeks, whole face, except the region extending from the eyes to the tip of the nose, are bearded; the body is of a reddish-brown. It inhabits Ceylon and Guinea, is active and gentle. The tail is longer than the body; the face is tawny and flesh-coloured; the feet and hands are black, naked, and soft. In a sitting posture it is only about ten inches high.

**Kolowah:** This species is tailed and bearded; the head, back, and outside of the hands and feet, are black; the inside, belly, and circular beard, and part of the triangular face, are white. This is an inhabitant of Guinea; is gentle and docile. The beard is long and forked; it is eighteen inches long, with a tail of the same length.

**Nasua:** This has no beard; the face is long, slender, naked, flesh-coloured; the nose is projecting. It inhabits Africa, and is good-tempered. The head is covered with thick, long hair, falling backwards; the ears are small, pointed, and almost naked; the hair on the upper parts and limbs is long, tawny-brown mixed with black; on the breast and belly it is ash-coloured; the tail is very long; in a sitting posture it is only two feet high.

**Luteola:** Yellow Monkey. In this species the tufts are very large; the ears are large, black, naked; the cheeks have long pale-yellow locks reversed. It inhabits Guinea. The crown, upper parts of the body, arms, and thighs, are of an ash-colour, mixed with yellow; the lower parts are chestnut; the face is black, with long hairs over the eyes; the throat and breast are of a yellowish-white; the hair is coarse; the tail is long as the body, and it is about the size of a fox.

**Fulva:** Tawny Monkey. This has tufts in the lower jaw, which are long; the face is long and of a chestnut-colour; the nose is flat. The hair on the lower part of the body is pale tawny, though chestnut at the roots; the hind part of the back is of an orange-colour; the legs are chestnut and the belly white. It is of the size of a cat. It inhabits India. Pennant, who seems to be the only describer of this animal, took the description from one in an exhibition in London, which was an extremely ill-tempered animal. It is said to vary with a black face, and long black hairs on the cheeks; the body is of a dull pale-green; the limbs are grey and the tail dusky.

**Vimba:** The face of this is black; the cheeks have long black hairs; the body is of a pale-green; the limbs are grey; the tail is dusky. It is thought by some naturalists not to be a distinct species, but a variety of the S. fulva.

**Hirena:** Face naked, blue, obliquely ribbed; the beard is long, and like that of a goat; the tail is long, and the body of a deep brown.

**Regalia:** To this species there is another, S. chloris, chestnut, and laters, are covered with long yellow hairs. It inhabits the limits of Sierra Leone. The head is roundis; the face is black; the ears and upper head, the tail is covered with short white hair; the ankle at the base, the body and limbs are black; it is about the size of a cat.

**Bouma, Bay Monkey.** The hair on the face, the tail, limbs, and forehead, the body and limbs are sheathed. It inhabits Sierra Leone. The crown is black; the back and sides, the legs are coverd with long hair; the back above it of a tawny-brown, belly chestnut; hands and black and naked.

Section B. Tails probably; or Clapp's nose; Hand and foot covered. They are denominated

**Sapajous.**

**Bettulus,** or Bearded Black Monkey. By Penant it is denominated the Preacher monkey. It is tailed, bearded, and black. The tail at the tip and feet are brown. It inhabits South America; wanders in herds at night, and howls hideously; it is exceedingly fierce; the beard is round and black; the hair long, black, and smooth. Par the account given of this animal by Maregrave, see BEETLE, or Old Man of the Woods. This is tailed and bearded; the colour is red. The body is uniformly of a dirty red; it has a mouth like that of the human subject, placed in the anterior part of the face; the chin is prominent, and it is as large as a middling-sized calf. The sound by fame has been regarded as a variety of the S. beetebul, is denominated by Mr. Peanent the Royal monkey. There were formerly two in the Reverian museum, which were probably young, being of the size of a squirrel. They were entirely of a very bright ferruginous or reddish chestnut colour, with the face naked and black, surrounded on the lower parts by a straggling beard of black hairs, and the tail was finely prehensile. This species is common in Cayenne, but very rare in Brazil; on the contrary, the former species is very common in Brazil, but it is not found in Guinea. Both species have the same voice and manners. The following is an interesting description given by an observer, who had seen and kept these animals at Cayenne.

*The Allouaceus, or Howlers, inhabit the most forests, in the neighbourhood of waters or marshes. They are commonly found in the woody thickets of large flooded vallies, and never on the mountains of the interior of Guiana. They go in small numbers, often in pairs, and sometimes singly. The cry, or rather horrible rattling scream, which they make, may well inspire terror; and seems to us at times as if the trees contained the united howlings of all its savage inhabitants together. It is commonly in the morning and evening that they make this clamour; they also repeat it in the course of the day, and sometimes in the night. The sound is so long and varied, that often imaginary it is produced by several of the animals at once, and is supposed to be either two or three, and sometimes four. The late idea is long and a state of captivity; it is a manner of requisition; or at least it is not used in the same manner as when wild. The male is larger than the female, which latter always carries her young in her bosom.*

"Next,"
“Nothing is more difficult than to kill one of these animals. It is necessary to fire several times in order to succeed, and as long as the least fire remains, and sometimes even after death, they remain clinging to the branches by the hands and tail. The sportman is often chagrined at having lost his time and ammunition for such a wretched game; for, in spite of the testimony of some travellers, the flesh is not at all good; it is always excessively tough, and is, therefore, excluded from all tables: it is merely the want of other food that can recommend it to needy inhabitants and travellers.”

**PANISCUS.** This is the four-fingered monkey of Pennant; it is tailed, black, bearded, and without a thumb, hence its trivial name. This animal is distinguished by the greatility of its body and limbs; its uniform black colour, except on the face, which is of a dark flesh-colour; and by want of thumbs on the fore-feet, instead of which are very small projections or appendices. It is one of the most active and lively of animals, and is, besides, of a gentle and tractable disposition in a state of confinement. It inhabits the woods of South America; associating in great multitudes, affailing such travellers as pass through their haunts with an infinite number of sportive and mischievous gambols, chasttering, and throwing down dry sticks, swinging by their tails from the boughs, and endeavouring to intimidate the passengers by a variety of menacing gestures. This is the Coaita of Buffon.

**EXQUINA.** Bearded; back variegated with black and yellow; throat and belly white. It inhabits South America. In size and disposition it resembles the S. paniscus.

**TREPIDA.** Tailed, but without a beard; the fore-top is erect; hands and feet are blue; the tail is hairy. A variety has the hair round the face grey; it is brownish-yellow on the body. It inhabits Surinam, is nimble, dextrous, and amusing, and about twelve inches high. The body is brown, beneath it is rufy; the hair of the head is formed into a black erect hemispherical tuft; the tail is hairy; the nails are rounded; the face and ears downy and flesh-coloured; the eyes are approximate chestnut.

**PAUCELUS.** The horned papajou is tailless and without beard; two tufts on the head resembling horns. It is found in several parts of South America, is harmless and gentle. The face, sides, belly, and front part of the thighs, are brown; the crown, the middle of the back, tail and feet, and hind part of the thighs, are black; the nails are long and flattened; the tail is spiral.

**APELIA.** Brown Sapajou, or Sajou of Buffon. This also is without tail and beard; the body is brown; the feet are black.

**CAPUCINA;** Capuchin Monkey, or Sai of Buffon, and Weeper of Pennant. This has no beard; the skin is brown; the hair and limbs are black; the tail is shaggy and the hunches are covered. There is a variety of this, of which the hair on the breast, throat, round the ears, and cheeks, is white. The face is sometimes black, sometimes flesh-coloured on the forehead; the tufts are approximate; the nose is carinate towards the eyes; a black varicose retrorse wrinkle on the forehead; the tail is long, always curved, and covered with long shaggy hair; it is of the size of a cat. It inhabits divers parts of South America; it is mild, docile, timid; walks on its heels, and does not skip. It has a crying wailing voice, and repels its enemies by horrid howlings; it shrieks sometimes like a cricket. When made angry it will yell like a puppy; it carries the tail spirally rolled up, which is often coiled round the neck; it smells of musk.

**SCUREA;** Orange Monkey, or Saimiri of Buffon. Bearded; the hind part of the head is prominent; the nails of the four smaller toes ungulate; the hunches are covered. The body is of a greenish-grey, under parts whitish; the legs and arms are rufy; the tail is shaggy, black at the tip, and twice as long as the body; the nails of the thumbs and great toes are rounded; the face of a blueish-brown; the eye-brows are bristly; the ears are scantily covered with whitish hairs; it is of the size of a squirrel. It is found in South America is pleasant in its disposition, beautiful, and graceful; it sits by lying on its belly. It looks full in the face of fuch as speak to it. It is impatient of European climates.

**MORTA.** Without beard, but it has a tail; it is of a chestnut colour; the face is brown; the tail is naked and fealy. It is found in different parts of America. It differs from the S. figura only in being less, and on that account it has been supposed to be of the same species.

**SYLVICTA.** This is without tail and beard; the mouth and eye-brows are covered with long hairs. This is an obscure and doubtful species.

**VARIEGATA.** The hair on the sides and back is mixed with orange and black. It inhabits Antigua, is lively, docile, and full of amusing tricks.

**Section E. Monkeys with Tails that are not prehensile; that have no Cheek-pouches; the Hunches are covered. These are denominated SAGINS.

**PITHECIA;** Fox-tailed Monkey. Tailed, but without beard; the hairs of the body are long, and black at the tips; the tail is black, and very shaggy. It inhabits South America; is very amusing, and easily tamed. It is entirely of a dull brown colour, with a light ferruginous cast, except on the head and face. This is the Saki of Buffon.

**JACCHUS;** Striated Monkey, or Ouilili of Buffon, and Sangin or Cugni minor of Edwards. This is tailed; its ears are hairy, broad; tail curved, very hairy; nails flobulate, those of the thumbs and great toes are rounded. There is a variety, which is of a yellowish colour, smelling like muk. It inhabits Brazil; is active, reptile, climbing like a squirrel; it feeds on insects, fruits, milk, bread, and pieces of fruit; it graws the barks of trees, is untameable, biting, tormenting cats by fixing under their bellies, and emits a hisling cry.

**CENIPUS;** Red-tailed Monkey. This is tailed and bearded; locks hanging; the tail is red; nails flobulate. The body is grey, underneath it is white; the head has long white hanging locks; its face is black, and it has a few white hairs behind the ears; a wart on each cheek; the irides are rufy; the ears are roundish, black, and naked; nails flobulate, except the thumb; the tail is twice as long as the body, and is a little hairy, black, red at the base; the region of the anus is red. It inhabits South America, is active, bril, imitating the lion in its gestures. It is something less than the S. jacchus; it smells of muk, and the voice resembles that of a mouse.

**ROSALIA;** Silky Monkey. Tailed; bearded; the head is hairy; circumference of the face and feet are red; the nails are flobulate. This species derives its trivial name from the appearance of its hair, which is very fine, soft, long, and of a bright yellow colour, resembling yellow silk. Round the face the hair is much longer than in other parts, so as to form a large mane, like that of a lion; near the face this mane is of a reddish colour, and it grows paler as it recedes from the cheeks; the face itself is of a dull purple; the ears are round and naked; the hands and feet are also naked, and of the same dull purple colour; the face; the claws are small and sharp; the tail is very long, and
and rather bushy at the extremity. It is a native of Guiana, and is a lively, active species, and gentle in a state of confinement. This is the Marinka of Buffon.

Simia Paradisi, or Parrot Tamarin. This species is tailless; bearded; the upper lip is cleft; the ears are large and naked; the tail is long and naked. The tamarin, or great-tailed monkey, is about the size of a furred cat; it is black, except on the lower part of the back, which is of a reddish colour, and on the hands and feet, which are orange-coloured; the face is naked and furred; the ears are large, naked, of a furred form, and of a dusky flesh-colour; the tail is very long and black. It inhabits the better parts of South America. The claws are small and sharp. It sometimes makes use of the face black, instead of flesh-coloured.

Simia Marina, the Sea-Ape, in Lobophygy, a name used by Belonius, and some other authors, for the fish called Simia marina; a kind of shark, remarkable for its long tail, from which probably it had both one and the other of the names. See Sea-Fox.


SIMICUS, in History, an ancient Greek musician, said to have been a great improver of music. He lived after Homer, and has the reputation of having invented the instrument above-mentioned: but Plutarch says, that the ancient Fables attribute this instrument to Pythagoras. He also informs us, that the Argives found the first person that used it; but does not tell us how it was used, or whether there was a complete scale for every one of the genera: 35 notes in the diatonic scale would mount it above the additional compass of modern piano forte.

According to Pliny, Simicus added an eighth string to the lyre of Mercury. Boethius says that it was Lychnon of Samos; but Nichomachus gives it to Pythagoras. So many claimants to the same inventions destroy all evidence to whom they belong.

SIMILAR, in Arithmetic and Geometry, the fame with like.

Those things are said to be similar, or like, which cannot be distinguished but by their proportion; that is, either by immediately applying the one to the other, or some other third to them both. So that there is nothing found in one of the similar things, but is equally found in the other.

Thus, if you note all the things in A, which may be distinguished and conceived, without alluding any other; and, in like manner, note all the things in B, which may be thus conceived, and A be similar to B; all things in A will be the same with those in B.

Since a quantity cannot be underfounded otherwise, than by alluding some other quantity to which it may be referred; similar things, notwithstanding their similitude, may differ in quantity; and since, in similar things, there is nothing in which they differ, beside the quantity; quantity itself is the internal difference of similar things.

In mathematics, similar parts, as A, a, have the same ratio to their wholes B, b; and if the wholes have the same ratio to the parts, the parts are similar. Similar parts A, a, are to each other as their wholes B, b. See PART.

SIMILAR Angles are also equal angles. See Solid Angle.

SIMILAR Rectangles are those which have their sides about the angles proportional.

Hence, if, all squares must be similar rectangles. Also, all similar rectangles are to each other as the squares of their homologous sides.

SIMILAR Triangles are such as have all their three angles respectively equal to each other, and the sides about the equal angles proportional. See Triangle.

Hence, 1, since in all triangles mutually equal, the corresponding sides containing the equal angles are proportional, equilateral triangles are similar to each other. And if two triangles have their sides respectively proportional, those triangles are equiangular.

2. All similar triangles are to each other, as the squares of their homologous sides.

In similar triangles, and parallelograms, the altitudes are proportional to the homologous sides, and the bases are cut proportionally by those sides.

SIMILAR Polygons are those whose angles are severally equal, and the sides about those angles proportional.

And the like of other similar rectilinear figures.

Hence, all similar polygons are, to each other, as the squares of the homologous sides.

In all similar figures, the homologous angles are equal, and the homologous sides proportional. All regular figures, and similar irregular ones, are in a duplicate ratio of their homologous sides. Circles, and similar figures, inscribed in them, are, to each other, as the squares of the diameters.

SIMILAR Arcs. See ARC.

SIMILAR Curves, in Geometry. The similarity of curvilinear figures may be derived from that of rectilinear figures, that are always similarly described in them; or, we may comprehend all sorts of similar figures, planes, or solids, in this general definition. Figures are similar, when they may be supposed to be placed in such a manner, that any right line being drawn from any determined point to the terms that bound them, the parts of the right line, intercepted between that point and those terms, are always in one constant ratio to each other.

Thus the figures A S D, a s d (Plate XII. Geometry, fig. 14.) are similar, when any line SP being drawn always from the same point S, meeting A D in P, and a d in p, the ratio of S P to s p is invariable. It is manifest, that the rectilinear inscribed figures, a p d S, A P D S, are similar in this case, according to the definition of such figures given in Euclid's Elements, book vi. See Macrinius's Fluxions, art. 127.

When the similar figures are in the situation here described, they are also similarly situated, and all their homologous lines are either placed upon one another, or parallel.

SIMILAR Segments of Circles are such as contain equal angles. See SEGMENT.

SIMILAR Conic Sections are those where the ordinates to a diameter in one are proportional to the corresponding ordinates to the similar diameter in the other; and where the parts of similar diameters between the vertices and ordinates in each section are similar.

The same definition also agrees to similar segments of conic sections.

SIMILAR Diameters of two Conic Sections. When the diameters in two conic sections make the same angles with their ordinates, they are sometimes said to be similar.

SIMILAR Solids. See LIKE SOLIDS.

SIMILAR Bodies, in Natural Philosophy, such as have their particles of the same kind or nature one with another.

SIMILAR Plain Numbers are those which may be ranged into similar rectangles, i.e., into rectangles whose sides are proportional; as 6 multiplied by 2, and 12 by 4, the product of one of which is 12, and the other 48, are similar numbers.

SIMILAR Solid Numbers are those, whose like cubes may be
be so ranged, as to make similar and rectangular parallel-epipeds.

Similar Animals. We have a treatise by Dr. Martin, wherein he treats of the laws and proportions of the motions and forces of the solids and fluids of animals, of however different magnitudes, which are supposed of similar make and constitution. See Tractat. de Similibus Animabibus.

Similar Dispos. in Medicine, denotes a disease of some simple, solid part of the body: as of a fibre, with regard to its tension, or flaccidity; of a membrane; a nervous canal, or the like. See Disease.

Similar Parts, in Anatomy, are those parts of the body, which, at first sight, appear to consist of like parts, or parts of the same nature, texture, and formation.

Of these we usually reckon ten, viz. the bones, cartilages, ligaments, membranes, fibres, nerves, arteries, veins, flesh, and skin: each of which see under its proper article.

Dr. Grew, in his Anatomy of Plants, observes, that these have likewise their similar and organical parts.

SIMILE, or SIMILITUDE, in Rhetoric, a comparison of two things, which, though different in other respects, yet agree in some one. As, He shall be like a tree planted by the water-fide, &c.; so that in every similitude three things are requisite; two things that are compared together; and a third, in which the likeness or similitude between them consists.

The difference between a simile and a comparison consists in this, that simile properly belongs to what we call the quantity of the thing, and the comparison to the quantity.

And the difference between a metaphor and similitude consists in this, that a metaphor has not those signs of comparison which are expressed in a similitude. See Metaphor and Parable.

SIMILITUDE, in Arithmetic, Geometry, &c. denotes the relation of two things similar to each other, or which are only dilinguishing by comparableness.

The notion of similitude, which now makes some figure in geometry, &c. is owing to M. Leibnitz: it will be rendered caly by the following instance. Suppose two watches perfectly alike, the one belonging to Caius, the other to Graccius. If now Caius pull out his watch in presence of Graccius, the latter will be surprised, and fancy it his own; but he will perceive it different from his own, upon pulling out his own; that is, Graccius distinguishes Caius's watch from his own by their comparableness; or, by applying the one immediately to the other.

Euclid, and after him most other authors, demonstrate every thing in geometry from the sole principle of congruity. Wolinins, in lieu of it, subordinates that of similitude; which, he tells us, was communicated to him by M. Leibnitz, and which he finds of very considerable use in geometry; as serving to demonstrate many things directly, which are only demonstrable from the principle of congruity by an abstruse.

SIMILOR is a name given to an alloy of red copper and zinc, made in the right proportions to imitate the colour of gold. See Gold-coloured Metal.

SIMIRA, in Botany, Aul. Guian. 170°, t. 65. Jaff. 205°, the Guiana name of a shrub, belonging to the natural order of Rubiaceae, and the Pentandra Mannonia of the Linnean system, but of whose generic characters nothing has yet been precisely settled. It seems very near akin to Psychotria, or to Stephanium; see those articles.

SIMITAR, or SCIMITAR, in War, a crooked or faceted sword, with a convex edge; not now used.

SIMLEE, in Geography, a town of Hindoostan, in Guzerat; 17 miles N. of Champancar.

SIMLER, Josias, in Biography, was born at Cappel, in Switzerland, in the year 1530. He was minister at Zurich, and a professor in the school of that town. He wrote several controversial works against some of the heretical sects, as they were censured, and denounced by him. He taught mathematics with great reputation, illustrating his lessons by various machines of his own invention. Of his writings the principal were "De Helvetiorum Republica," which contained an account of the original constitution of the Swiss confederacy; "Vallevia Descriptio," being an account of the Valais, and the adjacent alps; and an abridgment of the Bibliotheca of Conrad Gfemner, with the life of that dilligent man. In this last work he has not only given a good summury of the original, but has rendered it more complete, by the addition of a number of books. He died at Zurich in 1576, at the time when he was preparing a history of his native country.

SIMLY, in Geography, a town of Hindooftan, in Orilla; 15 miles N.W. of Boad.

SIMMEN, or SIREN, a river of Switzerland, which rises in the mountains between the Valais and the canton of Berne, and runs into the lake of Thun; 4 miles N.N.W. of Spitz. The valley through which this lake runs, and which has on each side stupendous rocks, is called "Simmenthal," and is divided by it into the Upper and Lower. The inhabitants of some few parts of this valley sow rye, oats, or wheat; but they derive great profit from their grapes, which is very rich, and they also breed a great number of cattle, from which they make butter and cheese. The latter font of cheese, called "Saan" cheese, is much esteemed abroad, being made wholly of cream; and of the common cheese, France and other countries purchase considerable quantities. Most of the inhabitants, instead of bread, eat the second font of cheese, with thin barley cakes; and the principal food of the commonalty is potatoes, and their drink is milk or whey.

SIMMERN, a town of France, and principal place of a district, in the department of the Rhone and Mollie, late capital of a duchy of the same name, seated in the electorate of the Rhine. The place contains 14697, and the canton 8361 inhabitants, in 31 communes. The territory of the district contains 16874 square miles; 26 miles S.S.W. of Coblenz.—Alfo, a river of France, which passes by Simmern, Gemunden, &c. and runs into the Nahe; 3 miles E. of Kirn.

SIMMIA CHUMBA, a town of Bengal; 16 miles S. of Palamow.

SIMMONS'S ISLAND, a small island on the coast of South Carolina. N. lat. 32° 33'. W. long. 86° 10'.

SIMO, a town of Sweden, in Earl Bothnia, on a river of the same name, which runs into the gulf of Bothnia; 80 miles E. of Ulea.

SIMOGU, a town of Hindooftan, in Myfere, on the Tumbadra; 93 miles W. of Seringapatam. N. lat. 13° 21'. E. long. 75° 50'.

SIMOJOISKI, one of the smaller Japanese islands, near the S.W. coast of Ximo. N. lat. 31° 50'. E. long. 132° 8'.

SIMOIS, in Ancient and Modern Geography, a river of Asia Minor, in the Leifer Phrygia, the source of which was in mount Ida, and which discharged itself into the Xanthus, or the Scamander, according to Pliny. The source of the Simois lies S.W. of Cotylus; it flows nearly to the W., traverses a space of from twelve to fifteen leagues; receives the Andrus above Inchavi, and several other rivulets, and
Simon, or the Cæsarean, was born in the time of John Christ. Zelus, the apostle given to St Luke (vi. Acts, 13.) was to be a tradition of the latter Cæsarean, given to him by the other evangelists. (Matt. xiv. 2.) Some learned persons have supposed, that the term Zelus, denotes he zeal in embracing the gospel of Jesus Christ; but other think, that he was of a fact called Zelotes, mentioned by Josephus. (De Bell. i. c. 2. vii. c. 1.) It does not appear where he preached, or where he died. Some have asserted that he travelled through Egypt, Cyrene, and Africa; that he preached in Mauritania and Libya, and that he propagated the gospel in Britain, dying in his exile, and in madness, as the crooks, which he endured with incredible courage. Others affirm, that he suffered martyrdom in the city of Suni, in Persea, on the 18th of October, on which day the Latin church celebrates his festival. The Greeks honour him June 1, and lay, that he was Nathanael, the bridegroom at the marriage of Cana.

Simon Magnus, or the Sweeter, was a native, as is said, of the village of Gitten, in the country of Samaria. His history is recited Acts. viii. 5-13. See also Acts, viii. 9, 10, 11. After having been discovered and refuted by the apostles, and particularly by Peter, he is said to have fallen into greater errors and sublimations, applying himself more than ever to magic, and taking pride in opposing the apostles, and propagating his errors. It is said by several of the ancient fathers, that at Rome, whether he arrived in the time of the emperor Claudius, about A.D. 41, he was honored as a deity by the Romans, and by the senate itself, and that a statue was decreed to him in the island of Tyber, with this inscription: "Simon Deo Sanctor." This fact, however, is disputed by several able critics. It appears, that under the reign of Nero, he acquired great reputation by his instamments; and that he pretended to prove that he was the Christ, and that, as the Son of God, he could ascend to heaven; and it has been said, that he really caused himself to be raised in the air, as a fiery chariot, by the assistance of two demons, but that by the prayers of St. Peter, he was disfitted by his demons, fell down, and broke his legs, and afterwards, overcome by great shame, threw himself headlong from the top of the house where he lodged. But we shall not multiply these apocryphal stories, which are not worthy of recital. He died, probably, A.D. 65. Simon formed a sect of heretics, who were called Simonists; which fee.

Simon, a disciple of Socrates, whose occupation was that of a leather-dresser at Athens, and whose ship was refitted by Socrates and his friends. He is said to have been the first who published the Socratic Dialogues; but none are extant. Simon to much valued freedom of inquiry, that when Pericles invited him to make him his disciple, he refused, with the promise of an ample compensation, he refused, alleging, that he would not sell the liberty of speaking his mind at any price.

Simon, John Francis, an ingenious man of letters, was born at Paris in 1654. He was originally intended for the ecclesiastical profession, and took the degree of doctor of
of laws. M. Pelletier de Souzy engaged him as preceptor to his son, and afterwards employed him as his own secretary, and as a remuneration for his services made him counsellor of the fortifications. He became very famous as a writer of inscriptions and legends of medals struck on public occasions, and on this account he was nominated a member of the Academy of Inscriptions and Belles-Lettres. He commenced a great learned dictionary to verify that body; and he read before it several parts of a medallistic history of Lewis XIV. He was an excellent writer both in the Latin and French languages, and in verse as well as prose. In 1712 he was appointed keeper of the royal cabinet of medals. He died in 1719.

Simon, Richard, a biblical critic, was born at Dieppe in 1638. He received his early education in the college of the Fathers of the Oratory in that place, and afterwards entered into that congregation. Quitting it in a very short time, he pursued the study of theology, and of the Oriental languages, in which he made a great proficiency. He entered himself again a member of the Oratory in 1662, when his singular turn of thinking, and unaccommodating temper, involved him in difficulties, which had nearly caused him to abandon the society for that of the Jefuits. These were, after a time, compromised, and he was sent as professor of philosophy to one of their colleges. The house of the Oratory in Paris possessing a library rich in Oriental writings, Simon was engaged to draw up a catalogue of them, on which occasion he became known to M. de La Moignon, first president of the parliament of Paris. Having performed the task, he returned to his professorship, and there employed himself in literary labours. In the year 1670 he was ordained priest, and in the same year he gave a proof of the liberality of his mind, by undertaking the defence of the Jesuits at Metz. Memoirs of the Jeesuits were, at that time, very much disliked, and his father was accused of sacrificing the child of Christian parents. In 1672 he published, under the name Ricard Simeon, "A Treatise on the Ceremonies and Cults in the present preferred among the Jews, translated from the Italian of Leo of Modena, with a Supplement respecting the Sects of the Caraites and Samaritans." It was reprinted in 1681, with a supplement, containing "A Comparative between the Ceremonies of the Jews and Discipline of the Church." In 1678 he published "A Critical History of the Old Testament," which, by the boldness of some of its opinions, gave a considerable degree of offence; and though it was protected by the approbation of a doctor of the Sorbonne, and a royal privilege, an order was procured for prohibiting its sale, and the privilege was revoked. In the same year he quitted the Oratory, in order that he might enjoy that freedom which is natural to the mind, and of which he was enthusiastically fond. He was accustomed to express his sense of the advantages of liberty by repeating the words "Alius ne fit qui tuus eft pot: It.") For the purpose of enjoying that more liberty, he renounced his cure four years after this, and spent the remainder of his life in the composition of several works, of which a great part was controversial. He died at Dieppe in 1712, at the age of 74.

Simon was a man of extensive and very deep learning, and an acute critic, but fond of singularity. Few men of letters have engaged in more disputes, and among his adversaries are some of the most eminent men of his time, Catholic as well as Protestant. He has, however, been ever receiv'd as one of those, who have much contributed to the free and learned discourses which have improved scriptural theology, and though not avowedly a reformer, he was an effective promoter of the Reformation. He published a number of works, and in addition to those already noticed, we may mention "Histoire critique du Texte du Nouveau Testament;" "Histoire critique des Versions du Nouveau Testament;" "Histoire critique des principaux Commentateurs du Nouveau Testament;" "Nouvelles Observations pour le Texte et les Verions du Nouveau Testament;" "Une Traduction Francois de le Nouveau Testament, avec Remarques Litterales et Critiques," 2 vols. 8vo. This was condemned in the pastoral letters of Noailles, archbishop of Paris, and Boffuet, bishop of Meaux. "Bibliotheque Critique," 4 vols. published under the name of Sainjore, a work suppress'd by order of council. "Nouvelle Bibliothèque Choisie," being a sequel to the former. "Letters Critiques," 4 vols. "Critique de la Bibliothèque des Autors Ecclesiastiques de M. Dupin, et des Prolegomenes sur la Bible du même," 4 vols. 8vo., "Histoire Critique de la Croyance et des Coutumes des Nations du Levant." M. Simon left his MSS, and a number of printed books, with marginal notes written with his own hand, to the cathedral library of Rouen.

There was another Simon of some celebrity, a doctor of laws, the author of "A Dictionary of the Bible," explaining the geography of the Old and New Testament, and the ceremonies of the Jews, first printed at Lyons in 1693, and again in 1703, with considerable additions, forming two vols. folio.

Simon, a great musician among the ancients, who, rejecting former rules of his art, invented a new mode, which was called "Simodia," from his name, in the same manner as the genus invented by Lyfodes, was called Lyfodia.

Simon, M. inventor of pedals for the harp, or harp à pedales. See Harp.

Simon, in Ichthyology, a name by which some authors have called the dolphin. It is affirmed, that this fish loves the name, and will come to a perfon who calls him by it; but this, though recorded by authors of credit, meets with no approbation among the fishermen.

Simon's Bay, in Geography, a bay on the coast of Africa, 11 miles on the W. side of the Cape of Good Hope; this is the only convenient flation for ships to lie in; for although the road without it affords good anchorage, it is too open, and but ill-circumfanced for producing necessaries, the town being small, and supplied with provisions from Cape Town, which is about 24 miles distant. The anchoring place is situated in S. lat. 34° 20', or 34° 23'. E. long. 18° 29'. In April 1780, the dip of the S. end of the magnetic needle was 46° 47', and variation of the compass 22° 16'. On the full and change days it was high water at 5' 55' apparent time; the tide rose and fell 5 feet 6 inches; at the ebb tide it rose 4 feet 1 inch. Cook's Third Voyage, vol. iii.

Simonetta, Giovanni, in Biography, an historian, was a native of Callaro, in Sicily. In 1414 he entered into the service of Francisco Sforza, duke of Milan, of which prince his brother Ciccio was the confidential minister. After the death of Francisco, he attached himself to his son Galeazzo Maria, to whom he, with his brother, continued so faithful, that when Ludovico Sforza usurped the dukedom, they were arrested and sent prisoners to Pavia. Ciccio, in the following year, was beheaded, and Giovanni was banished to Verceil. He, however, returned to Milan, where he was buried about the year 1491. Simonetta composed in Latin a history of the actions of Francisco Sforza from 1423 to 1466, which was accounted one of the best works of that time. It was several times printed. It is also found in Muratori's collection of Italian historians.

Simoniacal is applied to a person guilty of simony; that is of purchasing a benefice, or other sacred matter, with money. See Simony.

Simonians, or Simonites, in Ecclesiastical History, a sect.
Simon was by birth a Samaritan, or a Jew: when he had
studied philosophy at Alexandria, he made a public profe
tion of magic, and persuaded the Samaritans, by fictitious
miracles, that he had received from God the power of com-
manding and restraining those evil beings by which mankind
were tormented. As for his doctrines, Mührer adds, that
he was, without doubt, in the class of those philosophers,
who not only maintained the eternity of matter, but also
the existence of an evil being, who predisposed, and thus
shared the empire of the universe with the supreme and benefi
cent mind: and he, probably, embraced the opinion of those
who held, that matter, moved from eternity by an intrinsic
and necessary activity, had by its innate force produced, at
a certain period of time, from its own substance, the evil
principle which now exercises dominion over it, with his nu-
merous train of attendants. From this pernicious doctrine,
the other errors attributed to him concerning fate, the in-
difference of human actions, the impurity of the human
body, the power of magic, and familiar extravagancies, flow
naturally, as from their true and genuine source.

He rejected the law of Mosis, and said he was come to
abolish it. He ascribed the Old Testament to the angels,
and though he declared himself an enemy to them, he is said
to have paid them an idolatrous worship.

This magician farther pretended, that, in his person, he
did the greatest and most powerful of the divine works; that
another son of the female sex, the mother of all souls,
dwelt in the person of his mistress Helen; and that he
came, by the command of God, upon earth, to abolish
the empire of those that had formed this material world, and
to deliver Helen from their power and dominion. Mohl.

This sect is said to have continued to the fourth century.

Jullian, in his Apology, says that in his time, i.e. about
A.D. 150, almost all the Samaritans, and several others
elsewhere, acknowledged Simon as the greatest of the gods.
Clemens Alexandrinus (Shan. I. ii.) says that his followers
worshipped him. About the year 249 this sect was reduced
to about thirty persons, according to Origen (Cant. Cellum,
I. i.); and elsewhere (I. v.), he says that they were quite ex-
tinct. But it appears from other testimonies, that some of
them remained even at the beginning of the fifth century.
Eusebius (Hist. Ecclesiastical, I. ii. c. 13.) speaks of Simmioens,
who mingled themselves among the Catholics, and received
Catholic baptism; but who afterward spread in secret the
venom of their doctrine. Several were discovered and ex-
pelled the church about the beginning of the fourth century.

Simonides, a celebrated Greek, poet, born in the isle of Chios, was
the son of Leoprate, and flourished in the fifth century before the Christian era.
He excelled in various kinds of poetry, but especially in the elegy, in which, as we learn from Horace and Quintus,
he was almost proverbially learned. One of his most famous compositions was entitled "The Lamenta-
tion," of which the following fragment is all that remains, but this justifies his title to great excellence as a writer.

"Sweet child! what anguish does thy mother know;
Ere e'er the guest of grief has taught thy tears to flow!
Amidst the roaring wind's tremendous sound,
Which threatens destruction, as it howls around,
In balmy sleep thou liest, as at the break,
Without one bitter thought to break thy rest.
While in pale, glittering, interrupted light
The moon but shows the barrier of the right.
Didst thou but know, sweet infant! our woes,
Not opiate powder thy eyelids now could close,
Sleep on, sweet babe! ye waves in silencer roll,
And lull, O lull to rest! my tortur'd soul."
I.

By the statute, if a person, for money or profit, shall procure, in his own name, or the name of any other, the next presentation to any living ecclesiastical, and shall present thereupon, this is declared to be a simoniacal contract, and the party is subjected to all the ecclesiastical penalties of simony, is disabled from holding the benefice, and the presentation devolves to the crown.

In the construction of these statutes, these points, says Blackstone, seem to be clearly settled.

1. That to purchase a presentation, the living being actually vacant, is open and notorious simony.

2. That for a clerk to bargain for the next presentation, the incumbent being sick and about to die, was simony, even before the statute of Queen Anne; and now, by that statute, to purchase, either in his own name or another's, the next presentation, and be thereupon presented at any future time to the living, is direct and palpable simony.

But, 3. It is held, that for a father to purchase such a presentation, in order to provide for his son, is not simony; the son not being concerned in the bargain, and the father being by nature bound to make a provision for him.

4. That if a simoniacal contract be made with the patron, the clerk not being privy thereto, the presentation for that turn shall indeed devolve to the crown, as a punishment of the guilty patron; but the clerk who is innocent, does not incur any disability or forfeiture.

5. That bonds given to pay money to charitable uses, on receiving a presentation to a living, are not simoniacal, provided the patron or his relations be not benefited thereby; for this is no corrupt consideration, moving to the patron.

6. That bonds of refignation in case of non-residence, or taking any other living, are not simoniacal, there being no corrupt consideration therein, but such as is only for the good of the public. So also bonds to refign, when the patron's son comes to canonical age, are legal; upon the reason before given, that the father is bound to provide for his son.

7. Lastly, general bonds to refign at the patron's request, are held to be legal; for they may possibly be given for one of the legal considerations before-mentioned, and where there is a possibility that the transaction may be fair, the law will not supposse it iniquitous without proof; but if the party can prove the contract to have been a corrupt one, such proof will be admitted, in order to shew the bond simoniacal, and therefore void. Neither will the patron be suffered to make an ill use of such a general bond of refignation; as by extorting a composition for tithes, procuring an annuity for his relations, or by demanding a refignation wantonly, and without good cause, such as is approved by the law, as for the benefit of his own son, or on account of non-residence, plurality of livings, or gross immorality in the incumbent. Blackl. Comm. b. ii.

Simony is also committed by buying or selling the sacrament, baptism, ordination, or abjuration; as well as by the nomination and collation to a benefice, a place in monastary, or the like.

By 31 Eliz. cap. 6, persons who shall corruptly ordain or license any minister, or procure him to be ordained or licensed, shall incur a forfeiture of 40l., and the minister himself of 10l., besides an incapacity to hold any ecclesiastical prebendar for seven years afterwards. See Presentation.

Some have pretended it to be sufficient to avoid the charge of simony, if only the ordination were gratuitous, though the revenues were bought and sold as a temporal thing. But the canons of several councils have condemned this subtle distinction; since the revenues are attached to an ecclesiastical office purely spiritual.

Caufuits dillingiunh three kinds of simony; viz.

Simony, Mental, is that which is restricted to the mere will and inclination, without ever breaking forth into act. As when a present is made to a collator, without taking any notice, that we expect a benefice from him. This kind of simony is only punishable in foro conscientiæ.
S I M

SIMMONS, Conventional, is where there is an express act, and a formal bargain, though it never came to an execution.

SIMMONS, Real, is where the convention is executed on both sides; which left is the most criminal of all. The common penalty of simony is deposition in a clerk, and excommunication in a layman.

It is a maxim among the Roman canonists, that there is no simony in the court of Rome; because the pope acts there as an absolute sovereign; they also say, that教育教学 in simony are not to be admitted but by the pope, as a favouring a little of simony. On these occasions, however, the parties always swear, that there had been no deceit, collusion, simony, or other illegal covenant.

Peter Damian distinguishes three kinds of simony: that of money, that of the tongue, and that of service.

SIMMONS OF MONEY, or Per annos a manu, is where money is really paid down for a benefice; he adds, that the fame is likewise committed, by expending money to live at court, to obtain a benefice.

SIMMONS OF THE TONGUE, or Per annos langue, consists in flattering the collar, or making one's self agreeable by complaisance and commendation.

SIMMONS OF SERVICE, or Per annos ab officio, consists in doing for them good offices to obtain a benefice.

It was agreed by all the judges, Trin. oct. Jac. primus, that if the patron presented any person to a benefice with care, for money; such presentation, &c. is void, though the presentee were not privy to it; and the statute gives the presentation to the king; but this is now repealed.

SIMORI, in Geograph., a town of Naples, in Calabria Ultra; 13 miles N.E. of Squillace.

SIMORRE, a town of France, in the department of the Ger., 13 miles S.E. of Auch.

SIMPLA NOLB, in Botany. See PHILUS.

SIMPLARIES, SIMPLARIES, in Antiquity, a Roman felder, who had only single pay. Thus called, in opposition to the duplesses, or such as had double pay.

SIMPLE, SIMPLES, something not mixed, or compounded; in which sense it stands opposed to compound.

SIMPLE BODIES OR ELEMENTS, in Chemistry, are those substances which have not yet been decomposed.

In every era of chemical science, something like a fiftenth or theory has prevailed, which has had for its basis a certain number of bodies, called elements or simple bodies, of which all other bodies were formed. This has ever had the good effect of stimulating the minds of enquirers, and has tended much to the progress of this useful branch of philosophy. Theory has succeeded theory, varying widely from, and in some instances contradicting each other, till philosophers have become very cautious in the admission of the elementary nature of bodies; and hence have agreed in the above general definition of a simple body.

The limited proportions in which bodies combine, is sufficient to convince us, that simple bodies confound of hard unchangeable particles or atoms, which are not practically divisible. And the general forms of the crystals of compound matter go far to show, that these atoms are spheres, a form the belt calculated for motion, and under which they would be the best likely to change. How many varieties of these unchangeable spheroidal particles there exist, it is difficult to say; and what ratio they bear to each other, in density or magnitude, we are equally at a loss to determine. One great step, however, has been made, which may lead us to more important conclusions. Although we are ignorant of the absolute dimensions and densities of these atoms, we are now in a way to acquire a knowledge of their relative weights, by which we shall be enabled to calculate the proportions of compound bodies, by simply knowing of what elements they are composed. The use of experiment will be to find out the elements of a compound, and deduce their properties; but the exact properties will require to be determined by calculation, which will render chemistry as complete as astronomy.

There is the greatest reason to believe, that the atoms of every substance attract each other by the same laws with gravitation. Sir Isaac Newton supposes, that in gold, which in his time was considered the densest body, the parts or interfaces between its parts is greatly exceed its material part. Of what density, therefore, must we consider the atoms of bodies? Our present idea of density is very vague, and varies with the temperature, and depends, therefore, upon the quantity of caloric they contain. If these atoms were to be finally detached by the caloric, they would come in contact; and if they were spheres, the resulting specific gravity would be that of the specific gravity of the atom itself. The caloric, on the contrary, if detached by the atom, would, from its repulsive property, be diterpered to an unlimited extent. When, however, the two species of matter combine, they still retain their original properties; but the attraction of the atoms decreases, as they recede, by new additions of caloric in a ratio that the repulsion of the caloric, and the two powers are kept in equilibrium by change of distance between them. If the attraction be as the square of the distance, and the repulsion as the cube; then, if the distances be successive intervals of 1, 2, 3, &c. the attractions at these points will be 1, 1/2, 1/3, &c. and the repulsion 1, 1/2, 1/3, &c. Therefore, the caloric at each point, to make the atoms stand in equilibrium at these respective distances, will be 1, 2, 3, &c. for 1 x 1 = 1, 2 x 2 = 4, 3 x 3 = 9, and so on. It is under this form that the specific gravity of a body is taken; but we know not what may be the density of the real atoms, although we know that it must be very considerable. In proportion as this is the case, we are to expect a greater attractive force agreeable to the laws of gravitation. If the earth were to be condensed to half its diameter, the weight of bodies on its surface would be quadrupled. This circumstance, aided by the proximity of the atoms in chemical combination, and the state of aggregation, in which solids exist, will make us at face to wonder at the powers of chemical attraction, and at the same time gives a lively hope, that the same attraction is common both to gravity and chemical combination. However indeterminate this problem may appear, we understand that some experiments are soon to be instituted for settling this point.

The experiments will in the first place determine, whether these attractions are the same, or not: if they are the same, the experiments will determine, and point out the numbers which will express the strength of affinity between different bodies; the only facts which are now wanting to make chemistry a complete science.

In the present state of chemical science, these bodies considered as elements are divided into two classes; the one called combustible or inflammable, and the other incombustible or non-combustible; because in combining with the first class, they either emit light, or heat are developed. The first class, which is far from being numerous, consists chiefly of metals, with only a few exceptions. These are exhibited in the following table, which also contains the weights of their atoms and specific gravities; hydrogen, the lightest atom, being 1.

If the views of Gay Lussac, the French chemist, be correct, in a memoir on Iodine, or Iodium, which has been published, Dr. Thomson's Annals, we shall be hardly warranted in drawing this line between the combustible bodies, and those
which support combustion. Some of the latter appear to act the part of both. This is evidently the case with sulphur, which gives light and heat to a certain extent in its combination with some of the metals, and also when it combines with oxygen, with which, as an inflammable body, it forms an acid. In the opposite characters, like chlorine and jodine, it forms an acid with hydrogen, which is now termed the hydrophosphoric acid. Gay Lussac goes farther, and supposes that phosphorus, carbon, and azote, have a similar double property. Carbon he supposes to be the acidifying principle of some of the vegetable acids, and that azote acts a similar part in the prussic acid.

Simple Combustible Bodies.

<table>
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<tr>
<th>Names</th>
<th>Weight of its Atom</th>
<th>Specific Gravity of Hydrogen being</th>
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<tr>
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<td>104849</td>
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<td>Platinum</td>
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Supporters of Combustion.

| Oxygen      | 7.5               | 14                                 |
| Chlorine    |                   | 30                                 |
| Iodine      |                   | 30.75                              |
| Fluorine    |                   | 1.7                                |

The bodies of the first class, with the exception of sulphur, phosphorus, azote, hydrogen, and carbon, are known to be metals; and there is strong reason to believe that hydrogen is a metal in the elastic form. It is very remarkable, that those bodies, the metallic nature of which is doubtful, appear to possess the property of combining more strongly with inflammable bodies, than the metals combined with each other in forming alloys. Indeed, the combinations of most of the metals with those that are not metallic, are generally conspicuous, and always definite.

The first of the second class of bodies, viz. oxygen, has long been considered a simple body. This second has been lately, by the French chemists and by Sir Humphrey Davy, considered in the same light. It was till lately considered as a compound of muriatic acid and oxygen, from which it was called oxymuriatic acid. Its name has only now been changed to chlorine, from its green colour. Jodine is another substance of the same class, exhibiting striking properties with inflammable bodies. Its name has been derived from the violet colour of its vapour. It was discovered in kelp, a substance which consists of foda combined with certain impurities. The jodine is extracted from it by the following process. Infuse the kelp in hot water till all the soluble part is taken up; then evaporate the solution till the carbonate of foda crystallizes on cooling. In this way, by repeating the evaporation and cooling, separate as much as possible of this salt; and then continue the evaporation to dryness. This residue is now to be introduced into a glass retort, or a long-necked matrass, and a quantity of sulphuric acid poured upon it. This is then applied to, at first, a gentle heat. When the temperature reaches about 300°, a purple or violet-coloured vapour appears in the neck of the retort, which condenses into flowing opaque crystals of the appearance of plumbago. Those crystals are pure jodine. Jodine, in the folid form, is of a greyish-black colour, its vapour being of a beautiful violet. Its crystals have a shining scaly appearance, like mica. Their form is that of rhomboidal plates, and sometimes of elongated octahedrons. It is soft and friable, so as to rub to powder between the fingers. It stains the skin of a deep brown colour, but not permanently. It has the smell of chlorine or oxymuriatic gas. Its taste is acid, although it requires seven thousand parts of water for its solution. It destroys vegetable colours, like chlorine, but with less energy.

Its specific character is 3.948 at the common temperature, water being 1. It fuses at 225° of Fahrenheit, and assumes the elastic form at 375° or 376°; but it will come over in distillation with the vapour of water. It is a non-conductor of electricity.

Jodine, like oxygen and chlorine, has the property of supporting combustion with combustible bodies. With some of these it forms compounds analogous to oxyds, and with hydrogen it forms an acid resembling the muriatic acid, the compound formed by hydrogen and chlorine. In these instances, jodine and chlorine have not only the property of supporters of combustion, but of forming acids with an inflammable base. They, however, in their turns, act the part of combustible bodies, by forming acids with oxygen. It appears also, from the views of Gay Lussac, that sulphur has also this double property, for by combining with hydrogen it forms the well-known compound called sulphuretted hydrogen, which possesses the properties of an acid, and is rendered so by acting the part of oxygen with the inflammable base. On the contrary, it forms sulphuric acid with oxygen by itself, acting the part of an inflammable base.

It also appears to this philosopher, that azote, carbon, and phosphorus, may have the power of producing acidity by
SIMPLE BODIES.

by their combining with certain inflammable bases. It is
of opinion, that most of the vegetable acids do this entirely
with carbon, but to the carbon acting the part of oxygen with hydrogen, as sulphur, chlorine, and iodine do with the lime.

Agreeably to this view, we shall give some of the facts attendant on chlorine, iodine, and sulphur, in their combinations with hydrogen and oxygen.

To the binary combinations of these bodies with others, in which they have no acidity, Gay Lussac has given the names of chlorine, iodurets, and sulphurets; as chloruret of potassium, ioduret of lime, sulphuret of iron, and so on. When they form acids with hydrogen, they are termed hydrochloric, hydroiodic, and hydro-sulphuric acids. The acids formed by their combinations with oxygen he terms chloride, iodide, and sulphuric acids. The chloride is the same with what has been called the hypochlorous acid, and forms with potash what has been termed hypochlorite of potash. The iodide and sulphuric forms a compound with potash, having similar properties, and affording a large quantity of inflammable oxygen.

The hydrochloric rates are the salts which have been called muriates, and have some resemblance to the hydroxides, a set of salts formed by the acid arising from the union of muriate with hydrogen, and the different saline bases.

The hydrochloric acid is formed by first combining phosphorus with iodine, in the proportion of one of the former to nine of the latter. This compound being brought in contact with water, affords the hydrochloric acid. The water is decomposed, the oxygen of which combines with the phosphorus to form phosphoric acid, and the hydrogen with the iodine, forming the hydrochloric acid. If the iodine and phosphorus were 18 of iodine to 1 of phosphorus, then phosphoric acid would be formed in the water. On the other hand, if the iodine were 4.5 to 1 of phosphorus, then hydrochloric acid would be formed, and a compound of phosphorus and oxygen, consisting of two atoms of the former to one of the latter. This is the red infusible substance which has been called odyx of phosphorus.

In all these precedes the hydrochloric acid is evolved in fumes smelling like nitrous acid, and may be collected, like it, in the usual form. This substance is about 62 times heavier than hydrogen. Water absorbs a large quantity of it, so as to form a very strong acid, of the specific gravity of 1.7.

This acid is decomposed in two ways, principally by such bodies as easily separate its hydrogen and let free the iodine, such as the sulphuric and nitric acids, and many of the oxides, by which water and jodurets are formed. It is also decomposed by the superior attraction of iodine for other bodies, setting the hydrogen free. Such is the case with all of the metals.

The compounds of the hydrochloric acid with different saline bases form salts, resembling the hydrochlorides (muriates) and the hydro-sulphates. The other binary compounds of iodine, and the different combustible bodies which are called jodurets, are very conspicuous. Most of these are inflammable in water. Those metals which decompose water, form soluble jodurets; as in these instances the joduret becomes an hydrochloride.

Another set of compounds results from iodine, which we have already called iodates. Jodine combines with oxygen, in the proportion of 5 atoms of the latter to 1 of the former, which is 117 iodine to 5 x 7.5 = 37.5 of oxygen. This constitutes the jodic acid.

This acid cannot be directly formed by combining iodine with oxygen; but it is formed during the action of iodine upon plants, dyes, hay, etc., burning, etc., and so on, when water is a point. It decomposes into two parts, when a point of iodine is added to it. Two salts are formed, with the base employed, the one with oxygen, and the other with hydrochloric or hydroiodic acid.

When iodine in vapour is passed through a solution of potash, for atoms of iodine will decompose for atoms of water, by which four atoms of hydroiodic acid are produced. These unite with four atoms of potash, forming as many compound atoms of hydroiodate of potash. Four atoms of oxygen, separated from the water, now unite with a fifth atom of iodine, and a fifth atom of potash; the whole of which will amount to an atom of hydroiodate of potash, united to five atoms of oxygen, constituting an atom of iodate of potash. It will appear, therefore, that during the formation of any of the jodates or the chlorates, that for every atom of such iodate or chloride there will be formed, at the same time, four atoms of an hydrochlorate or hydroiodate.

In the example above stated, an atom of iodate of potash would be an atom of iodine (117) + 1 atom of potash (37.5) + 5 atoms of oxygen (5 x 7.5) = 192. The 4 atoms of hydroiodate of potash will consist of 4 atoms of hydriodic acid (4 x (177 + 11)) + 4 atoms of potash (4 x (37.5 + 7.5)) = 472 + 180 = 652. The ratio, therefore, of the iodate of potash to the hydroiodate, will be 192 to 652, or 100 to 340 nearly. In the crystalline form, however, the hydroiodate of potash does not crust, but is converted into ioduret of potash, which will consist of an atom of iodine (117) added to an atom of potash (37.5) = 154.5, and 154.5 x 4 = 618, the quantity of the crystallized ioduret to the joduret, which will be 100 of the latter to 322 of the former nearly.

It is rather out of place to enter into the particulars of bodies; but this last sublimate, from its recent discovery, has not been before mentioned in this work. There are also many interesting particulars respecting chlorine; but these are rather new explanations, under the idea of this being a simple body, than new facts.

We know little more of the body called iodine, than that it is in all probability a body combining with hydrochloric acid to form fluorine acid, in the manner that chlorine and iodine form hydrochloric and hydroiodic acids with that body. To the combinations of chlorine with the different bodies, in which no acidity prevails, Dr. Thomson has proposed the name of chlorids, as being more agreeable to the termination in the word oxys, and we suppose would adopt, for similar combinations of iodine, jодids; and we should expect, from the sulphates being analogous, that they would be called sulphids, to keep up the same uniformity. The French chemists (see Gay Lussac's Memoir on Jodine, Thomson's Annals, vol. v.) have adopted for the same compounds the termination already used for the sulphides, viz. chlorurets, jodurets; and for the combinations of carbon and azote with the same bodies, they would use carburets, azurets, or, what is better, azoturets. We see no objection to this termination for all the binary compounds not possessing acidity, as in fact there would be no other change than that of altering oxys into oxys. The acids would still retain their terminations, oxys and oxy, distinguishing those which do not contain oxygen by the acidifying suffix. These, as at present, would derive their names from the acids. See Nomenclature.

Simple, in Botany, is a general name given to all herbs and plants; as having each its particular virtue, by which it becomes a simple remedy.
The simples from the Levant, and the East Indies, were not known among us till about the year 1200.

**SIMPLICITY.** See LEAF.

The term simple is also technically applied to some other parts of a plant. A simple calyx is used in the columniferous order, in opposition to the double one of Malvina, Hibiscus, and many other genera of that order. A simple stigma means that the part in question is of no elaborate or peculiar shape, or fracture, but merely adequate to perform its requisite functions. This end is sufficiently answered by a rather obtuse, though not dilated, figure, just enough to receive the pollen upon a moist surface, or point. If a stigma be acute, or taper-pointed, that character should be specified; as also if it be capitate, concave, lobed, fringed, &c.; in all which latter cases it is no longer simple. See Stigma, and F Ceculation of Plants.

A simple stem, or stalk, is definite of branches, or subdivisions. Such also is simple pubeitchens, the hairs of which are unbranched and straight; not illustrated, entangled, or hooked.

**SIMPLE,** in French Myfi, in an air with variations, implies the air itself, in opposition to the doubles or variations. See Air, and DOUBLE.

**SIMPLE Cadence,** is that where the notes are all equal through all the parts.

**SIMPLE CONCORDS,** are those in which we hear at least two notes in consonance; as a third and a fifth; and, of consequence, at least three parts. This is either done immediately, and is called the harmonical trichord, or in a more remote manner, that is, when the sounds, that are not haf, are one or two octaves higher. This distance has no ill effect in the third, but in the fifth it has; and, generally speaking, the nearer, or more immediate, the concords are, the better. See Concord.

They also say C simple, or plain, in opposition to C accented.

**SIMPLE Counterpoint,** Fugue, Interval, Sounds, and Triple. See the sub-functatives.

**SIMPLE Equation,** Fraotion, and Such, in Algebra. See the sub-functatives.

**SIMPLE Quantities,** are those which consist of one term only; as a,- ab, or a b; accordingly they are opposed to compound quantities.

**SIMPLE GLANDS,** in Anatomy. See Glands.

**SIMPLE Anomaly and Excentricity,** in Astronomy. See the sub-functatives.

**SIMPLE Form, Motes, Necessity, Opposition, and Proposition, in Logic and Metaphysics.** See the sub-functatives.

**SIMPLE Averages,** Benefits, Church, Diplomats, Estates, Fees, Forces, Harvests, Resignation, and Vassalage. See the sub-functatives.

**SIMPLE Contrad. Debts by,** are such, where the contract upon which the obligation arises is neither ascertained by matter of record, nor yet by deed or special instrument, but by mere oral evidence, or by notes unscaled, which are capable of a more easy proof, and (therefore only) better than a verbal promissory.

**SIMPLE Diachyons, Diacodium, Diatomus, Diapraxis, Dropax, Fomentations, Hydromel, Mixture, Oxymel, and Waters.** See the sub-functatives.

**SIMPLE Fencing.** See FENCING.

**SIMPLE Flank and Tenaille,** in Fortification. See the sub-functatives.

In Geometry, we say, the most simple demonstrations are the belt.

In Grammar, we have simple words, or primitives; and compounds, which have some particle added to them.
SIMPSON, Thomas, an Biographer, a celebrated learned mathematician, was born at Market Bosworth, in Leicestershire, in 1723. His father, who was a weaver in that town, intended to bring him up to his own trade, and took little heed of his education. Nature, however, had endowed him with fine talents, and an ardent desire of knowledge, which excited him to read and pursue it. At an early period he gave indications of his future labours, by eagerly perusing every book that fell in his way, and seizing every opportunity to acquire instruction from others. His father, finding that he was thus led to neglect his work, endeavoured to reform him from what he regarded as idle pursuits; but after some fruitless attempts, a difference was produced between them, which, at length, terminated in an open rupture, and Thomas left his father's house, and married the widow of a tailor, with whom he retired to Naseby, where he continued some time working at his trade, and improving his knowledge. Here he became acquainted with a travelling pedlar, who lodged in the same house, and who, to the profusion of an itinerant merchant, had united the more profitable one of a fortune-teller. An intimacy was formed between them, and as the pedlar was going to Bristol, he lent, during his absence, Cooker's Arithmetic to Simpson, to which was subjoined a short appendix on Algebra; and a book on Astronomy, by Partridge, the almanac-maker. These books he studied to a degree, that on the pedlar's return, he was authorised to find that Simpson was little inferior to himself in the art of calculating nativities; and he predicted that he would shortly be his superior. Encouraged by this prophecy, he at first determined to embark in the trade of a fortune-teller; and by this occupation, and teaching a school, he found means to support himself without weaving, which he now entirely abandoned, and was soon regarded as the oracle of the neighbourhood. From this time he seems to have lived very comfortably, till an unfortunate event involved him in a deal of trouble. Having undertaken to raise the devil, in order to answer certain questions to a young woman, who consulted him respecting her sweetheart, then absent at sea, the credulous girl was so frightened on the appearance of a man from beneath some straw, who represented the devil, that she fell into violent fits, from which she was with difficulty recovered, and which for a considerable time threatened insanity or fatality. In consequence of this exertion of his art, he was obliged to leave the place, and he removed to Derby, where he remained a few years, working at his trade by day, and instructing pupils in the evenings. He became a writer in the Lady's Diary in the year 1756; his first queries were stated in verse, and are of that kind as flew that at this period he had made some progress in mathematical knowledge. He from this period applied himself with great ardour to every branch of the analytic science, and acquired a deep insight into the doctrine of fluxions, upon which he afterwards published a work, which is even now regarded as among the best, if not the very best, existing in our language. After he had given up astrology, and its enunciations, he found himself reduced to great straits, notwithstanding his industry to provide a subsistence for his family at Derby; and on that account he determined to remove to London, which he did in the year 1756. When he arrived at the capital, unknown and without recommendation, he for some time followed his business in Spitalfields, and taught mathematics in the evenings, and at other spare hours. His exertions were attended with fruitless success, that he returned to the country, and brought to town his wife, with her three children. The number of his scholars increased, and he was encouraged to make proposals for publishing by subscription
subcription " A New Treatise of Fluxions." The book was printed in 1737. In the year 1740 he published "A Treatise on the Nature and Laws of Chance." This is a very thin and small quarto; and to this treatise are annexed full and clear investigations of two important problems, added to the second edition of De Moivre's Book of Chances, as also two new methods for the summation of series. Mr. Simpson's next publication was a volume, in quarto, of "Ellays on several curious and interesting Subjects in speculative and mixt Mathematics," printed in 1740. Soon after the publication of this book, he was chosen a member of the Royal Academy at Stockholm. This was followed by a smaller volume, on "The Doctrine of Annuities and Reversions, deduced from general and evident Principles," with useful Tables, shewing the Values of single and joint Lives." Next year came out an "Appendix, containing Remarks on De Moivre's Book on the same Subject, with Answers to some peronal and malignant Representations in the Preface to it." In 1743 he published his "Mathematical Dissertations on a variety of physical and analytical Subjects." Shortly after this he published "A Treatise on Algebra," which in the year 1755 he enlarged and considerably improved. After this he gave the public his "Elements of Geometry," with their application to mensuration, to the determination of maxima and minima, and to the construction of a great variety of geometrical problems. This work has passed through many editions, and is still read in some places devoted to the education of the young; though we think it has been superceded by other treaties of more modern date. The fifth edition of this book occasioned some controversy between Mr. Thomas Simpson and Dr. Robert Simfon, the author of a well-known edition of Euclid's Elements. See Simpson.

In the year 1748, Mr. Simpson published "Trigonometry, plane and spherical, with the Construction and Application of Logarithms." In 1753 he published a new edition of his "Treatise on Fluxions," which, however, he wished to be considered rather as a new work than a new edition of an old one. In 1752 appeared in 8vo. a work, entitled "Select Exercises for young Proficients in Mathematics;" and in 1757 he published his last work, entitled "Miscellaneous Tracts,"—"which," says Dr. Hutton, "was a valuable bequest, whether we consider the dignity and importance of the subjects, or the sublime and accurate manner in which they are treated." Such are the scientific works of Mr. Simpson. Through the interest of Mr. Jones, the father of the celebrated Sir William Jones, Mr. Simpson was, in 1743, appointed to the professorship of mathematics, then vacant, in the Royal Academy of Woolwich; and in 1745 he was admitted a fellow of the Royal Society. On this occasion, in consequence of his very moderate circumstances, he was excused his admission fees, and from giving bond for the settled future annual payments. As a professor, he exerted all his talents in instructing the pupils committed to his care. He had, it has been said, a peculiar and happy method of teaching, which, united to a great degree of mildness, engaged the attention, and conciliated the esteem and friendship of his scholars. Mr. Simpson died in the year 1761, in the 58th year of his age. Besides the works already mentioned, he wrote several papers, which were read before the Royal Society, and printed in their Transactions. He was not only a contributor to, but for some years editor of, the Lady's Diary, during which, viz., from the year 1754 to 1760, he raised that work to a high degree of respectability. In 1760, when a plan was in agitation for erecting Blackfriars bridge, he was consulted by the committee in regard to the best form for the arches. On this occasion he preferred the semicircular form; and besides his report to the committee, he wrote some letters on the subject, which were afterwards published in the Gentleman's Magazine.

SIMPSON, JOHN, was born at Leicetser, in the month of March 1746. He was educated for the ministry among the Protestant dissenters, under the care of Mr. (afterwards Dr.) John Aikin, who kept a flourishing school at Kibworth, in Leicetsershire, and afterwards an academy at Warrington, for the education of young men devoted to the ministry. From Warrington Mr. Simpson went in, 1755, to Glasgow, where he spent two years in this ancient seat of learning, and where he attended the lectures of the excellent Dr. Leechman. At Glasgow he remained two years, when he purfued his studies in a private manner among his relations, till the month of April 1772, when he settled at Northam- ham, and from thence removed, in 1777, to Walthamflown, where he became pastor of the congregation of dissenters, which had previously enjoyed the joint services of Mr. Farmer and Mr. Radcliffe. Here he remained but two years, and after this it does not appear that he was settled any where as minister, but continued preaching occasionally to the end of his life. As a preacher he acquired considera- ble reputation, but he is chiefly known as a critic on the Holy Scriptures. His principal work is entitled "Ellays on the Language of Scripture," in two volumes octavo. Besides this he published many other works, among which are "An Ellay to shew that Chriftianity is the truest in the Hiftoric Form;" "A View of the internal and pre- sumptive Evidences of Christianity," which is a most useful performance, and it has been said may be ranked, in merit and value, with the moral demonstrations of the truth of the Christian religion of Taylor, Locke, Lardner, Clarke, and Paley. Mr. Simpson died in the year 1813. He was an Unitarian in the largest sense of the word; and agreeably to the enlightened, conscientious, and general character of his character, his speculative belief inspired him with the most genuine sentiments of rational piety, and an elevated devotion. He was firm in his principles, ready in his conduct, and courteous in his manners; modest, humble, affectionate, disinterested, and generous. See Sermons on the Death of Mr. Simpson, by the Rev. T. Jervis and the Rev.—— Hunter.

SIMPSON, CHRISTOPHER, an English musician of the seventeenth century, extremely admired for his performance on the viol da gamba, or fix-strung-bafe, and general knowledge of music. The bafe-viol with fix strings, and a fretted finger-board, was in much general favour in his time, that almost all the fix musicians of our country, whole names are come down to us, were performers upon it, and composed pieces purposely to shew its powers; but particularly Coperario, William Lawes, Jenkins, Dr. Colman, Lupo, Mico, and Loofmore.

Simpson, during the last years of the Ufurpation, published a treatise on this instrument, entitled "The Division Violin, or an Introduction to the playing upon a Ground." But this instrument, like the lute, without which no concert could subsist, was soon after fo totally banished, that its form and construction were scarcely known, till the ar- rival of Abel in England, whose taste, knowledge, and ex- pression upon it were so exquisite, that, instead of renovat- ing its use, they seem to have kept lovers of music at an awkful distance from the instrument, and in utter despair of ever approaching such excellence. The instrument itself, however, was so naifal, that this great musician, with all his science and power of hand, could not prevent its most en- thusiastic
SIMPULUM, among the Romans, a vine which the populace held in great honour, and made like a crown. It was used in burials, for taking a very little wine, to mitigate the pangs of death.

SIRRAHK, a town of Hindustan, in Or.; 24 miles E.S.E. of Fyzabad.

SIMRIK, a town of Bengal; 32 miles N.N.W. of Bhoorgouj.

SIMSAT, a town of Affghan Turkestan, in the government of Darbeke; 54 miles W. of Darbeke.

SIMSBURY, a small town of America, in Hartford county, Connecticut; 14 miles N.W. of Hartford. Copper has been found in this place. It contains 1,566 inhabitants; 16 miles from Waltham.

SISLIA, a towns, so called by Mr. Brown, is a just tribute to the botanical learning and skill of Dr. John Sims, F.R.S. and F.L.S. the contributor to the fourteenth volume of the popular and very useful Botanical Magazine, of the late Mr. William Curtis; see that article — Brown Tr. of Linn. Soc. v. 10. p. 127. Prodr. Nov. Hoth. v. 1. p. 67. —Clubs and order, Tetrandria Menagynia. Nat. Ord. Pri- naceae. Jufr. Brown, F. L. S. Ch. Cal. none, useless the corolla be taken for such. Cor. Petals four, inferior, linear-oblong, equal, deciduous; reflexed at the extremity. Nectarine none. Stam. Filaments four, half-shaped, prominent, inserted into the disk of each petal; anthers roundish, cohering, so that the adjoining lobes of each make one common cell, at length separating. Fil. Germen superior, obovate; style cylindrical; stigma dilated, concave. Peric. Nut inversely conical, of one cell, naked.


A New Holland genus of smooth shrubs, of humble growth. Leaves alternate, thread-shaped, forked; their footstalks dilated at the base. Flowers small, yellow, smooth, compounding small, globiferous, terminal heads, disposed either in clusters or panicles, with or without a short common involucrum, and with a minute bracte under each flower. Two species only are mentioned.

S. tenuifolia. Narrow-leaved Simia — Heads naked, mostly terminal on each branch of the panicle, accompanied by small partial bracteas. — Found by Mr. Brown, on lofty sides of hills, in Lewin's land, on the south coast of New Holland.

2. S. anchusa. Furry-leaved Simia.—Heads numerous in each panicle, and about as long as its partial branches, accompanied by imbricated involucral leaves. — Gathered by Mr. Brown, on the sandy fringes of the same country.

SIMSKALIA, Ophi and Whiter, in Geography, two small islands in the Baltic, E. of Aland, about four miles apart. N. lat. 60° 20'. E. long. 26° 8'.

SIMSON, Robert, in Geography, was born in the year 1657, of a very respectable family, in the county of Lanark. He was educated in the university of Glasgow, where he made great progress in his studies, and acquired in every branch of science a large flock of information, which, if it had never been greatly augmented afterwards, would have done great credit to any professional man. He became, at an early period, an adept in what was denominated the philosophy and theology of the schools, and was able to supply with great credit the place of aick relation in the class of Oriental languages. While he was pursuing a course of theology, as preparatory to his entering into orders, mathematics took hold of his fancy, and he would, in after-life,
SIMSON.

fay that he amused himself in his favourite pursuit, while he was actually preparing his exercises for the divinity hall. When fatigued with speculations, in which he could not meet with certainty to reward his labours, he relieved his mind, ardent in the pursuit of truth, by turning to mathematics, with which he never failed to meet with what would satisfy and refresh him. For a long time he refrained himself to the very moderate use of the cordial, fearing that he should soon exhaust the flocks which so limited and abstruse a science was capable of yielding; at length, however, his fears were dissipated on this head, for he found that the more he learned, and the farther he advanced, the more was there to learn, and a full wider field opened to his view. He accordingly determined to make the mathematics the profession of his life, and gave himself up to the study without reserve. It is said, that his original incitement to this science as a treat, as something to please and refresh the mind in the midst of feverish talks, gave a particular turn to his mathematical pursuits, from which he could never deviate. He devoted himself chiefly to the ancient method of pure geometry, and felt a decided dislike to the Cartesian method of substituting symbols for the operations of the mind, and still less was he willing to admit symbols for the objects of discussion, for lines, surfaces, solids, and their affections. He was rather disposed in the solution of an algebraical problem, where quantity alone is to be considered, to substitute figure and its affections for the algebraical symbols, and to convert the algebraical formula into an analogous geometrical theorem. In so little respect did he come at last to consider algebraic analysis, as to denominate it a mere mechanical knack, in which he would lay we proceed without ideas of any kind, and retain a refult without meaning, and therefore without any conviction of its truth.

About the age of twenty-five Dr. Simson was chosen professor of mathematics in the university of Glafgow. He immediately went to London, and there formed an acquaintance with the most eminent men who at that time flourished in the metropolis. Among these was the celebrated Halley, of whom he always spoke with the most marked respect, saying that he had more acute penetration, and the most just taste in that science, of any man he had ever known. Dr. Simson also admired the matterly steps which Sir Isaac Newton was accustomed to take in his investigations, and his manner of substantiating geometrical figures for the quantities which are observed in the phenomena of nature. He was accustomed to say, that the 35th proposition of the first book of the Princips, was the most important proposition that had ever been exhibited to the phisico-mathematical philosopher, and he used to illustrate to the higher classes of his pupils, the superiority of the geometrical over the algebraical analysis, by comparing the solution given by Newton, of the inverse problem of centripetal forces, in the 42d proposition of that book, with the one given by John Bernouilli, in the Memoirs of the Academy of Sciences at Paris, for the year 1713.

Returning to his mathematical chair, Dr. Simson discharged the duties of a professor, for more than half a century, with great honour to the university and to himself. It is scarcely necessary to add, that in his lectures he always made use of the geometry of Euclid, in preference to those works which he thought lean too much to analysis. His method of teaching was simple and periphrastic, his elucidation clear, and his manner easy and impressive. He uniformly engaged the respect and affection of his pupils.

It was owing to the advice of Dr. Halley that our author so early directed his efforts to the restoration of the ancient geometers. He had recommended this to him as the most certain means of acquiring a high reputation, as well as to improve his taste, and he presented him with a copy of Pappus’s Mathematical Collections, enriched with his own notes. The perspicuity of the ancient geometrical analysis, and the elegance of the solutions which it affords, induced him to engage in an arduous attempt, which was nothing less than the entire reformation of this method. His first talk was the restoration of Euclid’s Postulates, from the scanty and mutilated account of that work in a single passage of Pappus. He, however, succeeded, and by early as 1718 seems to have been in possession of this method of investigation, which was confidered by the eminent geometers of antiquity as their furest guide through the intricate labyrinths of the higher geometry. In 1723 Dr. Simson gave a specimen of this discovery in the Philosophical Transactions; and after that period he continued with unremiting ardour to reform these choice porifms which Euclid had collected, as of the most general use in the solution of difficult problems. Having obtained the object of which he was in pursuit, he turned his thoughts to other works of the ancient geometers, and the Porifms of Euclid had now only an occasional share of his attention. The Loci Plani of Apollonius were the next talk in which he engaged, and which he completed in the year 1738; but after it was printed he was far from being satisfied that he had given the identical propositions of that ancient geometer; he withheld the impression several years, and it was with extreme reluctance that he yielded to the entreaties of his mathematical friends in publishing the work in 1746, with some emendations, in those cafes in which he thought he had deviated the most from the author. Anxious for his own reputation, and fearing that he had not done justice to Apollonius, he soon recalled all the copies that were in the hands of the booksellers, and the impression lay by him several years. He afterwards revised and corrected the work, and even then did not, without some degree of hesitation, allow it to come into the world as the restoration of Apollonius. The work was, however, received by the public with great approbation; the author’s name became better known; and he was now confidered as among the very first and most elegant geometers of the age.

He had, previously to this, published his Conic Sections, a treatise of uncommon merit, whether confidered as a complete restitution of the celebrated work of Apollonius Pergæus, or as an excellent system of this useful branch of mathematics. This work was intended as an introduction, or preparatory piece, to the study of Apollonius, and he has accordingly accommodated it to this purpose. The intimate acquaintance which Dr. Simson had now acquired with all the original works of the ancient geometers, as well as with their commentators and critics, encouraged him to hope that he should be able to restore to its original state that most useful of them all, the Elements of Euclid, and under the impression of this idea, he began seriouly to make preparation for a new and more perfect edition. The errors which had crept into this celebrated work appeared to require the most careful efforts for their extirpation; and the data allo, which were in like manner the introduction to the whole art of geometrical investigation, seemed to call for the noblest exertions of a real master in the science. The data of Euclid have fortunately been preferred, but the work was neglected, and the few ancient copies, which amount only to three or four, are said to be wretchedly mutilated and erroneous. It had, however, been restored, with some degree of success, by previous authors; but Dr. Simson’s view of the whole analytical system pointed out to him many parts which still required amendment. He therefore made its restitution a joint task with that of the Elements, and all
I am grateful to geometry for the education which I have received from it; and I am thankful to its principles, as they are laid down by Dr. Simson, for the many useful and elegant theorems which I have been able to follow and apply in the sciences of which it has been the parent.

It is the work of which Dr. Simson is so well a master and patron, the Scotia Delineata of April 1780, which, though begun early, was not given to the world till after his death, when it was printed with the work on Physics in Edinburgh at the expense of the late Earl of Stair, for which he was bountifully deeply read in mathematics and was many years had kept up a constant correspondence with Dr. Simson, and at the death of the professor, in 1768, the work had escaped Mr. Caw, professor of logic in the university of Glasgow, to whose care he had left all his papers, to make a selection of such as might serve to support and extend his well-earned reputation at the relisher of ancient geometry.

"The life of a literary man," says his biographer, a sedulous marked with much variety; and a mathematician immersed in study, is more abstracted, perhaps, than any other pursuit from the ordinary occurrences of life, and even the ordinary topics of conversation. Such was the case with Dr. Simson. As he never entered into the marriage state, and had no occasion for the commodious house in the university, to which as professor he was entitled, he contented himself with chambers, spacious enough for his own accommodation, and for containing his large, but well selected, collection of books, but without any decoration, or even convenient furniture. His official servant acted as valet, footman, and bed-maker; and as this retirement was entirely devoted to study, he entertained no company at his chambers, but on occasions, when he wished to see his friends, he repaired to a neighbouring house, where an apartment was kept for him and his guests. He enjoyed a long course of uninterrupted health, but towards the close of his life he suffered from acute disease, which obliged him to employ an assistant in his professional labours. He died in 1768, at the age of 81, leaving to the university his valuable library, which is now kept apart from the rest of the books.

It is still regarded as the most complete collection of mathematical works and manuscripts in the kingdom, many of them being rendered doubly valuable by the addition of Dr. Simson's notes. It is open for the public benefit, but the use of it is limited by particular rules and restrictions. Dr. Simson was a good natured, and he had a fine countenance, and even in his old age he retained much gracefulness and dignity of manner. He was naturally disposed to cheerfulness; and though he seldom made the third advances towards acquaintance, he always behaved with great affability to strangers." See Dr. William Trail's Account of the Life and Writings of Dr. Simson.

SIMULACRUM, among the Romans. See Idol and Idolatry.

SIMULATION, in Ethics, is making a thing appear which does not exist; and thus it is distinguished from dissimulation, which is keeping that which exists from appearing. See Dissimulation.

SIMULANDY, in Geography, a town of Bengal; 60 miles N.E. of Pucculoe.

SIMULYS, a town of Bengal; 25 miles N.N.E. of Dacca.

SIMYRA, in Ichthyology, the name used by some authors for the nalis, or nile, a fish common in the large rivers in Germany, and somewhat resembling our club, and is some respects our common rudd.

SIMLYRA, SIMLYRA, in Ancient Geography, a town of Vol. XXXI.
occasions; and our first parents, after their transgression, received such deep traces in the brain, by the impression of sensitive objects, that it was very possible they might communicate them to their children.

Now, as it is necessary, according to the order established by nature, that the thoughts of the soul be conformable to the traces in the brain; it may be said, that as soon as we are formed in the womb, we are infected with the corruption of our parents; for having traces in the brain like those of the persons who gave us being, it is necessary we have the same thoughts, and the same inclinations, with regard to sensitive objects. Thus, of course, we must be born with concupiscence and original sin. With concupiscence, if that be nothing but the natural effort the traces of the brain make on the mind to attach it to sensible things; and with original sin, if that be nothing but the prevalence of concupiscence; nothing, in reality, but these effects considered as victorious, and as mailers of the mind and heart of the child.

Imputed original sin denotes that guilt or obligation to punishment, to which all the povertv of Adam are subject, by the imputation of his transgression. This is called the guilt of Adam’s first sin, in which the sinful acts of that late into which man fell is laid partly to confit; and it is denominated original sin, in order to distinguish it from actual sin, or personal guilt. This doctrine of imputed guilt has been explained and vindicated by supposing a covenant made with Adam, (called by divines the “covenant of works,” see Covenant,) as a public person, not for himself only, but for his posterity, in consequence of which he became the federal head, surety, or representative of all mankind; and they descend from him by ordinary generation, finding in him, and fell with him, in his first transgression. It has been debated, how far the imputation of Adam’s sin reaches; some have maintained, that it extends to final condemnation, and eternal misery: others have suggested, that the sin of Adam has subjected his posterity to an utter extinction of being; so that all, who die in his infancy, fall into a state of annihilation, except those who are the seed of God’s people, who, by virtue of the blessings of the covenant made with Abrahm, and the promise to the seed of the righteous, shall, through the grace and power of Christ, obtain a part in a happy resurrection, in which other infants shall have no share.

It seems best to acknowledge, says Dr. Doddridge, that we know nothing certain concerning the fate of infants, and therefore can affirm nothing positively; but that they are in the hands of a merciful God, who, as he cannot consistently with justice and truth give them a fenre of guilt, for an action they never committed, so probably will not hold their souls in being merely to make them sensible of pain for the guilt of a remote ancestor, their existence in a state of everlasting insensibility (which was Dr. Ridgeley’s scheme) seems hardly intelligible; we must, therefore, either fall in with the above-mentioned hypothesis, or suppose them all to have a part in the resurrection to glory, which seems to put them all on a level, without a due distinction in favour of the seed of believers; or else must suppose they go through some new state of trial, concerning which the Scripture is wholly silent.

Such is the doctrine of original sin, both inherent and imputed, as some divines, eminent as scholars and theologians, have stated it. In proof of the degeneracy or depravity of human nature, they have appealed to observation and experience, and they have referred to a variety of texts of scripture, in which, according to their ideas of them, it is either implied or expressed. To those who object, that the phenomenon of universal corruption in adult persons may be accounted for by imitation, and to want of early instruction, restraint, and discipline, they reply, that the scriptures seem to trace it to a higher source, and that children often manifest propensities towards those vices of which they have seen no examples; to which it is added, that there are many examples of eminent virtue in the world, and yet they are not so frequently, or so easily imitated, as those of a vicious nature, which plainly shews a bias on the mind towards vice. Hence they say, Pagans themselves, who have been most distinguished by their study of human nature, have acknowledged, in strong terms, an inward depravation and corruption adding a disproportionate force to evil examples, and rendering the mind averse to good. Those who maintain, that the sin of Adam is imputed to all who descended from him in the way of ordinary generation, allege, in proof of this opinion, that we are all born with such constitutions as will produce some evil inclinations, which we probably should not have had in our original state; which evil inclinations are represented in scripture as derived from our parents, and therefore may be ultimately traced up to the first sinful parents from whom we descended;—that infants are plainly liable to diseases and death, though they have not committed any personal transgression, which, while they cannot know the law, it seems impossible they should be capable of, (Rom. v. 12—14);—that the seeds of diseas and death were undoubtedly derived to children from their immediate parents, and from them may be traced up to the first diseased and mortal parent, i. e. Adam;—that the scripture teaches us to consider Adam as having brought a sentence of death upon his whole race, and expressly says, that many were constituted sinners, i. e. on account of it are treated as such, (1 Cor. xv. 22. Rom. v. 12—19);—that the sin of Adam brought upon himself depraved inclinations, an impaired constitution, and at length death:—and there is no reason to believe, that if man had continued in a state of innocence, his offspring would have been thus corrupt, and thus calamitous from their birth. Hence, it has been inferred, that the covenant was made with Adam, not only for himself, but in some measure for his posterity; so that he was to be considered as the great head and representative of all that were to defend from him.

On the other hand, many divines, no less eminent as scholars and theologians, than those whose sentiments we have already stated, have disputed the validity of the arguments alleged in proof of the doctrine of original sin; and whilst some of them have disowned the doctrine in toto, as irrational and unscriptural, others have allowed that part of it which comprehends the depravity of the human species, but have rejected the imputation of Adam’s sin to his posterity. Accordingly Limborch, rejecting and refuting the imputation of Adam’s sin, acknowledges, that men are now born less pure than Adam was created, and with a certain inclination to sin; but this inclination cannot properly be called sin, or a habit of sin propagated to them from Adam; but merely an inclination to elect and pursue what is agreeable to the flesh, arising from the bodily constitution transmitted to them by their parents. Inclinations and appetites of this kind, being most agreeable to the flesh, are contrary to the divine will, as God by prohibiting them tries the readiness of our obedience, and of course these inclinations are inclinations to sin. But, if it be asked, says this author, whether there be in human nature a certain original corruption or habit of sin propagated from Adam to his posterity, which may truly and properly be called sin, by which the understanding, and will, and all the affections
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affections are so depraved, that they are inclined only to evil, and that all mankind are by nature subject to the wrath of God, such kind of corruption is inherent either with scripture nor with right reason. The scripture, he says, teaches us such doctrine, as that which charges infidants with a moral corruption, that is truly and properly fin. (See Deut. i. 39. Jonah, iv. 11. Rem. iv. 11.) Our Saviour recommends it to his disciples to be as little children. (See also 1 Cor. xiv. 20.) This notion, says Limborch, is contrary to the justice of God, who would not punish men with this moral corruption, from which all actual sins proceed, and which leads to future perdition and misery. God cannot be the author of fin. Besides, it cannot be conceived, how this sin can be propagated; it cannot belong to the mind, which proceeds immediately from God, nor can it exist in the body, which is incapable of sin. But as diseases may be propagated, so may a peculiar temperament or constitution, and together with this an inclination to certain objects, which, immoderately indulged, may become sinful, but is not sinful in itself. Moreover, no fin is liable to punishment, which is involuntary; but original corruption is voluntary. Limborch explains many texts, and refutes many arguments urged by the advocates of original fin. Another writer, (Dr. Taylor,) who has taken a lead in this controversy, on the same side of the question, proceeds, in the examination of the doctrine of original fin, upon the same plan with Dr. Clarke, in his "Scripture Doctrine of the Trinity," by citing and explaining all those passages of scripture which expressly speak of the consequences of the first transgression. He observes, that the consequences of the first transgression are spoken of certainly and plainly but five times in the whole bible, twice in the Old, and three in the New Testament. The first passage is Gen. ii. 17. In this passage, he says, death is consigned to man, and must be suffered. But not one word occurs in this text relating to Adam's poxterity. 2. The consequences of the transgression of Adam and Eve are related in Gen. iii. from the 4th verse to the end of the chapter. The natural consequences were famine and fear, the common effects of guilt, which was personal, and could belong only to themselves. The judicial consequences pertained either to the serpent, the woman, or the man. As far as they relate to the man, Adam became obnoxious to death, which, as our author conceives, was death in law, or eternal death; and if the law had been immediately executed, his posterity then included in his sins must have been extinct. But it is alleged, that there is not a word of a curse upon the souls of our first parents, i.e. upon the powers of their minds; nor does the least intimation occur with respect to any other death, besides that diffusion which all mankind undergo, when they cease to live in this world. It is also observed, that we, their posterity, are in fact subject to the same afflictions and mortality here inflicted by sentence upon our first parents; but they are not inflected as punishments for their fin, because punishment includes guilt; but we neither are, nor in the nature of things could be, guilty of their fin. We may suffer by their fin, and actually do suffer by it; but we are not punished for their fin, because we are not guilty of it; and this suffering is essentially good. Accordingly it appears evident in our world, that the increase of natural evil (at least in fame degree) is the leaffing of moral evil.

3. The third text occurs in the New Testament, vs. 1 Cor. xv. 21, 22. Here it is said, the death from which all mankind shall be released at the resurrection, is the only death that came upon all men in consequence of Adam's fin; that as all men die, all men are mortal; all lose their life in Adam, and from him our mortality descends, and it is equally undeniable, that by Christ we are delivered of the dead. From this place we cannot object, says our author, that any other evil or death consigned to mankind is a consequence of Adam's first transgression, but that death from which all mankind shall be delivered in the resurrection, weverver that death be.

4. The most difficult passage is that which is found in Rom. v. 12, 19. A popular advocate of the doctrine of original fin (Dr. Watts,) thinks, that Adam's being a federal head, and our deriving a federal nature from him, may be collected from this text. In this passage our author observes, that the apostle is speaking of the death which takes place with regard to all mankind, when the person lies eternally punished; and that by judgment is denoted a judicial act of condemnation. The apostle means the being adjudged to the forementioned death. The words "as by one man's disobedience many were made sinners," are (says Dr. Taylor) of the same significance with those in the foregoing verse, "as by the offence of one judgment came upon all men to condemnation." and therefore they mean nothing more nor less than that by one man's disobedience, the many, that is, mankind, were made subject to death by the judicial act of God. The apostle, being a Jew, was well acquainted with the idioms of the Hebrew language; and according to that language, "being made sinners" may well very signify being adjudged or condemned to death. (See Exod. xxi. 9. Deut. xxx. 1. 1 Kings, viii. 32. Job. ix. 20. x. 2. xxiv. 3. xxxiv. 17. xl. 8. Prov. xxxiv. 17. xv. 15. II. 1. 9. lv. 17.) In the Greek text it is not "εναγμείναι κατάμαχον," but "ἐναγματεύονται," were condemned sinners; vs. the will and appointment of the judge. Besides, it is here expressly said, that the many, i.e. mankind, are made sinners, not by their own disobedience, but by the disobedience of another man, and therefore they can be sinners in no other way than as they are sufferers. Upon the whole our author thinks it plain, that "by one man's disobedience many were made sinners," means that by Adam's offence, the many, i.e. mankind, were subject to death by the judgment of God. In this passage there is an evident contrariety or comparison between something which Adam did and its consequences, and something which Christ did and the consequences of that; by the former the many, i.e., all men, are brought into condemnation; and by the latter, all men are justified unto life. The whole of the apostle's argument and attention are suppofed by our author to rest upon two principles; viz. that it is by the one offence of Adam that death passed upon all men, and not by their own personal sins; and again, that it is by the obedience of one, or the one act of Christ's obedience, (in his sufferings and death upon the cross,) that all men are justified unto life, and not by their own personal righteoufsnes. He adds, that throughout the whole paragraph, the apostle says nothing of any federal relations or transactons either on the part of Adam or Christ, nor of our deriving a sinful nature from Adam.

5. The text in Tim. ii. 14. declares a fact, with regard to Eve, which needs no explanation.

Dr. Taylor, in the second part of his book, proceeds to examine other passages of scripture, which some divines have applied to original fin. We shall here select two or three of the principal, that our readers may be able to form a judgment for themselves; one is Ephes. ii. 3. 5, and were by nature the children of wrath, even as others. The apostle, our author apprehends, cannot mean that they were liable to divine wrath or punishment by that nature which they brought into the world at their birth. For this nature, whatever
whatervininfirmitiesbelongtoit,isonothanothershouldgo'sown workor gift;and hethinks,that toaffirman that the nature
which God gives us is the hateful object of his wrath, is little
less thantoblerate against our good and bountiful Creator.
In his addrefstothe Ephesians, the apostle is not speaking
of their nature, or the natural constitution of their souls
and bodies as they came into the world, but evidently of the
viceous course of life they had led among the Gentiles.
Nature frequently signifies an acquired nature, which men
bring upon themselves by contracting either good or bad
habits. Befides, by nature may here signify really, properly,
true; for these children, strictly signify the genuine children
of parents by natural generation; and figuratively the word
denotes relation to a person or thing by way of friendship,
regard, imitation, obligation, &c.; so that "children of wrath"
are those who are related to wrath, or liable to re-
fection or punishment. The Ephesians, as the apostle teftells
them, were τὰ ἐκ τῆς φύσεως, natural genuine children of wrath,
not by natural birth, or the natural constitution of their
bodies or souls, but they were related to wrath in the highest
and strictest sense, with regard to sin and disobedience:—
Nature, in a metaphorical expression, signifying that they
were really and truly children of wrath, i.e. did in the
strictest and closest relation to suffering.
Another passage, sometimes referred to in connection with
this subject, viz. Rom. vii. 7, 8, contains not so much as
a single word that can carry our minds to Adam, or any
consequences of his sin upon us.
Gen. vi. 5. expresses the universal wickedness of the old
world, but does not so much as intimate that our nature
is corrupted in Adam; for the historian doth not charge their
his in any way upon Adam, but upon themselves: and be-
sides, Noah is exempted out of the number of the corrupt
and profligate; but this could not have been the case if the
alleged text was a good proof that by Adam's transgression
the nature of all mankind is corrupted.
Another text, which has been considered as of great im-
portance in this controversy, is Pf. li. 5, 6. "I was
shapen in iniquity, and in fin did my mother conceive me."
The word יבשונא, which we translate shapen, signifies, says our author, to bring forth or bear. (If. li. 2. Prov. viii. 24, 25.) Again, the word יבשונא
conceived me, properly signifies swarmed me; and the expref-
sion conveys the idea, not of his being conceived, but
warmed, cherished, or nurfed by his mother, after he was
born. Accordingly, the verfe is thus translated, "Behold,
I was born in iniquity, and in sin did my mother nurfe me;"
which has no reference to the original formation of his con-
stitution, but is a paraphrase for his being a sinner from the
womb, and is as much as to say, in plain language, I am a
greater sinner; or I have contracted habits of sin. This, it is
said, is a scriptural way of aggravating wickedness. (See
Pf. liii. 35. Psalms, xviii. 8.) In the whole psalm there
is not one word about Adam, or the effects of his transgres-
sion upon us. The psalmist is charging himself with his
own sin. But if the words be taken in the literal sense of
our version, then it is manifest that he chargeth not himself
with his sin and wickedness, but some other person. But
our limits will not allow of our enlarging farther in this
way.
Dr. Taylor proceeds, in part iii. of his book, to examine
and answer objections. It is added, 1. Are we not in wor-
se moral circumstances than Adam was? If by moral circum-
stances be meant the state of refton and virtue in the world,
it is certain, that since Adam's first transgression, this has
become very different from a state of innocence. But this
is not the fault of human nature, no more than Adam's sin
was the fault of his nature, but occasioned, as his trans-
gression was, by the abuse of it. If by moral circumstances
be meant the provision and means which God has furnished
for our spiritual improvement, the apostle to the Romans
expressly affirms, that in or by Jesus Christ, God hath given
us an abundance of grace. But if by moral circumstances
be meant moral abilities, or mental powers, our author sug-
gests, that there is no ground in revelation for exalting
the nature of Adam to such a degree of purity and strength
as some divines have raised it, when they affirm, that all his
faculties were perfect, and entirely devoted to the love and
obedience of his creator. The sequel of his history feems to
be inconsistent with this notion.
It is said that man was made in the image of God;
but can this be affirmed of his posterity? The image of
God must be understood either of the rational faculties
of his mind, or the dominion he had over the inferior crea-
tures, by which he bore the nearest resemblance to God
of any beings in this world; and not, as Dr. Taylor conceives,
of holiness and righteousness, which is a right use of our
spiritual faculties; because such an use of them could not be
tilt after they were created; and this writer is of opinion,
that original righteousness is as far from truth as original
sin; and that to talk of our wanting that righteousness in which
Adam was created, is to talk of nothing we want. Two
7 stex, rirc. Rom. ii. 15, 16, and Eccle. vii. 29, are quoted
by the Assembly of Divines in their larger Catechism, to prove,
that our first parents had the law of God written in their
hearts, and power to fulfil it, in opposition to their po-
terity, who want that righteousness in which they are sup-
posed to have been created, and whose nature is corrupted
to a lamentable degree; but if these texts speak not of our
first parents, but of their posterity, and of the most cor-
rupt part of their posterity too, it must be true, and the
truth is very important, "that by nature we have the law
of God written in our hearts, and power to fulfil it," as
well as they; and are equally bound to be thankful to God
for our being, and to glorify him by it.
We have already spoken of that moral taint and in-
fecion, which we are said to have derived from Adam; and
in consequence of which we have a natural propensity to fin.
This taint or infecion must exit either in the body or the
foul. In the foul, which immediately proceeds from God,
it cannot exit; nor in the body, which, in a flate separate
from the foul, is inactive matter, which in itself, neither is nor
can be the subject of moral good and evil. But such an
infecion, wherefoever it exiis, or howsoever it is propa-
gated, cannot be derived from Adam to every human
being, independently of the will and operation of God;
and to assert, that it is by his will and operation, is evi-
dently to make him the author of the pollution. It is main-
tained, that by propagation it is not possible for parents to
communicate vice, which is always the faulty choice of a
person's own will, otherwife it is not vice. Children, it has
been faid, begin very foon to fin, and how can this fadly be
accounted for but upon the scheme of original fin; namely,
that it is infiuoed into their nature? To this obje{tion it has
been replied, that their early fin is owing to the early want of
instructioo and discipline. Another objection, which is
strongly urged by the advocates of original fin, is this:
Adam was a common or federal head and representative of
all his posterity, and consequently all his offspring finned in
him, as their root; just as Levi is faid to pay tithes in
Abraham (Heb. vii. 9.) and as the branches must be mor-
ally corrupt, if the root be in that flate. (Rom. xi. 16.)
To the arguments deduced from the firt of thelfe paflages it
has been replied, that neither the cafe of Abraham and
Levi,
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Levi, nor the apostle's argument grounded upon it, has any answer of relative to partaking in guilt, or contracting moral corruption; and it is alleged, that the reference deducible from the second passage would be very just, if the apostle were here speaking of moral evil, it is, as it is a quality or principle in the mind; whereas the heinousness here mentioned is to be that external, relative evil (which is frequently attributed to the whole nation of the Jews), as they were God's peculiar church and people. The form of a federal head or representative of moral conduct, a representative of guilt of whole action shall be required to us, and whose sin shall corrupt, defile, and authorize the opposition proposed by God himself, in as its opponents maintain, not only without foundation in scripture, but in itself a great absurdity. Indeed, the external circumstances of poverty may be affected by the bad conduct of their executors. This is frequently affirmed in Scripture, and certainly held good in the case of Adam and his poverty; and may be accounted a state of poverty, and answering very good purposes. But that any man could represent me, that when he is guilty, I am to be reputed guilty, when he transgresseth, I shall be answerable and punishable for his transgression; and this before I am born, and consequently before I am in any capacity of knowing, helping, or hinderin what he doth; thus, I say, every one who uters his understanding must clearly see is fallacious, unreasonable, and altogether inconsistent with the truth and goodness of God. And, if you please, you may see him fully vindicated by the spirit of truth from all injustice of this kind in Ezekiel, xvi. 26. where he affirms, "that the soul that falleth, it shall die. The son," however he may come under disciplinary visitations, "shall not bear the iniquity of the father; neither shall the father bear the iniquity of the son; the righteous are not to be found upon him, and the wickedness of the wicked shall be upon him." And v. 30, "that God will judge every one according to his ways." It is further alleged, that the imputation of sin, so far as to make the poverty guilty of and chargeable with the sin of the parent, is no scriptural notion. An action, indeed, is often said to be imputed, reckoned, or accounted to a person; but then it is no other than his own act and deed which is so accounted or imputed to him, either for righteousnes or sin. See Gen. xvi. 6. Lev. xvii. 4. Num. xvi. 26. 27. 1 Sam. xi. 2. 1 Sam. xxiv. 15. 2 Sam. xiv. 19. Prov. xxvii. 14. P. xxiii. 2. Pf. eiv. 31. Rom. ii. 26. Rom. iv. 3. &c. Rom. v. 13. 1 Cor. xiii. 5. 2 Cor. v. 19. Gal. iii. 6. 2 Tim. iv. 16. James, ii. 23.

We might here introduce some arguments for, and some objections to, the doctrine of original sin, of a general nature, if our limits would allow. We can only suggest, on the part of its advocates, that original sin is necessary to account for the being of sin in the world. How comes it to pass, that there is so much wickedness in the world, if our nature be not sinful? — How is it consistent with the justice of God, that we suffer at all on account of Adam's sin? Besides, it has been a generally received opinion, that the fall, corruption, and apostasy in Adam, have been the reason why Christ came into the world, and gave himself a ransom for us. To the question concerning regeneration, which is inflected upon in the New Testament, why must we be born again? it is replied, because we are born in sin. Our nature in Adam is corrupted, and utterly indisposed, disabled, and made opposite to all that is spiritually good, and wholly inclined to all evil, and that continually; therefore we must be born again, before we can do anything that is good and pleasing to God.

On the other hand, the opposers of this doctrine allege, that it is highly injurious to the God of nature to believe that our nature is originally corrupted at the very moment it appears. They say, it is contract to work with God. Therefore, if it be supposed, that the doctrine of original sin is necessary to account for the fall of man, it must be directly inconsistent with the idea of universal salvation; for it is certain, that the doctrine of original sin is necessary to account for the fall of man, as we might imagine, to account for the corruption of mankind, the same which he was created, and the corruption of his nature, &c. (See Rom. v. 12. 19. Rom. iii. 10. 20. Eph. ii. 1. 2. Rom. v. 6. viii. 7. 9. Gen. vii. 5. James, iv. 14. 15. Matt. xv. 10.) It is added, that the Fall brought upon mankind the loss of communion with God, his dignity, and curse; so that we are by nature children of wrath, bond-slaves to Satan, and justly liable to all punishments in
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On the other hand, it is alleged, that the language of man's sinfulness consisting in the guilt of Adam's first sin is unscriptural; nor, in the nature of things, can our sinfulness consist in the guilt of Adam's first sin; because, as we could not possibly commit that action in any sense, so we could not, upon account of it, become obnoxious to punishment. If the texts above cited prove that man's nature by Adam's sin is so corrupted, that man, i.e. men, are utterly indifposed, disabled, and made opposite to all that is spiritually good, that is, to moral actions, pleasing and acceptable to God, and wholly and continually inclined to all manner of wickedness, they would further prove, that men are no moral agents, and that sin must be natural to us, and if natural, necessary; and if necessary, with regard to us, it is no sin, with regard to us, or so far as we are concerned in it. For a further account of the state of this controversy, and of the arguments adduced for and against the doctrine of original sin, we refer to the Assembly's Catechism; Watts's Ruin and Recovery; Jennings's Vindication, &c. Chandler's Sermons, vol. iv. Sermon 1—7. Bury's Street Lect. vol. 1. Limborch Theolog. lib. iii. c. 7. § 1, 2. Taylor's Scripture Doctrine of Original Sin, In Three Parts, with a Supplement, &c. ed. 4. Ben Mordecai's Letters, Letter V.

The Romish cauftsights distinguiht æqual sins into mortal; which are such as make us lose the grace of God; and venial, which alone are pardoned, as being only sins of in

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inerity, not of malice. See POFERY.

Divines are not yet agreed what the sin against the Holy Ghost is. See BLASPHEMY against the Holy Ghost.

SIN, Philosohical, according to the doctrine of the Jefuits, is an action, or course of action, that is repugnant to the dictates of reason, and yet not offensive to the Deity.

SINA, in Ancient Geography, a town of Afa, in Marigiana. Ptolemy.—Alto, a town of Cappadocia, in the prefecture of Cilicia. Id.—Allo, a place in the isle of Lebos. Strabo.

SINA, or Jufinianopolis, a town of Afa, in the Greater Armenia.

SINAAB, in Geography, a town of Algiers, in the province of Tremecon, on the E. side of the Shelliff; 72 miles S.W. of Algiers.

SINACA, in Ancient Geography, a town of Hycania. Ptolemy.

SINADIZAVA, in Geography, a town of European Turkey, in Bulgaria, on the Oza; 12 miles E. of Nicopoli.

SINE, in Ancient Geography, a people of India, according to Ptolemy. It appears that their country extended from Siam into a part of China.

SINAIB, Mount, in Geography, a famous mount of Arabia Petraea, on which God gave the law to Moses. (Exod. xix. 1. xxiv. 16. xxxi. 18. xxiv. 2. 4. &c. Levit. xxv. i. xxvi. 46.) It is situated in a kind of peninsula, formed by the two arms of the Red sea, one extending N. called the gulf of Kolfun; the other extending E. called the gulf of Elan. The Arabs call mount Sinai by the name of "Tor," i.e. the mountain, by way of excellence; or "Jebel Mufa," the mountain of Mofes; comprehending a range of mountains which rise at the interior extremity of the valley of Fazan, restricting the name of Tor Sinai to that part of the range on which the convent of St. Catherine stands; and about 250 miles from Cairo. The wilderness of Sinai, where the Israelites continued encamped almost a year, and where Mofes erected the tabernacle of the covenant, is considerably elevated above the rest of the country; the ascent to it is very craggy, the greater part being cut out of the rock; and then you arrive at a large space of ground, which is a plain surrounded on all sides by rocks and eminences, whose length is nearly twelve miles. Towards the extremity of this plain, on the north, two high mountains appear, the highest of which is called Sinai, the other Horeb. They are both of a very steep ascent, and the ground on which they stand is unconsiderable, when compared with their height. Sinai is one-third part higher than the other, and its ascent more upright and difficult. The Greeks have cut a flight of steps up the rock. Poscope reckons 3000 of these steps to the top of the mountain, or rather bare, pointed rock. Two German miles and a half up the mountain stands the convent of St. Catharine. The body of this monastery is a building 120 feet in length, and almost as many in breadth. Before it stands another small building, in which is the only gate of the convent, and which remains always shut, except when the bishop is there. At other times, whatever is introduced within the convent, whether men or provisions, is drawn up by the roof of a belfry, and with a cord and pulley. The whole building is of hewn stone, which, in such a desert, must have been constructed with great labour and expense. Within the walls is a small mosque for the convenience of the Arabs. This monastery belongs to Greek monks, who had in former times only a tower erected near the burning bush of Mofes. But being molestled by the infults and depredations of the Arabs, they petitioned the emperor Jufitian to build for them a strong monastery for their future security; and the emperor is said to have complied with their request. Before the convent is a large garden, planted with excellent fruit-trees. According to the account of the Arabs, the monks enter it by a subterraneous passage: These Greek ecclesiastics are not allowed to receive an European visitor, without an order from the bishop of mount Sinai, who resides ordinarily at Cairo. When the bishop happens to be present, the gate is opened, and the convent must entertain all the Arabs who come in there; and this is a grievous charge on the poor monks, who live merely on alms, and whose provisions, which they are obliged to bring from Cairo, are often stolen by the way. The Arabs are, in general, very dangerous neighbours, as they often fire on the convent from the adjacent rocks; and feize the monks whenever they find them without the walls of the monastery, and refuse to release them without a consider able ransom.

Five hundred steps above the convent is found an excellent spring, which superfluous persons have counted miraculous, as the mountain is so high and so barren. A thousand steps higher stands a chapel dedicated to the Blessed Virgin, and 500 above this, are two other chapels, situated in a plain, which the traveller enters by two small gates of mason-work. Upon this plain are two trees, under which, at high festivals, the Arabs are revelled at the expense of the Greeks. Sinai is held in great veneration, on account of the law which God gave on this mountain. The whole mountain is a very remarkable rock of red granite, interpenetrated with spots, to which foil has been brought by human labour, or washed down by rain, and in which grow almond-trees, figs, and vines. Mount Horeb stands W. of Sinai, so that at sun rise the shadow of Sinai covers Horeb. Beside the little fountain at the top of Sinai, there is another at the foot of Horeb, which supplies the monastery of St. Catharine. At a small distance is a town, four or five feet high, and three broad, from which it is pretended, Mofes caufed the water
water to gush out; in this line are twelve holes or channels, about a foot wide, from which, it is said, the water issued which the Brahutes drank.

Sinal, N. B. See Catharine.

Sinaloa, m Geography. See Cifaloe.

1. N. N. A river of Algiers, which joins the Wed-el-Maslab, about five miles before it runs into the sea. It glides in a variety of beautiful windings, and is known by several names, according to the remarkable places which they water. Near the bank of the river, Barbarossa the Elder scattered his treasures when pursued by the victorious Spaniards, and here he made his last intellectual effort to retard their progress.

Sinaneley, a town of Hindostan, in Myalore; 22 miles S.W. of Banyalagur.

Sinapatinga, in Ancient Geography, a town of India, on this side of the Ganges, in the vicinity of the river Indus, and one of those which belonged to the Cathars, according to Ptolemy.


Gen. Ch. Cal. Perianth inferior, spreading, divided into four, linear, concave, channelled leaves, forming a cros, decussate. Cor. cruciform; of four, rounded, flat, spreading, undivided petals, with erect, linear claws scarcely the length of the calyx. Nectary composed of four oval glands, one on each side between the shorter flaments and the pellis; and one on each side between the longer flaments and the calyx. Stam. Filaments six, awl-shaped, erect; the two shorter ones opposite; anthers erect, spreading, pointed. Pyl. Germin superior, cylindrical; nyle the length of the germen and height of the florum; stigma capitate, undivided. Petal. Pod oblong, inflated unequally at the lower part, rough, of two cells and two valves; partition generally twice as long as the valves, large, compressed. Seeds numerous, globular.

Obst. Sinapis differs principally from Brassica in having a spreading calyx, and the claws of the petals erect. Cruciferae unites this genus with Raphanus.

Eff. Ch. Calyx widely spreading, claws of the petals straight. Nectary parietals four. Pod more or less cylindrical, the partition longer than the valves.

1. L. Arabian. Wild Mustard or Chardock. Linn. Sp. Pl. 933. Fl. Brit. n. t. Eng. Bot. t. 1748. Curt. Lond. fac. 5. t. 47. Fl. Dan. t. 753.—Pods with many angles, rugged, 1 nger than their own two-edged beak. Leaves ovate, somewhat lyrate.—One of the most common and most troublesome European weeds in heavy moist corn lands, as well as about waste ground and hedges. It flowers most commonly in May and June, but occasionally in all open weather. Root annual, spindle-shaped, small, rigid. Stem round, flated, liquid with slightly deflexed bristles, ruged with red. Leaves alternate, falked, ovate, rough, to qualify traced; lower ones somewhat lyrate, upper leafy. Flowers in a terminal, clustered coryotte, of a bright yellow color. Seeds extremely pungent, very well known as the case of Daun Mistall.

2. L. vulgaris. Green Mustard. Linn. Sp. Pl. 223. Acad. Acad. v. 4. 281. Att. v. 4. t. 174. Proc. Sp. 174. (Semi-one side to side, rapin. D. Turner, 1745.)—Pods rough with reflexed bristles, and four blunt angles, compressed at the tip. Native of the Levant, is introduced at Kew by M. Thouin in 1737, where it flowers in June and July. This annual is extremely like the last, from which indeed it differs merely in having the pods rough with reflexed bristles, the beak only beaked.

3. L. brassicae. Cabbage Mustard. Willd. n. 3. Loureux, C. mis. 399.—Leaves oblong, smooth, to which is a diminutive manner.—Native of China, where it is much cultivated. This plant, we are informed by Loureux, has the habit of Cabbage or Lettuce, but in the structure of its calyx it resembles Mustard. Stem a foot and half high, very robust. Radial leaves oblonge, obtuse, white-veined, on channelled stalks; flowers, many, in two annulated appendages at the base of the flarks, upper one feathery, lanceolate, embracing the stem. Flowers like those of the Common Cabbage, bright yellow. Pod also resembling that of Brassica oleacea.


6. L. petaurata. Pyreenean Mustard. Linn. Sp. Pl. 933. Allain. Pedem. t. 55. r. 1.—Pods bracted, indents. Leaves recurved, smooth.—Native of the Pyrenees, Mts. de Cens, and similar situations in the south of Europe. It flowers about June. Root biennial. Stem angular, even, frilled, wavy, smooth. Leaves recurved; segments of the lower or radical ones toothed; those of the stem lanceolate. Flowers clustered, small, yellow. Willows considers S. mariciana A. Linn. as a variety of this species.

SINAPIS.


16. *S. fructífera*. Shrubby Multard. Willd. n. 17. Ait. Hort. Kew. n. 11.—Pods linear, smooth. Lower-leaves oblong, toothed; upper lanceolate, undivided. Stem smooth, shrubby.—Native of Madeira, whence it was introduced to Kew by Mr. F. Maffon in 1777. It flowers from December to June. Figure and description wanting.


The Linnaean *S. hípídá*, a rare and little-known plant, Ait. n. 15, is removed to Desfontaines' new genus Cordylócarpus, in Prodr. Pl. Græc. v. 2. 33.

Mr. Brown, in Hort. Kew. has, after Tournefort's example, conferred *Sísymbrium tenùifolium* and *Murale* Linnaeus as species of *Sinapis*. See *Sísmýrium*.

*Sinapis*, in Gardening, contains plants of the hardy, herbaceous, annual kind, of which the species cultivated are, the white multard (*S. alíba*); and the common or black multard (*S. nígra*).

The first fort is generally cultivated in gardens as a falladed herb, with cresses, radishes, rape, &c. for winter and spring ufe; in which intention it is a highly valuable plant.

In the second fort, it is the flower of the feed that affords the common multard for the table.

Method of Culture.—The first fort is fown along with other small falladed herbs, at all times of the year, sometimes every week or fortnight, in a bed or border of light earth, fown generally in shallow drills very thick, covering it very thinly with earth; and in winter, and early in spring, during cold weather, in hot-beds. The herbs are always cut for ufe whiff in the feed-leaf, and but a few days old; otherwife they become too frong and rank-tafted for ufe. See *Sallad Herbs*, and *Small Sallad Herbs*.

But in order to have feed of this fort for garden ufe, it should be fown on an open spot of ground, in March or April, either thinly in drills a foot afunder, or broad-calf all over the surface, and the plants be left to run up to falk, when they will furnifh ripe feeds in August. And in order to raife the plants for the feed for multard, the feeds should be fown in the fpring, any time in March, in some open situation, either in the kitchen-garden, or in open fields. In either cafe, having dug or ploughed the ground, the feed should be fown broad-calf all over the surface, and raked or harrowed in lightly; or it may be fown in shallow drills a foot afunder, and be lightly covered in. The plants foon come up; and when they have four or more leaves an inch or two broad, if they fland very thick, thofe fown in the broad-calf way particularly should be hoed and thinned, leaving them fix or eight inches afunder, cutting up all weeds; repeating the operation once or more, if necefly. After this the plants will foon spread and cover the ground, and fwoff falt up to flalks for flowers and feed, which ripens in July or August, when the flalks should be cut or pulled up, and the feed, being properly hardened, and
and dried in the pod. Should either be thrashed out directly, or stuck up dry, and thrashed at occasional opportunities afterwards; but the best is the leaf method.

Sinapi Nigra, Common Black Mustard, the Materia Medica, Sec. is common in cornfields and of ditches, but is cultivated for use, and flowers in June. (See Sinapis and Mustard.) The seeds of this species mustard, which are directed by the London College, a tribe of the S. alka, which are preferred by that of Edinburgh, are not different in taste or their general effects, answer equally well for the table and for medical purposes. Their taste is acrid and pungent, and when bruised this agency becomes volatile and affects the smell; they readily part these qualities to aqueous liquids, and by diffusion with water yield an essential oil of great acuteness; to rectified spirits they give out very little either of the smell or taste. When subjected to the press, they yield a considerable quantity of mild impid oil, which is as free from rancidity as that of almonds. By writers on the materia medica mustard is considered as promoting appetite, afflicting digen, attenuating woe fluids, and by diluting the fibres, owing a general remedy in paralytic and rheumatic affections. In considerable quantity, it opens the body and creates the urin

Sinapis, Persicum, Persian Mustard, a name by which some botanical authors have called the tldapi, or treacle mustard.

Sinapisis, a word used by some writers as a name for Ataman bile.

Sinapis, in which some have called to Sinapis ortis, or sain. mustard, in Agriculture, an external medicine, in form of a cataplasm. See Sinapis

Sinapistrum, in Botany, Tourn. Hist. 251, t. 140, a name of Hermann's, alluding to the resemblance of the plant, or at least of its pods, to Sinapis, or Mustard. See Cleome.

Sinara, the name of the male dancers, who, according to the mythology of the Hindoos, amuse their god Indra, regent of the firmament. (See Indra.) These are perhaps the same beings whose name is sometimes written Cinnara, and described to be human figures with the head of a horse, but we never saw them so represented. See Sintana and Sura.

Sinaram Regio, in Ancient Geography, a country of Asia, and the land on the eastern coast, according to Ptolemy.

Sinarus, a river of India, which discharges itself into the Hydaspes, according to Arrian.

Sinasbarium, in Botany, a name given by some authors to the fyxifomy, or water-mint, common in all our ditches and watery places.

Sinasse, in Geography, a town of Abyflinia; 40 miles N. of Mine.

Sinay, a small island near the W. coast of the island of Lucon. N. lat. 18° 11'. E. long. 120° 36'.

Sinbach, or Simbach, a town of Bavaria; 5 miles S. of Landau.

Sincapoura, or Sincapura, an island, with a town of the same name, near the S. coast of Malacca, which gives name to the narrow sea, called the Straits of Sincapura.' N. lat. 1° 11'. E. long. 103° 90'.

Sin-Carpou, a town of Chino Tertiary; 555 miles E.N.E. of Peking. N. lat. 42° 23'. E. long. 140° 46'.

Sincerity, in Ethics, is that excellent habit and temper of mind, which gives to virtue its reality, and makes it to be what it appears. Sincerity, called by the Greeks αὐλεξία, is included in this virtue, but does not express the whole of it; so that it is necessary to add in the Caten, which is to say two of the first kinds are in opposition to what is mixed and adulterated; the other to what is counterfeit. Sincerity has respect to two sorts of objects: persons and things. Of the first kind are God; other men, and every man's Self. Sincerity, with regard to God, signifies, that the form of religion is accompanied with the power of it, and that piety and obedience are substantial and unaffected; proceeding from principles, right in themselves, and uniform in their influence. Sincerity, as it regards men, implies an honest
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and open dishes in our dealings with them, extending to the springs and motions of our actions, as well as the actions themselves; to our words and our thoughts. Sincerity, with relation to a man’s self, is opposed to self-deception.

As to things, truth and goodwill are the principal objects of sincerity. The extremes of this virtue are over-frankness and hypocrisy. Grove’s System of Moral Philosophy, vol. ii. ch. 3.

SINCHO, or CHINCO, in Geography, a town of Africa, in the kingdom of Ningo, on the Gold Coast, the inhabitants of which are chiefly employed in fishing.

SINCIPUT, in Anatomy, the fore-part of the head, in opposition to occiput.

SINCKEL, in Geography, a river of Bavaria, which joins the Wertha; 2 miles S.S.W. of Augsburg.

SINCLAIR. See ST. CLAIR.

SIND, in Agriculture, provincially to rinse or wash out, as a milking pail, dish, &c.

SINDA, in Ancient Geography, a town of India, on the other side of the Ganges, placed by Steph. Byz. on the coast of the great gulf between Coragtha and Pagrafa.—Also, a town of Afia, in Pindia, on the confines of Caria. Strabo.—Also, a town of Afloat Sarmatia, upon the Cimmerian Bosphorus, between the ports Sindicus and Bara, according to Ptolemy.

SINDA, in Geography, a town of Hindoostan, in Baglana; 20 miles N.W. of Naifuck.

SINDAEC, in Ancient Geography, the name of three islands in the Indian sea, S. of the Baraffe, according to Ptolemy.

SINDAGUA, in Geography, a ridge of mountains in South America, between Popayan and the Pacific ocean.

SINDANGAN BAY, a bay on the N.W. coast of Mindanao, extending from N. to S. about 100 miles. N. lat. 8° 15’. E. long. 125° 4’.

SINDE. See INDUS.—Also, a river of Hindoostan, which rises about 20 miles W. of Bilfah, and runs into the Jumnah, at Puttehara.

SINDEJUA, a town of Napaul; 40 miles W. of Moaupour.

SINDELFINGEN, a town of Wurtemberg; 6 miles S.W. of Stuttgart. N. lat. 48° 41’. E. long. 8° 52’.

SINDER, a town of Hindoostan, in Baglana; 15 miles S.E. of Naifuck.

SINDERINGEN, a town of Germany, in the county of Hohonlohe, on the Kocher; 12 miles N.E. of Heilbron. N. lat. 49° 16’. E. long. 9° 55’.


SINDI, a people of Afloat Sarmatia, in the number of those who inhabited the Cimmerian Bosphorus. Strabo.


SINDIANI, a Scythian people who inhabited the vicinity of the Palus Meotis, according to Lucian.

SINDICUS PORTUS, a port of Afloat Sarmatia, on the coast of the Cimmerian Bosphorus, according to the Periplus of Scylax.

SINDINICES, a people of Germany, who formed a part of the nation of the Vandals.

SINDION, in Geography, a town of Egypt, on the W. branch of the Ganges; 13 miles S.S.E. of Roletta.

SINDITIA, in Ancient Geography, a town of Lesser Armenia, in the province of Murania. Ptolemy.

SINDKEFIA, in Geography, a town of Hindoostan, in the cear of Barbar; 15 miles W. of Tolnani.

SINDOCADA, in Ancient Geography, a town placed by Ptolemy one W. coast of the isle of Taporhaha, between the mouth of the river Soana and the port Pripus.

SINDOLEA, in Geography, a town of Hindoostan, in Orifia; 15 mili. of Sonepour.

SINDOMA, in Ancient Geography, a town of India, and the capital the territories of Muficanus. Arrian.

SINDON, in History, a word properly signifying a thorough, aided by the evangelists to denote the linen cloth in which the body of Arimathea wrapped the body of Jesus, after its interment, &c. (Matth. xxvii. 59. Mark, xv. 45. Luke, iii. 53. John, xx. 7.) Sindon is also mentioned in the history of Samson. (Judges, xiv. 12, 13.) The virtuous woman mentioned by Solomon (Prov. xxxi. 24.) made findons or garments, which she sold to the Phenicians. The young wien of Jerusalem wore findons. (See II. iii. 23.) It was a fashion peculiar to the Sidonians and the Phenicians, and perhaps the name was derived from the city of Sido. Martial says, that the findon of Tyre, or Phenicia, core a man all over, and puts him in a condition to defecate in wind.

“Ridebis vento hoc munere tecitus, et imbres

The young man who followed Jesus Christ on the night of his passion, “annis findone super nudum,” was probably thus defended against the cold, as by a night-gown. Mark, xiv. 51.

SINDON, in Syri, a little round piece of linen, or silk, or lint, used in dishing the wound after trepanning. The first thing usually done after the operation of trepanning is to pour a few drops of white balsam on the dura mater; then a spoonful of ointment being warmed with a little balsam, a findon dipped into it, of fine linen cloth; this is immediately applied upon the dura mater; and being greater than the skull, its circumference is thrust all round between the cranium and the membrane; then pledges of lint applied, and the hole is quite stoped with it. The next morning, when the dreneling is taken off, the brain is near left bare a moment; but as soon as the former findon & lint are removed, new ones are clapped on in their room.

SINDOS, in Ancient Geography, a town of Mygdonia, a country of Macedonia, W. of Therna, between this town and the mouth of the Axios. It is called by Steph. Byz. Sinthos.

SINDOURCOTY, in Geography, a town of Thibet, on the left bank of the Ganges; 48 miles S. of Gangotri.

SINDRY, a town of Bengal; 45 miles S.E. of Natore.

SINDSCAR, a town of Afloat Turkey, in the government of Ioful; 30 miles S. of Moful.

SINDY. See SIND.

END OF VOL. XXXII.