THE CYCLOPAEDIA; OR, UNIVERSAL DICTIONARY OF Arts, Sciences, and Literature.

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ILLUSTRATED WITH NUMEROUS ENGRAVINGS, BY THE MOST DISTINGUISHED ARTISTS.

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SCOTLAND.

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 1° 47' and 6° 7' west longitude, from London. It is bounded on the south by the Solway frith, and the rivers Elk, Lark, 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 various, and in one place does not exceed 36 miles. According to calculation, the superficial contents of the mainland amount to 25,520 square miles of land, 494 square miles of fresh-water lakes, and 5000 square miles of salt-water lochs, or lakes. The islands, which are usually classed under two divisions, the Hebrides on the west, and the Orkney and Zetland islands towards the north, comprehend an area of 4224 square miles, so that Scotland, with its lakes and islands, exclusive of its bays, presents a surface of 30,238 square miles. Politically speaking, it comprises 33 counties, which are named in the sequel under the head Parliamentary representation, and contains, according to the population census of 1811, 317,763 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 Alexander III.; the third, from that event to the death of James V.; and the last, thence to the advancement of James VI. to the throne of England. The first of these periods, observes the same author, is the region of pure fable; truth begins to dawn in the second period with a light, feeple 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 preferved in England, becomes more authentic; not only are events related, but their causes and effects explained; the characters of the actors are displayed; the manners of the age described; and the revolutions in the constitution pointed out. During the fourth period, the affairs 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 to 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 shall dilute our narrative, in proportion as events become more certain, important, and interesting.

History of the First Period.—It is agreed by Pinkerton and Chalmers, though on most other points they materially differ, that the aboriginal inhabitants of Scotland were a colony of the Celtes, who are generally allowed to have been the first colonizers 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 descendents appear to have been divided into twenty-one distinct clans, called by the Romans the Cattani, Genani, Selgoziz, Novantii, Darnii, Holleii, Venricous, Thaixuli, Vaecomi, Albani, Attacotti, Caledonii, Cantze, Logi, Carnabii, Catini, Merze, Carmannacce, Creones, Cersones, 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 chiefains, to resist their progress. The utmost efforts of valour, however, proved vain against the military skill of the great Agricola, and the discipline of the legionary troops. In his first campaign in North Britain, A.D. 80, 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 paused the Forth, and advanced, without opposition, as far as Loch Leven, establishing, as he proceeded, military polts to keep the inhabitants in subjection. These polts the Caledonians had the hardihood to attack; and by this display of daring intrepidity, seem to have struck great terror into the Roman soldiery. 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 straits 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 117, mentioned, 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 legion 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 flations in the intermediate country; throwing the whole of that extensive district into the form of a Roman province. Under his directions was constructed the rampart of Antoninus (now called Grimes' dyke), which extends from Caer-riden on the Forth, to Aulcluid on the Clyde, a distance of thirty-six miles, fixed hundred and twenty paces. Several military roads, and numerous flations and encampments, were likewise formed in all the provinces, both of North and South Britain. Lollius was succeeded in his government by Calphurnius Agricola, during whose time the Romans abandoned all the country north of Grimes' dyke. Chalmers affirms that this retreat was not the consequence of weakness, but simply of choice. It nevertheless inspired the unconquered 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 Ulfixus 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 fled 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 frith of Cromarty, though, as Dion affirms us, with the loss of no 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 disaster.

On the return of Severus to York, he left his son Caracalla in the government of North Britain; whose conduct is said to have incited the Caledonians to acts of aggression. Irritated at this, the aged emperor issued orders to renew the war, and to spare neither age nor sex; but his death, and the contest for the empire between his sons, seem to have prevented their execution. At all events, 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, who may therefore be presumed to have made no serious attempts to molest the Romanized Britons. At length, however, about the year 350, we are informed that the emperor Constans found it necessary to come into Britain to repel "the Caledonians and other Picts." This statement affirms, is the first time the Picts are mentioned in history, and contends that the Caledonians were on this occasion called Picts, "owing to their peculiar seclusion 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 posseffed themselves of the eastern coast of Scotland before the Christian era; but his opinion is not supported by evidence or probability.

Conflantius having driven back the Caledonians, and other Picts, within their own territories, retired to York, where he died July 25, A.D. 526. Almost forty years elapsed before they were again able to infilt the territories of the romanized Britons, though the empire was harassed by civil wars.

In 343, however, they made some inroads, but were soon repelled, and the provincials again enjoyed peace for seventeen years. At the close of that period, when Conflantine and Julian were contending for the imperial sway, the Scots and Picts made a formidable attack upon the provinces.

Lupicinus, an able officer, was sent to oppose them, but does not seem to have effected the object of his mission.

This is the first time the Scots are mentioned in the pages of Roman history. Ammianus, in whose work they are noticed, joins them with the Picts, as if they formed one army, though they had no connection whatever by neighbourhood, lineage, or interests: they were, in fact, an erratic people of Ireland, who were much accustom'd to naval predatory excursions against the Roman provincials during the fourth and fifth centuries, but they had no territories in North Britain till about the year 503, as will be more particularly noticed in the sequel.

The next attack upon the Roman provinces by the Picts and Scots happened in the year 504, 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 Theodinus, 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 tranquility. In two campaigns he drove the Scots from the island, and the Picts beyond the wall of Antonine, which he repaired, and strengthened with additional forts, and conftituted the territories within it into a province, by the name of Valantia. 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 dare 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 407, the revolt of the troops in Britain transferred the government to Gratian, and after his death to Conflantine, who conveyed the army with him into Gaul. The British provincials, thus left in a manner to themselves, assumed a fort of independence, which was sanctioned by the emperor Honorius, who, confiding of his inability to protect this distant part of the empire, directed the British cities to rule and defend themselves. "But," to quote the words of Chalmers, "their inexperience soon occasioned them to feel their own weaknecfs. And in A.D. 422, though the walls were then garrisoned by Roman troops, the provincials again applied for additional protection against the defultory attacks of a predatory people, who could be more easily repelled than tranquillized. A legion is said to have been sent, who chastiffed the invaders, and, for the last time, repaired the fortifications that had long overawed the Pictish tribes. From this epoch the provincials enjoyed twenty years' repose. The year 446, when Atius was conful for the third time, is the memorable epoch, when the British provincials acknowledged themselves to be Roman citizens, by their supplication to that able supporter of a degenerate state for Irish affilliance; but he was unable to gratify their desire, owing to the preflure of the barbarians upon Gaul. The provincials were again told, in a more deponding tone, that they must rely on their own efforts for their future government and effectual defence. The abdication which Honorius seemed willing to make in A.D. 409, Atius thus more completely effected in A.D. 446."

Caledonia, vol. i.

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 ruler to refit 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 Scotland, there is much room to doubt. At all events, it is very 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 conjunction with the Scots from Ireland, conquered and occupied the greater part of Valentia. At a later date, the Anglo-Saxons of Northumberland posseffed themselves of the eastern coast of that province; but it does not appear certain that the Lothians ever were integral portions of the Northumbrian or Bernician monarchy; though they might be for a time annexed to it by temporary conquest from the Picts. See STRATHCLYDE.

Several ancient Scotch writers, upon the authority of monkish legends, contend that their ancestors first settled in Argyle 320 years before the Christian era; 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. 503, when a body of them passed over from the north of Ireland, their proper country, and fixed themselves in the district of the British Epidii, which they denominated Caerint. These colonists were led by Loarn, Fergus, and Angus, the three sons of Ere, a chiefman or petty king of Dalriada, viz. the portion of Rhinda in Ullter, whence the Scots were sometimes called Dalriads. The derivation of the name Scot is uncertain, but the most plausible opinion is, that it was a corruption of the word *Seite*, which signifies in Irish dispersed or scattered, and was therefore applied generally to denote the roving tribes who had habituated 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 obscured as the annals of the Scotia-Irish, from the date of their settlement in Argyle, 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 contest of the Irish and Scotch antiquaries for pre-eminence in antiquity as well as in fame. In the sifter island, however, there have happily been preserved various documents, particularly the annals of Tyrconnell and Ullter, which throw many lights of light on the transactions of that dark era. Several brief chronicles and historical documents, calculated to elucidate the fame fuhi cé, have likewise been brought into notice by Innes; and Pinkerton first published a Gaelic poem, which professes to give a genealogical account of the Scotia-Irish kings. From an attentive examination of all these, and from an accurate examination of other documents, Chalmers compiled his genealogical and chronological table of the Scotch 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 chiefman, 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 dominion to his eldest 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 535, he was succeeded by his brother Gawran, to the exclusion of his own son, Conal. Gawran 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 Gawran, next claimed it; but Duncha, the son of Conal, opposed his pretensions. The bloody body of Loro, in which Duncha fell, put an end to the dispute, and gave Aidan possession of the crown. He was inaugurated by St. Columba in 574, on the holy island of Jona; 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 feized upon and colonized by various tribes of "Scetes" 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 Stanmore, in Westmorland. Buchanan affirms this was a league as well against the Picts as the Saxons, and further intimates, that Aidan 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 illusory of Cantire and the neighbouring islands. Aidan, 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 Dawftane, in Roxburghshire. This disaster, joined to the death of St. Columba, his kinsman 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 Claran at Campbeltown. The succecor of Aidan was Eoche-bui, called by Buchanan Eugeneus, who, according to Chalmers, carried on a successful warfare against the Cruithine of Ireland; but the Scottish historian mentions only that he horified the Picts and Saxons by continued incursions. Eoche died in 621, and had for his successor Kenneth the Aukward, his son. This prince is said to have prosecuted the Irifh war begun by his father with great vigour, till it happened in the unfortunate contest of Fidhhevin, when he had scarcely reigned three months. Ferchard, the son of Eogan, of the race of Loarn, next obtained the throne. Chalmers lays 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 herefly, 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 plain of Moyrath 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 Strath-Carmac, by Hoan, one of the regal of Strathclyd, in the year 642. Such is the history of Donald, as given by Chalmers, but not a word on the subject either of Irifh or Pictifh wars occurs in Buchanan. By that historian, on the contrary, he is represented as an excellent man, the protector of Oswold, afterwards king of Northumberland, during the misfortunes of his early life, and his affluent 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 Scottish history are so involved and so important, 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., Donal-duin his son, Mal-duin, Ferchar-pada, Eocha-rineval, Anlbheallach, Selwec, Eocha Ill., and Murdach. The last monarch had been unwillingly drawn into holllities with the Picts, and transmitted their enmity to his succcecor, Eoghan, or Ewan, a feeble prince, who died in 739, when Aodhfin feized the sceptre, and soon evinced himself equal to the arduous talk of government, even in the most troublesome times. In 740 he boldly encountered the mighty Ugus, 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 reigned about three years, whilst that of his succcecor, Selvach II., lasted twenty-four years. The government of Eocha IV., or as he is called by Buchanan, Achauns, the next 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 Urgula, daughter of Urgus, and filler of Con Tinata and Ungus, all of which in feuencefhy swayed the Pictifh sceptre.

Eocha died in 826, after a reign of thirty years. Buchanan lays, that the succcecor of Eocha was Congallus, but Chalmers makes no mention of this monarch, afferting that Dungal, the son of Selvach II., obtained the throne on the death of Eocha. He died in 833, when Alpin, the son of Eocha and Urgus, was acknowledged king. Chalmers, who does not admit the Scottish monarchs to have possessed, even in this reign, any territories beyond the district of Cantire, and the disputed tracts of Argyle and Lorn, states that Alpin, ambitious of reining over richer people and more extensive domains, landed on the coast of Ayr in 836, and penetrated a confiderable way into the country, but was at length defeated and slain near the seat of Lachit castle, on the confines of Galloway. Buchanan, on the other hand, afferts 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 two rival monarchies into one kingdom, under the name of Scotland, an event which brings us to the close of the first period of Scottish 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 excellent laws for the better administration of the government, and removed the flone chair in which the kings of Scotland were wont to be crowned from Argyle to Scone. After a reign of twenty-three years, sixteen of which he ruled over his new monarchy, he died in 854, when Donald, his brother, was proclaimed king. This prince relaxed the public discipline established by his predecessor, and gave himself up to the most shameful excesses. The Picts rose in open rebellion against his authority,
thority, and formed alliances with Òbreth and Ælla, monarchs of two of the Anglo-Saxon kingdoms adjoining Scotland. These princes entered Merch with a powerful army; and from thence dispatched heralds to Donald, requiring him to re-establish the Pictish monarchy. Donald, routed by a sense of his danger, marched against them, and totally defeated their united forces on the Jed, a river of Teviotdale. This victory enabled him to recover Berwick and all the territory to the north of the Tweed; but his successes was of very short duration, for having indulged too far the natural licentiousness of his troops, the English took advantage of their carelessness, fell 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 ships, when a violent storm arose, and occasioned the wreck of half of their fleet. This event so 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 said in the treaty, and hence molt of them, deceived in their hopes, passed over into Denmark and Norway. Donald, having returned from captivity, still continued his voluptuous conduct, which so exasperated the nobles, that they committed him to prison, where he laid violent hands upon himself in the year 893. Such is the account of Buchanan; but Chalmers speaks of him with praise, and says that he died at the palace of Balacho in the year 896, and was buried at Icolmkill.

Constatintine, son of the great Kenneth, now mounted the throne. Being a prince of great valour and lofty spirit, says Buchanan, he was anxious to eradicate the ignominy 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. Constatinentine hastened to oppose them, and fortunately overthrew one division before the other could arrive to his assistance. Upon this, the rest of the Danes retreated 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 Aodth, brother to Constatinentine, 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, they drove them out of it, and once more established the Solway 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 Westmoreland 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 Duncan, then a minor, with whom he concluded a peace, and immediately returned to his own dominions, where he died in 902, greatly regretted by his own subjects. Such was the life of Gregory, as represented by the Scotish historians; but the researches of Chalmers have discovered that instead of being a hero and a conqueror, he was a man of unprincipled morals, an usurer, and a hypocrite; and was driven from his throne by the indignation of his people.

Gregory was succeeded by Donald, the son of Constatinentine, during whose reign the Danes made several incursions upon Scotland, but were, in every instance, repulsed. Chalmers informs us that the king fell, gallantly fighting in defense of his kingdom against a body of these invaders, who had penetrated almost to the Scottish capital. Buchanan, on the other hand, states that he died during an expedition to quell a feud between the Rossians and the Merchmen; and Boethius affirms that he expired in Northumberland in 903. His successor was Constatinentine, the son of Aodth, the early part of whose reign was equally disturbed by the incursions of the Danes. He afterwards engaged in a war with Athelstan, king of England, who ravaged all the country as far as the Forth and Clyde, and forced Constatinentine to sue for peace. Constatinentine, however, only offered it till an opportunity for revenge occurred, and then, joining with Anlaf, 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, till then unexampled in the English or Scots annals, gained a complete victory, and Constatinentine and Anlaf only faved the remains of their army by a speedy re-embarkation. In this action Constatinentine having lost his son, and most of his nobility, resigned the kingdom in favour of Malcolm, the son of Donald, and retired to a monastery at St. Andrews, where he ended his days. Soon after the accession of Malcolm, the conquered provinces of Cumberland and Westmoreland revolted from the English monarch, who, fearful of his ability to retain them, agreed to surrender both to the king of Scotland, on condition, as Buchanan states, that Malcolm and his successors would acknowledge they held them of 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 is said to have been paying his last biennial visit to the north, when he was assassinated in Moray, in the fifteenth 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 ardour of pursuit.

Duffus, the son of Malcolm, next sware the sceptre, and appointed Culenus, 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 endeavours to crush the banditti who infested the counties of Moray, Ross, and Caithness. Many of these were slain in various skirmishes, but the principal of them were secured and brought to the town of Forres, in order
order to render their fate more exemplary. Here the king was affiliated by the governor and his wife, who had vainly interceded to save some of the criminals, their relations. Culemus, 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 tragic event. But with these acts the merits of his reign cease, for scarcely 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 estates convened at Scone, he was affiliated on his journey thither by the thane of Methven, whose daughter he had injured. Culemus 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 abusiveness of the former reign; which he had scarcely accomplished, when the Danes, made a descent on Aberdeenshire, and pillaged the country as far as the town of Perth, to which they laid 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 descendants. From that time peace continued for several years, during which period Kenneth attempted to regulate the succession 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 estates in favour of his views, yet when the throne became vacant by his death, which happened in the year 994, Constantine 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 disdained his army, and retired into Cumberland. Kenneth, his natural brother, regarding this conduct as dishonourable, prevailed on most of the soldiers to join his standard and continue the war. A battle soon afterwards ensued, in which both Constantine 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 polled greater popularity than his predecessor, for he was no sooner declared king than most of his opponent's partizans deserted 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 scrupulously observed during eight years; but after that period, Grimus having begun to evince a most tyrannical disposition, Malcolm thought himself justified in again taking up arms. He accordingly marched into Scotland, and as the tide of popularity was now decidedly in his favour, he soon acquired a large army. Grimus marched to oppose him, but being betrayed by his soldiers, 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 in opposing the Danes. This measure so routed 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 best generals, Olave and Euceus. A landing was effected in the province of Moray, which was subdued, the invaders laid siege to the fortresses of Nairn. Malcolm, 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 Marr. At first the Scots, discouraged by the fall of three of their commanders, retreated to their camp, where they made a vigorous stand, and changed their flight into a glorious victory. Malcolm, 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 assistance of his countrymen. 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, Caute, which landed in Buchan without opposition, and plundered the surrounding country. Malcolm, who had scarcely 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 which 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 litten 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 Swein nor Malcolm should, in future, wage war against one another.

Malcolm
Malcolm having seen the first article of the above treaty performed, disbanded his army, and reigned for some years in greater splendour and glory than any preceding monarch of Scotland. As old age approached, however, he acquired an exorbitant love for money, a passion which led him to commit many acts of oppression and injustice. This conduct excited the hatred of the nobility, 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 wife and good, they awakened feelings of enmity in the breasts of the turbulent and seductive Macduagald, a chieftain of the west, first raised the standard of rebellion, and attracted to it many of the invaders, and a body of Iriwh, 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. Alarmed 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 Bancho, thane of Loch Abyr, they would soon bring the traitors to punishment. Macbeth obtained the wished-for command, and performed his task almost without resistance; 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 Swen, king of Denmark, soon after landed in Fife-shire, and again aroused him from his natural inactivity. Having entrusted to Macbeth the charge of levying 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 beleaguered 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 Swen, 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 Fife-shire. Bancho 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 uncommon 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 hasted to Scone, where he was invested with the royal authority. The sons of Duncan, affonihed at these events, fled, one into Cumberland, and the other to the Hebrides. Shakespeare has dramatized some of these events in his admirable tragedy of "Macbeth."

The first act of Macbeth's reign was to suppress the feuds which disturbed the lives of the thanes of Caithness, Rox, Sutherland, and Nairn. He afterwards defeated and slew Macgill, lord of Galloway, who refused to acknowledge his authority; and quiet having been thus restored to the kingdom, he applied his attention to the enactment of many salutary laws, and to the correction of abuses in their administration. Thus he reigned ten years with so much justice, that the manner of his obtaining the throne was totally overlooked. At the close of that period, however, he began to give way to the natural cruelty of his temper, and to convert his hitherto laudable government into an oppressive and cruel tyranny. The first shock of his inhumanity was vented against Bancho, 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 sprang up between them and the king, who upon the slightest pretences seized their property, and put them to death. The confiscated estates 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 castle for his residence on the summit of Dunfurnan 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, assured of Macduff's integrity, hesitated not a moment to adopt his views, and being assisted by king Edward with 15,000 men, 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 thus easily obtained the crown, he was not allowed to enjoy it long in peace. The faction of Macbeth proclaimed his son, Luthive, 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 Aetheling, who with his mother and sisters had fled from England to avoid the furiences of William the Conqueror, was driven by divers 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 supplied them funds 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 valour of Macduff, and of Walter, grandson of Bancho,
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 negotiated between the two kingdoms. The accession of William Rufus, however, again proved the signal for hostilities, Malcolm advanced into England as far as Cheltenham-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 interception 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 Scotch 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 subsequent year, a measure which Malcolm pointedly refented: 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 besieged Alnwick; where he was surprized and slain, as was also his eldest son Edward, earl Mowbray, on the 13th of November, 1103.

Donaldbane, the brother of Malcolm, succeeded, but he was soon driven from the throne by his nephew, Duncan, who was aslaged in recovering his dominions by king William Rufus; Duncan, however, had not enjoyed his dignity above six months, before he was affalinated at the instigation of his uncle, who once more usurped the crown, and reigned about two years, when he was a second time deposed, 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 refilled with success the efforts of the court of Rome to destroy the independence of the Scottish church. His attention was afterwards drawn to an insurrection raised by Angus, earl of Moray, who was defeated and slain at Stracathrow, one of the parishes of Forfarshire. 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 sought the battle of the "Standard" on the 22d of August, 1138. In that action the Scots were overtaken with great slaughter, and the king himself, with the remains of his army, found great difficulty in securing a retreat to Carlisle. David nevertheless soon recruited his troops, and shewed himself to be still formidable, by reducing the castle of Werk; 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 demise 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, retaining 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 9th of December, 1155.

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 stipulated 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 castles 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 released, brought up all his barons, prelates, and abbots, and they did homage to Henry in the cathedral of York, and acknowledged him
and his successors for their superior lord. The English monarch stretched still further the rigour of the conditions which he exacted. He engaged the king and states to make a perpetual cession of the fortresses of Berwick and Roxburgh, and to allow the castle of Edinburgh to remain in his possession for a limited time." This is the first great accendant which England obtained over Scotland.

These disgraceful measures, and the feeble conduct of William, rendered him extremely unpopular. The lords of Galloway and Ros successfully displayed the standard of rebellion, and though eventually compelled to submit, kept the kingdom in a state of disquietude for some years. In 1188, Henry II. sent Hugh, bishop of Durham, and several priests, into Scotland, to collect a dîme for the Holy Land; but this met with the warmest opposition. He next offered to restore the castles of Roxburgh and Berwick to William, if he would give the tenth 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 levy them." This was the last proposal of Henry affecting the independence of Scotland; as he died soon afterwards, leaving his crown to his son Richard, who restored to William all the rights and territories which had been wrested from him during the government of his father: thus Scotland again regained her independence, though her monarch became the baronial vassal 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 refused. In 1209, both monarchs assembled their troops on the borders, but the interference of their respective barons effected 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 lost no time in making a signal retaliation. In 1216 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 disasters of Lewis, prevented the accomplishment of his designs, and a treaty was soon after concluded with Henry III. This pacification lasted till the year 1233, 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 accommodate their differences. They adjourned them not only from York, in September, 1237; but as the terms of their agreement were unequal, it was not of long duration.

Jealousies arose between them in 1244; Henry collected a large force at Newcastle, and Alexander marched to the borders, 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 insurrection in Galloway, which he had feebly quelled, before Angus, lord of Argyile, assumed independence, and refused to acknowledge the sovereignty of the Scottish crown.

The king marched against him, but died in Kerraray, an island on the coast of Argyile, on the 8th of July, 1249.

Chalmers remarks concerning this prince, that he is properly characterized by Fordun, "as a king, pious, just, and brave; as the shield of the church, the safeguard of the people, and the friend of the miserable."

Alexander III. was crowned at Scone July 13, 1249, after having been knighted by David de Berneham, bishop of St. Andrews. In 1251 he celebrated his nuptials with Margaret, daughter of Henry III., and on that occasion did homage for his English lands. The felicitous of Henry led him to demand homage for the kingdom of Scotland also, but the young king, with equal fortitude and prudence, replied, that he had come to England to be married, not to treat of affairs of state; and that he could not comply with his desire without the approbation of the great council of the Scottish nation. With this prince commenced that series of regal minorities which caused so much distraction to Scotland for several centuries, through the intrigues of the nobles, and of the court of England, to secure the chief influence in the state. Henry began to forward his views, by diffusing all the leading men attached to the late king, and elevating a more servile faction to power; but this arrangement was quickly overthrown by a coalition of the nobles, headed by the Cumyns, who fizeled the persons of the king and queen, and ruled in their names. As this party confided of the most powerful persons in the kingdom, Henry found it necessary to accommodate himself to the state of affairs, and a new regency was formed, including the chiefs of all the factions. Thus domestic peace was restored; but foreign invasion almost immediately succeeded. In the year 1263, Haco, king of Norway, came into the Clyde with a fleet of 160 sail, and landed a numerous army near Largs, in Ayrshire. The Scottish forces, commanded by Alexander, hastened to oppose him, and in a decisive battle fought on the second of October, in that same year, completely routed the Norwegians.

Haco with difficulty escaped to his ships, attended only by a few followers, and soon after expired in Orkney. Magnus, his successor, made over to Alexander all the islands of the Hebrides in full sovereignty, but he still retained the islands of Orkney and Zetland. From this period the Scottish king was chiefly occupied, for several years, in affecting the independence of the Scottish church against the pretensions of the pope, and in curbing the ambition of his own clergy. In 1278 he went to London, to attend the coronation of Edward I., and to do homage for the lands held by him in England. The events which ensued were at once afflicting to the king, and ultimately disastrous to the nation. Within one year, viz. in 1283, Alexander, the young prince of Scotland, and his sister Margaret, who had married Eric, king of Norway, died. The former had no issue, but the latter left an only daughter, Margaret, commonly called the Maid of Norway. The Scottish king, anticipating the dangers of a disputed succession, resolved, if possible, to avert them. He assembled the great council of the nation at Scone, in which it was declared that the princes of Norway should succeed to the throne, "failing any children Alexander might have, and failing the issue of the late prince," whose widow it was supposed might be pregnant. To add strength to these prudent measures, Alexander himself married, for his second wife, Jolerta, daughter of the count de Dreux; but the felicitous for that event had feebly ceased, when he was killed by a fall from his horse, near Kinghorn, on the 16th of March 1285—6.

History of the Third Period.—On this fatal accident, Margaret was unanimously declared queen, and a regency, consisting of six principal prelates and barons, was appointed to govern the kingdom during her absence and minority. Through their exertions, and protected by her father Eric, and her grand uncle, C.

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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 alloys 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. Anxious, 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 formally 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 fawning of his former rights, this refusal 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 poison 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 Huntingdon, brother of William, whose male line being also extinct, left the succession open to the poetry of his daughters.

The earl had three daughters, Margaret, married to Allen, lord of Galloway; Isabella, wife of Robert Bruce, lord of Annandale; and Ada, who espoused Henry, lord Haiftings. Margaret, the eldest of the sisters, left one daughter, Deverilga, 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; Ada, the third, left a son, John Haiftings, who contended that the kingdom of Scotland, like other inheritances, ought to be divided equally among the three daughters of the earl of Huntingdon, and that he had a right to a third of it, as representing his mother. Baliol and Bruce united against Haiftings 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, impelling upon him the most degrading services, Baliol was soon incited to relitigate his pretensions, and the two kingdoms were thus involved in a war, which terminated in the conquest of Scotland. Edward, having fetted the government, and, as he thought, secured 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 refunding 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 vindicator 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 purfued, to ensure a retreat among the morasses, in the forests, or the mountains. At times he defecled his associates in one place, and collecting them again in some distant quarter, surprized 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 renown. At length he resolved to strike a decisive blow, by attacking Ormefby at Scone. The judiciary, apprized 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 Sir 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 Surrey 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 dilution 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 resistance, 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 inexcusable to bribe or threat; but thus deterred, 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 construed by the English as a defiance, they demanded to be led against the enemy. Warrene hesitated, but Creflingham urged an immediate attack, and his counsels prevailed. The English began to pafs the bridge that separated the two armies, but before half of them had reached the opposite side, they were attacked
tackled by Wallace, and either pulled into the river, or destroyed by the sword. Among the slain was Creffingham himself, whose memory was so hateful to the Scots, that they flayed his dead body, and made garths of his skin. The remainder of the English army precipitately retreated into England. Wallace pursued, and reduced the fortresses of Berwick and Roxburgh; Dundee and the other strong holds also capitulated, and thus was Scotland a second time freed by the valour 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 Baliol. 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 spoils, 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 laid siege to the castle of Dirleton. Wallace in the mean time, sensible 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 in 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 hither, 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 strained 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 expounding the canons 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, echoed 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 utmost extremities, without encountering any opposition. All the nobles, and even the regent himself, made their submission to the conqueror. The only fortresses which did not immediately yield were those of Brechin and Stirling. So gallantly, indeed, did the garrison of the latter defend their tracts, 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 disfruited the permanency of his successes, for Wallace was yet alive, unfilled in his character, and unsubdued in his spirit. Edward employed every art to discover his retreat, and to obtain possession of his person; and he at length succeeded, through the treachery of Sir John Monteith, whom Wallace had always regarded as one of his bosom friends. By him he was arrested, and sent in fetters to London, where he was tried as a traitor, though he never made submissions 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 treatment of the gallant Wallace, Edward hoped to strike terror into the Scots, and enure their submission. Thrice calculations, however, were soon shown to be erroneous. The execution of Wallace, and the exposure of his mangled 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 incited 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 Scote, 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 Alexander de Valence to enure 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 to seek security for himself and a few followers in the Waternish islands. All the prisoners of note were executed as rebels, and many acts of outrageous oppression were exercised 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 of Argyle, and thereafter took the fortresses of Inverness, Forfar, and Brechin. By these exploits he gradually increased his influence, and reconciled the barons to his cause. Indeed, such was the acquirer with which the people in general seconded 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 dilations 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 plaintiff during the same year, and advanced beyond Edinburgh. But the want of provisions soon obliged him to retire, without having gained any material advantage. Though, however, 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 Galway, 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 a capitulation, unless relieved by a certain day. Bruce, judging that Edward would endeavour to save this fortress, poited his army at Bannockburn, about two miles to the southward, where his right flank was protected by a precipitous hill, and his left by deep moras. This gallant band consisted only of 30,000 combatants, but all of them men of tried courage, determined to perish or to ensure the liberties of their country. The English arrived in fight on the 24th of June, and on the fame evening dispatched 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 Scottish foot. At this critical moment, the waggoners and limpter 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 inestimable booty, took many persons of quality prisoners, and above 400 gentlemen, all of whom Robert treated with great humanity. Barton, 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 Dunick, 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 ambafador 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 the independence of Scotland, and paid a solemn act of parliament to that effect. The treaty of Northampton was the immediate confluence, and settled the peace between the contending kingdoms as independent sovereignties. 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 confirmation of his magnanimous 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 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 Fife. The new regent, Donald, earl of Mar, hesitated to oppose this invasion, and for that purpose is said to have marched 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 Earn; and the regent, confiding in that security, and the small force of the enemy, neglected all order and precaution. Baliol, apprized of this, crossed 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 success, 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 fled 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 valor, seat himself on the throne of Scotland. His reign, however, was of short duration, for having disfigured the greater part of his English followers, he was attacked and defeated near Annan, by sir Archibald Douglas, and other chief lieutenants 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 prince's Jane, whose marriage with David was not yet consummated. Edward had eagerly embraced these offers; and as the dethronement of Baliol now rendered them ineffective, he resolved to reinstat 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, unlees 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
The English king about this time was led to advance pretensions to the throne of France, which soon provoked him to war with that kingdom. This event elated the hopes of the Scots, who gradually reduced all the fortified places held by the English within their territories; and in order that they might have the countenance of sovereignty authority, they invited David and his queen to return to Scotland. The royal pair accordingly landed at Innerberry, in the Mearns, in June 1342. Indignant at the defolation that everywhere met his eyes, David immediately entered England, and ravaged the country as far as Newcastle, to which he laid siege; but after several disfartious affairs, he was obliged to abandon the enterprise. David again invaded England in 1347, and advanced to the vicinity of Durham, where he was encountered by an English force, raised by the energetic conduct of queen Philippa. The contest was warmly maintained for some time on both sides, but the Scots were in the end defeated, and the king himself, and many of the nobility, made prisoners. Baliol, who commanded the English army in this action, professed his victory with great vigour. Before the conclusion of the year he had reduced the castles of Hermitage and Roxburgh, and extended his conquests ever Annandale, Teviotdale, and Tweedale. In the next year success continued to attend his march; but in 1348 he was forced to retreat into England, and a truce was agreed to. On its expiration, in 1355, the Bruce once more took the field, which they were better enabled to do by means of a considerable assistance, both in men and money, furnished to them by the French king. One party, commanded by lord Douglas, completely defeated the English mariners at Nisbet Moor, and afterwards assaulted and took the town of Berwick, but the approach of Edward prevented the reduction of the castle. At this period Baliol, tired of attempting to regain a crown, determined to retire into private life, and to resign to the English king all his rights to the throne, in exchange for a subsistence adequate to his rank. The bargain was agreed to, and Edward marched into Scotland with a powerful army, to secure his newly acquired possessions. The Scots adopted the wife policy of harrying their enemy by frequent skirmishes, in which they were so successful, that Edward was soon compelled to a precipitate retreat. During these events David remained a prisoner in England, but in May 1357, a truce was concluded, wherein he was virtually acknowledged king, and was ransomed for the sum of 100,000 marks, to be paid by instalments within ten years.

David having, by this treaty, regained his liberty, paid the two first instalments of his ransom; but he found it impracticable to raise money for the third payment. After various unsuccessful expeditions, therefore, he was obliged to appeal to Edward himself, and to conclude a treaty with him in 1365, in which it was stipulated that the latter should succeed to the throne of Scotland, and that a federal union of that kingdom with England should take place, provided David died without issue. But the Scottish nobles having rendered this treaty nugatory and unavailing, another was agreed to in May 1365, by which Scotland became bound to pay to England the sum of 100,000 pounds within the space of 25 years. From this period no event occurred worthy of notice in the history of Scotland, till the death of David, which happened in Feb. 22, 1370—71; when Robert II. succeeded to the throne, and was crowned at Scone on the 26th of March 1371, at the advanced age of 55. Among the first acts of his government, was the dispatch of ambassadors to France, by whom was negotiated a treaty, which stipulated that neither the king of Scotland nor the king of France should be obliged to make war upon England; not even the dispensation of the pope should relieve either party from their engagement to each other; that, in the event of a competition for the crown of Scotland, the king of France should take care that no English influence was used; that he should acknowledge the king elected conformably to the laws; and that no Frenchman should serve against Scotland, nor any Scot against France.

Robert and Edward continued to keep up a friendly correspondence, notwithstanding their respective borderers were engaged in perpetual hostility, and the former was punctual in discharging the instalments of his uncle's ransom.

Robert, who had a numerous progeny, and seems to have feared some disputes might arise relative to the succession after his death, convoked a parliament at Scone, in April 1373, in order that their declaration might guard the kingdom from a repetition of its past misfortunes. This parliament recognized, in the first instance, the title of John, earl of Carrick, and the Stewart of Scotland, his eldest son by Elizabeth More, his first wife, thereafter his other sons by the same lady, according to their seniority; his sons by Euphemia Rois, his second wife; and lastly, "the true and lawful heirs of the blood and stock royal." Buchanan erroneously calls Euphemia Rois the first wife, and Elizabeth the second wife, alleging that the children of the latter were born during an illegitimate connection in early life; but sufficient evidence has been adduced from papal archives to show that the king married Elizabeth More at a time prior to his marriage with queen Euphemia, and that she died long before he ascended the throne.

In 1377 the border wars began to rage with signal fury. The lord Percy, now earl of Northumberland, ravaged the counties of the earl of March, and a party of Scots, commanded by one Ramfay, surprised the castle of Berwick, and declared that they held it for the king of France. It was re-taken, however, by assault, after a siege of nine days, when all the garrison, except Ramfay, were put to the sword. The English army then marched into Scotland, but their advanced guard having been entirely cut off, they defiled from their expedition. In 1379, the Scottish borderers again invaded England, and laid waste the country. The earl of Northumberland, in retaliation, fitted out privateers, and captured some Scotch ships; but the English government restrained these proceedings, and ordered the borderers not to provoke the Scots, but to observe the truce. These commands, however, not being attended to, the earl of Douglas built into Cumberland with 20,000 men,
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 redress the borderers, 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 Werk, he was again dispatched to demand reparations, 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 50,000 men.

The Scottish king wisely refused to risk a general action, though strongly urged to do so by the officer commanding the French auxiliaries,contenting himself by harrying 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 contest took place in fight 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 contended of any that occurred in that age. Earl Percy, and above a hundred pursuivants, were made prisoners, and contributed, by their ransoms, to enrich their conquerors. Scarce 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 un molested; and, in testimony of the honourable conduct of their prisoners, they dismembered 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, inclining 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, 1392, 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 negotiated 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 restore 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 mustered, 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 started 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 Rothesay; and of his own brother,
brother, the earl of Fife, to the dukedom of Albany. A custom also began to prevail in the border treaties, of naming cautioners, who acted as conservators of the peace, and were a kind of attorneys for their fellow subjects, in all matters cognizable in the border courts, which had been lately established on both sides. These regulations are justly considered as important steps in the progressive civilization of the two kingdoms.

The events of the year 1401 were the most disTurbing in themselves, and in their consequences, which ever occurred to Scotland. The death of earl Douglas was followed by the death of William Trail, archbishop of St. Andrews, a prelate of great weight; and Queen Annabella, a woman of exemplary virtue and prudence. This princess, by her influence, had conciliated the jealousies of several branches of the royal family, and in particular had restrained the tempestuous temper of the duke of Rothesay, the heir apparent to the throne, who was barbarously murdered soon after by the duke of Albany. The truce with England being now expired, war was renewed on the borders, and a severe action was fought at Watern-Nibet, in which the Scots were defeated. Strongly contended was this battle, that it is affirmed that few of either army escaped unhurt. It was succeeded in the year following by another combat, fought between the troops of Henry Hotspur and Douglas, at Homeldon, where the English were again victorious, and numbered among their prisoners the earls of Douglas, Fife, Angus, Murray, lords Montgomery, Erkleine, Graham, and Orkney, eighties knights, and about 10,000 gentlemen and private soldiers. This battle, so immediately disastrous to Scotland, proved in its results no less to England. King Henry having ordered earl Percy and the other barons not to ransom their prisoners, they regarded that mandate as such a tyrannical infringement of their feudal rights, that they raised the standard of revolt against the government, and for a time defied all its efforts. The victory of Shrewsbury, and the fall of Percy, terminated this formidable insurrection. Douglas, the rival of Percy, was present in this battle, and was taken prisoner, but his conduct had so greatly excited the admiration of the English king, that he gave him his liberty without ransom.

Henry, notwithstanding this victory, was extremely desirous of concluding a peace with Scotland, in order that he might employ the whole force of his government in overawing his discontented subjects. He first attempted to open a negotiation through the medium of the French ambassadors at the Scottish court, but finding that measure unavailing, he dispatched special commissioners with the same view. The result was unfavourable, and hostilities continued, though without any remarkable transaction on either side. All this time Robert remained ignorant of the fate of the duke of Rothesay, but it soon became necessary to make him acquainted with it. The king, unable to punish his murderers, adopted the prudent resolution of sending his second son James to France; he did not reach his destination, having been captured by an English privateer, and sent as a prisoner to London. The news of this second disaster so affected Robert, that he died three days afterwards, in March 1405.

On this event the estates of the kingdom nominated the duke of Albany regent. This prince was a man of consummate abilities, but ambitious, and hence appears to have been lukewarm in his endeavours to obtain the liberty of his sovereign. The spirit of the people, however, forced him to declare war against England, but it was soon terminated by a truce, during which it was proposed to enter into negotiations for a permanent peace. Conferences were, in consequence, held for that purpose, but they ended only in a prolongation of the truce, at the close of which the war was renewed, and Henry prepared to strike a decisive blow against Scotland; but these preparations were never carried into effect, as a treaty was agreed to which lasted till 1415. This period of Scottish history is distinguished by the foundation of the university of St. Andrews, the first institution of the kind of which Scotland can boast. (See St. Andrews.) It may therefore be regarded as an era of peculiar interest, as from it may be dated the rise of learning in that kingdom; which, though confinedly among the laik to devote itself to science, has contributed as much to its progress as any other nation of modern Europe.

The truce last-mentioned being ended, the Scots besieged Berwick, but that enterprise was unsuccessful, and all that was done during the campaign was the burning of Penrith by the Scots, and of Dumfries by the English. Next year negotiations were entered into for the liberation of James, but these were as fruitless as the former, and the war continued. No action worthy of record, however, occurred during five years, and hence it has been, with some probability, affirmed that there existed an understanding between the regent and the English general; though this would not seem to have been the opinion of his contemporaries, for we are told that, on his death, which happened in 1420, the Scots held his memory in such veneration that they conferred the regency on his son Murdoch, solely from respect for the father.

In 1421, king Henry being informed that the earl of Douglas was meditating an invasion of the northern counties, invited him to a conference at York, when the earl, with the consent of James, agreed to receive the English king during life. At the same time some fluctuations were made relative to the release of the Scottish monarch, but that event did not take place till the year 1424. Henry V. was then dead, and the tide of fortune in France had so completely changed, that the English regent found it necessary to conciliate the Scots, and if possible to detach them from the French interest. He therefore treated James with the greatest attention, and proposed a negotiation for his liberty. Commissioners were, in consequence, named on both sides, who agreed that the Scottish king should be ransomed for 60,000 pounds, and should marry some lady of the first quality in England. James, it is probable, had already fixed his choice upon the lady Joan, daughter to the late earl of Somerset, son to John of Gaunt, duke of Lancaster, by his second marriage; but he made his people the compliment, not only of consulting their opinion, but of concluding the match. The royal nuptials were celebrated in the beginning of February 1424, when the young king of England presented James with a suit of cloth of gold for the ceremony, and the next day gave him a legal discharge for 10,000 pounds, to be deducted from the amount of his ransom, as the marriage portion of the lady.

Hitherto the history of Scotland consists of little else but a detail of battles and predatory excursions; of feuds between lawless clans, and rebellions against the sovereign authority. Neither the government nor the people were sufficiently enlightened to recognize fixed principles of foreign or domestic policy. The great barons, though bound to render homage to the king, and to perform several feudal services, assumed all the importance, and exercised most of the functions, of independent princes. On the accession of James I., however, the actual power, the annals of the kingdom begin to assume a new aspect. The reiterated theme of defeats and victories, of negotiations and truces, may henceforth be diversified with more interlacing intelligence, and
and the arts of peace may afford a pleasing contrast to the
devastations of war.

James, shortly after his arrival in Scotland, was solemnly
crowned, with his queen, and Murdoch, duke of Albany, as
crown prince. He performed the ceremony of placing his sovereign
on the throne. His first public act was to convene a parlia-
ment, and to direct their deliberations to the enactment of
futural laws. Among other enactments it was declared,
that the ancient privileges of the church be confirmed; that
the king's peace be firmly held, and no private wars allowed;
that no man should travel with more followers than he
could maintain; that efficient administrators of the law be
appointed through the realm; that no extortions, from
churchmen or farmers in particular, be admitted; that the
customs and borough rates be assigned to the king, also
mines of gold and silver, under certain restrictions; that
the clergy should not pass the sea without the king's per-
mission, 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, sheep, her-
rings and firs; that rents 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. The two other
enactments were made by the same parliament, which merit
separate consideration: the first granted the king a large
liberty, by taxation, for defraying his ransom, which occasion-
ated so much dissatisfaction, that he was obliged to avert
the danger of a general insurrection, by giving up the idea
of levying the imposed taxes. Unaccustomed to pay direct
contributions toward the support of the government,
the people considered this ordinance as an act of oppro-
was agreed, that the king should remain in the custody of the latter.

In the interim, the earl of Douglas continued to brave 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 dining 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 recede 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 strive to reconcile him to the prince; and an accident happened which led to the fulfilment of their wishes. That was the murder of Sir Robert Semple, of Fullwood, by one of the earl's partizans, 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 submition 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 desolation and bloodshed. It terminated by the reconciliation of Crichton to the king, and the sacrifice 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 hosility 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, bore which this singular chafe, 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 deserves particular attention. It ordained, that if any man should "commit or do treason against the king's person or his majesty, or rise 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 garrison the houses of them that are convicted of treason, and hold their houses against the king; or garrison houses of their own in affiance 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." This statute has occasioned altercations between the favourers of monarchy, and those who attach ideas of freedom to a parliament of the middle ages; though, in fact, the only dispute lay between monarchy and aristocracy. Many other statutes were passed to increase the power of the sovereign.

Douglas, chagrined 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 six knights, fourteen gentlemen, and eighty inferior attendants. In his absence many complaints were made against his dependants, which so enraged James, that he seized upon the castle of Lochmaben, and demolished that of Douglas. The earl, on his return home, sent a submissive message to the king; and as 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 treacherous practices, and soliciting 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 illegitimate engagements. The earl treated the proposal with his usual arrogance, whereupon the king, routed 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 successor 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 Wigton, except with the queen's consent; 2dly, to the lands of Stewarton, a part of the patrimony of the dukes of Stourton, his mother; 3dly, to abandon in future all hatred or enmity against all persons; 4thly, to prefer the public peace, and make compensation to persons already injured; 5thly, 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 raised by Douglas, aided by the Yorkist party in England. The king, aware of this conspiracies, 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, distrusting the loyalty of the southern counties, hastened to St. Andrews, whence, by the advice of Kennedy, bishop of that see, he illused a proclamation, summoning the army 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 Strathaven, which still resisted his authority. He afterwards assembled a parliament at Edinburgh, in which he
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 interfering 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 deploitation 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, 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 judges, independent of the king's council. This court consisted of three eminent clergy, three barons, and three commissioners of burgesses, 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 rivalry 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 3d of August, 1460. The nobility who were present concealed his death, from the fear of discouraging the soldiers; 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 prefentled him to the army as their king, and declared she would act the part of their general herself.

Accordingly she assumed the reins of government, and pushed the siege of Roxburgh castle with much vigour, that the garrison was obliged to capitulate in a few days; after which the army took and dismantled the castle of Werk. 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: 1st, that the annual rent hitherto paid for the northern isles of Orkney and Zetland should be for ever remitted and extinguished; 2dly, that Chrisliorn, then king of Denmark, should give 65,000 florins of gold for his daughter's portion, whereof 10,000 should be paid before his departure from Denmark; and that the isles 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 Menteith, with all their appurtenances, and the third part of the ordinary revenues of the crown, to be enjoyed by her during life, in case she should choose to reside in Scotland: 4thly, but if she 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 dols for the remainder of her portion being deducted and allowed, the isles of Orkney should be re-annexed to the crown of Norway as before. When the completion of these articles became necessary, Chrisliorn found himself unable to fulfill 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 Scottish crown.

In 1476 these misfortunes brought to an end 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 Humes and the Hepburns could not brook the duke of Albany's greatnes, 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 evil, as well as the most effectual engine that could work their purposes. One Andrew, an infamous impertinent in that art, had been brought over from Flanders by James; and he and Scoues, then archbishop of St. Andrews, concurred in perilling 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 Honsill, a taylor; Leonard, a blacksmith; and Torffaw, a dancing-mank, who were professedly rendered them wholly unworthy of the royal countenance. The favour shown to these men gave such offence to the nobility, that they resolved to remove the king, with some of his head exceptional domesties, 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 favourite. 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 Scotland 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 result was, an association of several of the most powerful barons, who seized 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 that his son commanded 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 Bannockburn. At first the rebels gave way; but being supported by their second and third lines, the royalists were in vain 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 Bannockburn, 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 deferred a better fate, than to fall the victim of a lawless arbitrariness, more inimical to public order than the feeble deputation of their sovereign.

The duke of Rothsay, apprised 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-Moor. 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 so high a 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 becomes more interesting, 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 prince conducted the government with great wisdom and energy; but having unhappily married the earl of Arran, that scep conquered occasion to violent intestine combinations. 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 combinations 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 issue of a contest, he nevertheless soon found it necessary to make peace, on account of the discontents that prevailed in the army, which he had led to the borders with the view of invading England. Shortly afterwards, the increasing opposition manifested against his authority induced him to resign the regency; when the sovereign power was again assumed by the queen. Arran, by feizing on the peron of the king, and pretending to rule in his name, soon overthrew the party of the queen; but his own elevation was not of much longer continuance; for the king, having escaped from his custody, feized the reins 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 seisin, 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 shewed himself more worthy of his meritorious station. During the same period the Scots had to deplore the miseries of a war with England, which raged for two years with various successes. 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 negotiated 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 disgraced 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 sacrifice to the hatred of the reformers, who were particularly incensed against him for the barbarous execution of one of his 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 deceased, the protector, Someret, 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 Pinkie, near Musselburgh, gained a complete victory. Above ten thousand men fell on this day, which was fearfully felt 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, raised 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 Châtellerault, and afterwards of the queen dowager, Mary de Guise, was rent by factions, and experienced all the direful effects of religious and feudal divisions. The whole time which had elapsed from the death of James V. had been a season 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 far exceeded the just proportion, that not less than half of the national property was possessed by ecclesiastics. The mode of its disposal like- wise considerably increased their influence. Church lands being let on lease, at an easy rate, and possessed 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 possessed 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 progres 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 stragglers," says Dr. Robertson, "were men at that time to the spirit of toleration, and to the laws of humanity; and with such indecent haste did the very perfons 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, the 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 the should take final orders concerning religion, with advice of parliament, any attempt to alter or subvert the religion which she had universally professed 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 partizans, 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. Difcontents broke out among the nobility; and particularly between the earls of Marr and Huntley. The latter, who was a zealous Catholic, professed the queen to reprove poverty; and finding his counsels neglected by the influence of Marr, in a proper manner to affaimage him, and therafter 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 rout.

The year following these transactions, Mary, who was desirous of entering into a more intimate correspondence with Elizabeth, employed Maitland to defend a personal interview with her, but the English queen declined the meeting. In 1563, the Scotch 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 posterity. Many suitors of great eminence, among the princes of Europe, professed 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 issued 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 continued scene of political folly, and personal imbecility. Inflicted by hatred to all those who manifested an aversion to Darnley, she denounced that prudent conduct which had hitherto enabled her to maintain the dignity of her crown in the midst of conflicting factions. Her Protestant counsellors were now disdained; she joined the league of Catholic princes against the reformers; and evinced her full determination to restore the Roman religion in Scotland. The effects of this new system of policy soon became visible. The time of the prorogation of parliament was shortened; and by a new proclamation, the 17th of March was fixed for its meeting. Mary resolved, without further delay, to proceed to the attendance of the malcontent nobles, 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 now 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 her own presence, which roused her indignation to the highest pitch, and completely alienated her affections from Darnley, who had already disdained her by his inconstancy and licentiousness. Having been confined, 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 disclaiming 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 uninfamous fondness, she had conferred upon him, he had employed to infilt 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 distress, frequent quarrels, succeeded to their former transports of affection and confidence. About this time a new favourite grew into credit with the queen, and soon gained an ascendency over her heart, which encouraged him to form designs which 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 obtained 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 loaded him with marks of her bounty; she raised him to offices of dignity and trust; and invested him with importance without his advice.

The hour of the queen's delivery 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 indulge those tender passions, nor to taste those joys, which fill the heart of a mother.

The queen, when recovered, did not evince any change of sentiment towards her husband. On the contrary, the breach between them became every day wider, notwithstanding the attempts of the French ambassador to effect a reconciliation. Her attachment moreover to Bothwell increased, in proportion as her love for Darnley declined. At length the latter was murdered by the explosion of some barrels of gunpowder, placed under the house he had been induced to retire in at Edinburgh, and Bothwell was accused of and prosecuted for the murder, but was acquitted on a trial by his peers. Of his guilt, however, not the slightest doubt can be entertained; and it is much to be feared that Mary herself was accessory to the crime.

Bothwell now redoubled his affections to fix the affections of the queen, and having succeeded in that object to his utmost will, he carried her to the castle of Dunbar, where she remained many days before their nuptials, when she removed to Holyrood House, and was soon afterwards united to Bothwell, whom she created duke of Orkney. This step, the most unjustifiable of all her actions, was the prelude to her ruin. The nobles almost immediately conferred against her and Bothwell, who was obliged to seek refuge in England, while she herself fell into the hands of her unenlightened subjects. By them she was conducted first 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. 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 so laudable as to excite the admiration which could not be expected from 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 apprized 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 annulled 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
the period of nearly twenty years, and was at last tried and executed upon an accusation of high treason. See Mary.

In the meantime the regent Murray, by his vigorous administration, soon restored Scotland to tranquility; and continued to govern without any serious molestation till his death in 1573, 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 successors 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 almo in every town and village, king's 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 distinctions, 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 satisfactory. After this event, James himself began to exercise the sovereign authority; but his love for favouritism 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 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 reformed church from the danger of being overthrown by the Catholic party, which was fynonymous with the queen's party, and continued to be very formidable so long as she lived. When his mother was put to death by queen Elizabeth, however, he renounced strongly against her conduct, and even declared war; but that wily prince found mean 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 flewed more lenity than was probably politic or prudent. On one occasion his person was feized 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 unsuccessful, 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 mystery in which all its circumstances are involved, it has greatly excited the attention of historians; some even questioning the existence of any plot, and maintaining that the king murdered the Ruthvens without any reasonable cause. This opinion, however, is justly confided by Dr. Robertson as extremely improbable; though it must be confessed that the conduct of James, and the impression on the public mind against him at the time, cast an air of great suspicion over the whole transaction.

From this period no event of material interest in the history of Scotland occurred till the year 1603, when the death of queen Elizabeth opened the way for the accession 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 identified, 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, designating leading events or characters.

General Aspects 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 valleys. 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 is presented to the view, though often grand and picturesque, is seldom naturally rich. On the former, the signs of fertility are always apparent; and as the soil of the latter is usually mixed with the substanices 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 considerable 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 vales of Moray, the influence of the sun's rays is so allayed by circumstances, that corn ripens there as soon as in Yorkshire or Northumberland.

Rivers.—Scotland abounds with streams of various magnitude, most of which fall into the Northern or German ocean. The principal of them 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 commerce. 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-eminence over all these rivers in commercial utility, and perhaps 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 interesting scenery. On its banks are situated the towns of Lanark, Hamilton, Glasgow, Rutherglen, Dumfartoon, Port-Glasgow, and Greenock.

The other rivers of Scotland, which deserve notice, are the Annan and Nith in Dumfriesshire, the Eden in Fifeshire, the Dee and Don in Aberdeenshire, the Spey in Banffshire,
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Banffshire, the Nefs and Beany, which form the Moray Frith, and the Grady and Conan, which form the Frith of Cromarty.

Lakes and Lochs.—The numerous and beautiful lakes interposed throughout Scotland, and especially throughout its mountainous tracts, constitute a very striking and interesting feature in its scenery. The chief in extent and beauty is that of Lomond, fringed with islets, and adorned with shores of the greatest diversity. Extremes of this lake are those of Kettering, Chroin, Achray, Vanachor, and Luihnag; all of them distinguished by singular and picturesque scenes. The lake of Menteith is also in this vicinity. In Galloway are many fine lakes, on the banks of one of which stands 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 Rannock, Lyddock, Ernich, and Loch Tay. The last, in particular, is a grand and beautiful expanse of water, of such length as to resemble a noble river. Loch Nef, 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 it 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 trust, are defined shortly to become 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 Laggen, 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-breazes. Even the shortest description of these friths and inlets separately would extend this article beyond its prescribed limits, we shall content ourselves with the bare mention of their names. Those on the eastern coast, beginning from the south, are the Frith of Forth, the Frith of Tay, the Moray Frith, the Frith of Beauty, Cromarty Frith, the Frith of Dornach, Thurflo and Dunnet bays, Kyle of Tongue, Loch Eribol, and the bay of Durness. Those on the west coast, beginning from the north, are Loch Inchard, Loch Laxford, Loch Affint, Loch Enard, Loch Broom, Loch Ew, Garloch, Loch Torridon, Loch Carron, Lochalsh, Loch Duich, Loch Hourn, Loch Nevis, Loch Aylort, Loch Moydart, Loch Sunart, Linhe Loch, Lochichel, Loch Leven, Loch Crenan, Loch Etive, Loch Melfort, Craigint. Loch Swam, Loch Killilport, Loch Tarbat, the Frith of Clyde, Loch Fyne, Loch Long, Loch Gair, Loch Streven, Loch Ryan, the bay of Glenhace, Wigtom bay, Kircudbright 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 across the kingdom, from the vicinity of Aberdeen to the Cowal in Argyllshire. In their western range, they form the southern boundary of the Highlands; and are celebrated in history for the stand made upon their altitudes, by the Caledonians under Galgacus, against the Roman general Agricola. The second chain commences near Edinburgh, and running southwards through Lothian, joins Tweeddale hills; and the third, beginning near the eastern coast of Berwickshire, stretches to the westward through the Merse. 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 for size and elevation. Ben Nevis is the highest mountain in Britain, its summit being 4350 feet above the level of the sea. On its north-east side it presents a most prodigious precipice, nearly perpendicular, which is said to be 1700 feet in height. The precipice on this hill is truly sublime, and extends on all sides a distance of 80 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 Braemaron, Scarich, and Ben Aun. To the Grampian ridge belong Ben Lomond, 3262 feet high; Ben Ledhi, 3309; Ben More, 3503; Ben Lawres, 4015; Shihallion, 3564; and Ben Verliech, 3300; besides some scarcely less important elevations on the east. Mount Batoock, in Kincardineshire, is 3465 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 Chalker, Ben Golich, Ben Folklaig, Ben Nore, and the hills of Cunnak, all in Ross-shire; and BenOrmord, Ben Cliberg, Ben Grim, 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 Richard 24 miles to the south, presents a most singular appearance, as if mountains had been broken in pieces, and small lakes interposed among the fragments.

Mineral Products.—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 lands of Elvan, a rivulet which joins the Clyde; and a place still exists, called Gold-foun, 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 cobalt. 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 Cowden, in Galloway; at Curry, in Lothian; at Oldswich, in Caithness; and Kippern, in Rossshire. The lead-mines in the south of Lanarkshire have long been known. Those of Wanlock head are in the immediate neighbourhood, but in the county of Dumfries, and belong to another proprietor. These mines yield yearly above 2000 tons. The Swanmore vein, Leadhills, has been worked for sixty years, and produced vast wealth. Some fine 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 most
molt known, which Mr. Kirkman describes as being an argillaceous iron-oxide of a blueish-grey, internally of a dark ochre-yellow. It is found in flatly mafles, and in nodules, in an adjacent coal-nape, of which it sometimes forms the roof. At the Carron-works this oxide is often melted with the red greasy iron ore from Utterton, in Lancashire, which imparts easier fusion, and superior value. Calamine and zinc are also found at Wanlock-head; and it is said that plumbago and antimony may be traced in the Highlands. Coal has been worked for a succession of ages. Popen Pins II., in his description 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 Scottish 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 lists. He explains with some exactness the manner of working coal, and mentions the subterraneous walls of which intersect the frata, particularly a remarkable one, visible from the river Tyne, where it forms a cave, and passing by Pratton-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 fingular coal, in veins of mineral, has been found at Castle-Leod, in the eastern division of Ross-shire. Among the least important minerals of Scotland, is the new earth found at Strontian, in the district of Sunart, and parish of Arnamurchan, Argyllshire, which is now introduced into numerous systems of mineralogy and chemistry. Den Nevis affords beautiful granites. Fine flinty marble is found in Ayrshire, and at Blair Gowrie, in Perthshire. A black marble, fretted with white, like face-work, occurs near Fort William; dark brown with white at Cambuslang, Clydeford. Jasper is found in various parts; Arthur's seat offers a curious variety; and on the western shore of Incomkill, are many curious pebbles of various descriptions. Fuller's-earth is found near Campbeltown, in Caintre; and it is supposed that there must be a vast mass of slate, equal to that of Muckgowy, in the mountains which give rise to the river Findon, 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 Colvend, in Galway, are well worthy of notice; and the beautiful falls of the Clyde, near Lanark, have deservedly excited much attention. On the east of this part of Scotland, are the pastoral vales of the Tweed and Teviot, celebrated in song; the deep pafs of the Peaths; and the romantic rock of Bals, the haunt of the folan goose. The basaltic columns of Arthur's seat, near Edinburgh, deserve inspection. On the northern shore of the Forth, near Dyfart, a coal-mine has, for ages, been on fire, probably from decomposed pyrites, and has supplied Buchanan with a curious description. The beauties of Loch Lomond have been often defcribed; but the trophes, or singular hills around lake Kettering, form a new acquisition to the traveller. The hills of Kinnow, near Perth, constitute a great curiosity, prefenting a mass of uncommon minerals. The numerous lakes and mountains need not be again mentioned. Many of the rocks off the coast of Aberdeen come allusive fingular forms of arches, pillars, &c.; and the space from Trouphead to Portfoy abounds in uncommon rocks, and singular marine productions. The caves of Nigg, in Ross-shire, are worth visiting, and the more northern fhores prefent innumerabfe wild scenes of savage nature. Near Lathron, in Caithness, is a large cave, into which the inhabitants fail to kill seals. Nob 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 Torg is the cave Fagraill, about fifty feet high and twenty wide, variegated with a thouland colours, which are lost in each other with a delicacy and softnefs that no art can imitate. On the exit 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 Edrachills, south of Loch Inchard, may likewife be mentioned as a natural curiosity, as also the grand cataraft of Kinem river, and the cave of Gandeman, near A'ffy Point. The cascade of Glanna, in the heights of Glen Echaig, is truly sublime, amidst the confant darknefs of hills and woods. Ben Nevis will, of coucre, attract notice from its singular form and elevation. According to Mr. Williams, it consists of one solid mafs of red granite, which he traced at the base for four miles along the coure of a rivulet on the east; the height of this mafs he computes at 3000 feet, and above it are stratiied rocks, the nature of which he does not explain, but he fays that thofe on the summit are fo hard and tough, that wrought iron is inferior to them in these qualities. The tremendous precipice on the north-east fide exhibits almost an entire fection of the mountain. In Argylshire the marine cataraft of Loch Etif, the beautiful lake of Awe, and the environs of Inverary, prefent the chief objects of curiosity.

Sketch of the Agriculture. — Scotland, with respect to agriculture, exhibits great variations, from caules partly of a moral, but chiefly of a physical nature. To give his readers just 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 reft. 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 situation, 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 fouterly, has a great extent of hills of confiderable elevation, and only adapted for the paffuring of sheep; but it also includes the rich vale of Teviot, which is one of the most improved tracts in the kingdom. Berwickshire, though a large share of its surface is likewise best fitted for paffure, contains in the Merse, soil at once fertile and well cultivated. East Lothian, throughout the greater part of its extent, is a rich and highly improved plain, diversified by a few gentle eminences; and yields to no county in Great Britain the palm of superiority in agriculture. Mid-Lothian, though inferior in soil to East 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 southern bank of the Forth adds much to the beauty of the scenery, and to the advantages which the country possesses within itself.

The second district includes the counties of Peebles, or Tweedale, Selkirk, Dumfries, Kirkcudbright, and Wigton. Here are the highest mountains south of the Forth; and from the greatest proportion of hills, and the small extent of arable land, more of the surface is appropriated to the feeding of live flock 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 Tweedale, and the intervening vales, are prolific of corn. Only a small proportion of the territory, however, is arable, and late harvests occasionally blast the prospects of the farmer. In the county of Selkirk, formerly called the Forreit, a hill less proportion of the land is cultivated; but new plantations begin to rise, and will in time supply 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 flocks of sheep, partly of the Tweedale, but chiefly by the Cheviot race. Great numbers of cattle also are found in these districts. In Galloway, 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-quantities, 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-flock, than to the reaping of corn; and the best 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 ungenial climate; and nearly one-half, or, more accurately, seven-fifteenths of the whole surface are under cultivation. With only one-thirteenth part of the extent, nearly one-fourth part 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, Athol, and Kethnfs, to the lofty Grampians, which shelter a considerable proportion of the division from the northern blasts. In the rich carse, and along the cliffs and sea-coast, it produces the best wheat, beans, barley, and broad clover. And in some of the inland districts are raised excellent crops of turnips, bear, and oats. Its live-flock in general is of an excellent description. The towns of Dundee, Perth, Alloa, Dunfermline, 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-works, by its improved agriculture, and its breeds of cattle and horses. The small county of Kinrofs, ornamented by its lake, and abounding in coal and lime-stone, is considerably elevated above the level of the sea. Formerly it was not attractive to a stranger, but its aspect is now much improved. Clackmannan, of still more limited extent, but of greater fertility, is distinguished by a correct cultivation of the soil, and by the abundance of lime and coal. The half of its population resides in towns of very moderate extent. The county of Stirling includes every variety of soil, from the rich carse on the southerly bank of the Forth, to the barren rocks of Ben Lomond. In the parishes of Enrick and Strathblane, there are rich fields, cultivated by intelligent and enterprising farmers; and the scenery is much diversified in all parts of the country. Two very extensive counties of Perth is equally remarkable for the most fertile, and the moat barren soils, each of them, and exhibits the two extremes of correct and defective agriculture. In the carse of Gowrie, and the valley of Strathearn, there are many opulent and enterprising farmers, who cultivate successfully the moat fertile soil in the kingdom. In several of the smaller vales an improved cultivation is also general. But in the more remote highland glens, where the land is naturally good, improvements in agriculture are little known and less practised. In Forfarshire, along the sea-coast, and in the rich valley of Strathmores, the farmers have been long distinguished for their exertions; and in the inland parts of the county, shell-marsh, obtained in abundance from the fresh-water lakes, has contributed very much to the improvement of the soil.

Scotlan.

The fifth district includes the counties of Kincardine, Aberdeen, Banff, Moray, and Nairn, and contains a greater extent of sea-coast than any of the preceding divisions. Yet on the south-west, where it extends to the middle of the island, it is extremely mountainous; the Grampians stretching from its boundary with Perthshire nearly to the sea at Aberdeen. By far the greatest part of the arable land is either in the maritime or midland parts, there being very little near the mountains. It is remarkable, that the maritime parts of Moray enjoy perhaps the best climate in Scotland, and that for many centuries wheat has been cultivated there to great advantage. Wheat is also raised successfully in the maritime parts of Kincardine and Banffshire, and its cultivation is spreading rapidly in Aberdeen. The turnip husbandry and artificial gristles are to be met with over the principal part of this division in very great perfection. But the most striking feature in its cultivation is the great expense at which barren land is improved, by trenching with the spade and mattock, which has been known to exceed a hundred pounds for a single acre. This district in general raises food for the support of its inhabitants, and in good seasons exports a considerable quantity of grain; but it is chiefly distinguished for the rearing of excellent cattle, of which it feeds yearly great numbers to England. Owing to the large proportion covered by mountains, only four eleventh parts of this district are yet under cultivation. It is, however, much adorned by plantations, particularly near the hovels of its proprietors, and its natural woods in Braemar are extensive and valuable. Kincardinshire, except that part of it which lies in Mar, is sheltered on the north by the Grampian mountains. This small county was early induced to attend to the cultivation of its soil, by the examples of the late Robert Barclay, esq. of Ury, and a few others of its landed proprietors. Aberdeenshire, which fifty years ago brought most of its work oxen from Fife and the Lothians, has now taken the lead in the rearing of black cattle, and cultivates for that purpose fowm grass and turnips in great perfection.

Wheat
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 sea-coast of the Bogue and the Erse, 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 fowl griddles was not, till within the last thirty years, so general, as in the favour ed counties; but of late, both these and corn, with the rearing of live flock, have been attended to with ardour and perseverance.

In the sixth district are included the two extensive counties of Argyle and Inverness, comprehending nearly one-fifth part of the whole surface of Scotland. About two-nineteenth parts of this district are cultivated, and productive. Near Inverness, at Campbeltown, in Argyllshire, 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-flock. It likewise contains a great extent of plantations, and the remnant of the Cocillmore, 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, Ross, Sutherland, and Caithness. It is in some respects superior to the former, though more northerly. East Ross, 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. West Ross, 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 herring 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 Tweedale 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 croffes of them, have been successfully introduced into Ross-shire, and other parts of this district. East Ross 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 close 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 Ebude, 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-eightheenth part of its population. Of the whole surface, nearly one-seventeenth part is under culture. Wheat has been raised in some of the islands, more especially Butie, Ilay, 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 help manufacture are 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 east 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-seventeenth 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.

Forset and Woods.—That Scotland was anciently clothed with extensive and luxuriant forests, is abundantly proved by the concurring evidence of tradition, of history, 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, Aikhenhead, Asbyhurst. 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 Pailley 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 the shores of Galloway. The Caledonian forest, of which the Roman historians speak, appears to have extended in a southerly 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 Dunaff,) as far as Gartmore in Perthshire, covering the great moors, called Moors 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 moors, from six to nine feet under the surface, incumbent on the clay, its original soil. Many other instances of ancient forests, long since lost, might be given from authentic records. In all our moors, 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 moors 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 where imbedded in the moors. In Dalferr 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 Moors 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 yew tree, which grew on a ledge cliff in the Storny island of Bernera, when cut into logs, loaded a large boat. The island has annually been filled with woods. Though Lewis, adds Dr. Walker, is now entirely desolate of timber, there are large trunks of alder, birch, and especially of Scots fir, found in its extensive moorlands. Of the destruction of these magnificent forests, we are furnished with a satisfactory account both by history and observation. Herodian and Dion Cassius inform us, that the emperor Severus, about A.D. 207, employed the Roman legions, with the auxiliary troops, and such 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 50,000 men. The forest that once covered Moors Flanders, to the west of Stirling, appears evidently to have been thus cut down; the prostrate trees lie under the mists in every direction, which demonstrate 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 axes to work at a time to cut down all the woods of Scotland. In the northern parts of Scotland, the Danes cut down and burnt many woods, as did King Robert Bruce in his expedition against Cumyn. Mr. Graham of Gartmore has in his possession an original document, relating to the woods of Aberfoyle, now the property of the Duke of Montrose, formerly of the earl of Menteith and Airth. It is an order from General Monk to cut down the woods of Milton and Gles, on account of the shelters 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 burghs, 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 resistance to that enlightened measure. The most distinguishing feature of the ancient government is the general assembly. The high courts of justice, and particularly the court of sessions, may be classed in the next place. The lords of council and session are fourteen in number, besides a president; and on their appointment assume a title, generally derived from the name of an estate, 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, as in England. But this ground of complaint has been very recently removed, and three judges have been appointed to prefix in a court where the 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 seions, with a president, styled the lord justice clerk, as representing the lord's justice general. This is the supreme court of all criminal cases 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 seison, which are carefully preserved and published, and which afford precedents generally reckoned unexceptionable. There is fearcely a vestige of common law, so that the civil and canon laws may be denominated the basis of Scottish jurisprudence. The inferior courts are those of the shires of counties, the magistrates of boroughs, the commissaries, and the justices of the peace. While the feudal system prevailed, the hereditary jurisdictions were nearly absolute, and every chief maintained an unlimited control over the lives and property of his vassals and followers; but this system is now happily abolished.

Parliamentary Representation.—Scotland is represented in the British parliament by sixteen 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 peers duly qualified to vote: at the period when the election takes place, and are not, when once elected, continued for life, as is 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 members of the Scottish peers since the Union, and their amount at present:

<table>
<thead>
<tr>
<th>Tables of the Scottish Peers.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of the Scotch peers at the Union,</td>
<td>154</td>
</tr>
<tr>
<td>2. The duke of Rothsay, when entitled to vote,</td>
<td>1</td>
</tr>
<tr>
<td>3. Added by subsequent orders of the house of lords,</td>
<td>4</td>
</tr>
</tbody>
</table>

| Remain | 82 |

Of these, 23 (including the duke of Rothsay) are British peers, but who still retain the privilege of voting at elections, and even continue eligible; though it can hardly be supposed that these hereditary peers would permit their brethren not enjoying the same privilege to elect them. At the last election, on the 13th of November 1812, there were three minor, three peerages, 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 possessing £40 of 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 vassals of that earldom a right to vote as well as the vassals of the crown; and in consequence of the inconsiderable number of small proprietors in the county, the qualification of the freeholder was reduced to £20 of 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 last 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>Aberdeen</td>
<td>£ 235,665 s. 8 d.</td>
<td>147</td>
</tr>
<tr>
<td>Argyle</td>
<td>£ 149,593 s. 10</td>
<td>150</td>
</tr>
<tr>
<td>Ayr</td>
<td>£ 191,655 s. 0</td>
<td>146</td>
</tr>
<tr>
<td>Banff</td>
<td>£ 79,200 s. 0</td>
<td>150</td>
</tr>
<tr>
<td>Berwick</td>
<td>£ 178,366 s. 6</td>
<td>120</td>
</tr>
<tr>
<td>Bute &amp; Is Per Vises</td>
<td>£ 1,042 13 10</td>
<td>17</td>
</tr>
<tr>
<td>Caithness &amp; Is Per Vises</td>
<td>£ 216 s. 2 19</td>
<td>21</td>
</tr>
<tr>
<td>Clackmann &amp; Is Per Vises</td>
<td>£ 24,820 s. 10</td>
<td>10</td>
</tr>
<tr>
<td>Kinross</td>
<td>£ 20,250 4 3</td>
<td>15</td>
</tr>
<tr>
<td>Cromarty &amp; Is Per Vises</td>
<td>£ 14,870 2 7</td>
<td>17</td>
</tr>
<tr>
<td>Nairn</td>
<td>£ 15,160 10 10</td>
<td>22</td>
</tr>
<tr>
<td>Dumfries</td>
<td>£ 158,502 10 0</td>
<td>74</td>
</tr>
<tr>
<td>Dumbarton</td>
<td>£ 33,971 19 0</td>
<td>41</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>£ 19,659 3 9</td>
<td>125</td>
</tr>
<tr>
<td>Elgin</td>
<td>£ 6,620 0 5</td>
<td>35</td>
</tr>
<tr>
<td>Fife</td>
<td>£ 171,239 16 8</td>
<td>117</td>
</tr>
<tr>
<td>Haddington</td>
<td>£ 168,873 10 8</td>
<td>70</td>
</tr>
<tr>
<td>Inverness</td>
<td>£ 7,880 9 0</td>
<td>49</td>
</tr>
<tr>
<td>Kincardine</td>
<td>£ 74,921 1 4</td>
<td>73</td>
</tr>
<tr>
<td>Kirkcudbright</td>
<td>£ 171,597 2 3</td>
<td>135</td>
</tr>
<tr>
<td>Lanark</td>
<td>£ 162,131 14 6</td>
<td>68</td>
</tr>
<tr>
<td>Liscithgow</td>
<td>£ 75,018 10 0</td>
<td>62</td>
</tr>
<tr>
<td>Orkney and Zetland</td>
<td>£ 5,786 0 4</td>
<td>37</td>
</tr>
<tr>
<td>Peebles</td>
<td>£ 54,927 13 10</td>
<td>39</td>
</tr>
<tr>
<td>Perth</td>
<td>£ 339,802 6 9</td>
<td>128</td>
</tr>
<tr>
<td>Renfrew</td>
<td>£ 69,172 1 0</td>
<td>77</td>
</tr>
<tr>
<td>Rofs</td>
<td>£ 75,043 10 0</td>
<td>69</td>
</tr>
<tr>
<td>Roxburgh</td>
<td>£ 34,666 6 4</td>
<td>133</td>
</tr>
<tr>
<td>Selkirk</td>
<td>£ 80,397 15 6</td>
<td>67</td>
</tr>
<tr>
<td>Stirling</td>
<td>£ 168,509 3 3 7</td>
<td>98</td>
</tr>
<tr>
<td>Sutherland</td>
<td>£ 26,099 9 0</td>
<td>28</td>
</tr>
<tr>
<td>Wigtown</td>
<td>£ 67,614 17 0</td>
<td>51</td>
</tr>
</tbody>
</table>

Glafgo, Rutherian, Renfrew, and Dumbarton; Stirling, Cullins, Dumferline, Inverkeithing, and Queensferry; Burntihland, Kinghorn, Kirkaldy, and Dyaff; Anfruther, East and West Pittenweem, Kilrenny, and Crail; St. Andrew's, C&M, Fife, Dundee, Perth, and Forfar; Brechin, Abroath, Montrose, Berrie, and Aberdeen; Kinmore, 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 933 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 parishes, convenience has been principally attended to; but the limits of counties being no further observed than they are consistent with the respective synodical and presbyterial acts, but in the arrangement of the whole into parishes, the limits of the counties have 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 follows: 1. The synod of Lothian and Tweedale. 2. The synod of Moray and Teviotdale. 3. The synod of Dumbries. 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 Rofs. 12. The synod of Sutherland. 13. The synod of Argyle. 14. Glendal, or synod of Lochaber and the Isles. And, 15. The synod of Orkney. These synods come in the place of the bishopric, 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, Dumbarton, Ross, Caithness, Orkney, Galloway, Argyll, and the Isles. The country in general was parcelled out among the respective sees, in an arrangement having some regard to population, but not always so; 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 commissaries, which have been substituted from these bishoprics, which is called confessional courts. At present, the Scots Episcopalians have only eight bishoprics, viz. 1. Edinburgh and Fife; 2. Glasgow; 3. Aberdeen; 4. Moray; 5. Rofs; 6. Dunkeld; 7. Brechin, and 8. Dumbarton: comprehending seventy-six sees, served by sixty clergymen.
of their adherents is supposed to be about 19,000, which, perhaps, with the children, may amount to 28,000. The Roman Catholics divide Scotland into two districts only, the Lowland and the Highland, in order chiefly to make a separation between the two languages, the English and the Gaelic. Over in each they have a vicar apostolical, and a bishop coadjutor. In the low counties they have about thirty officiating priests, and in the Highlands eighteen; hearers about 27,000 in number. The Seesd from the Scotch Presbyterian ecclesiastical church divide the country among them thus.

The Burgher Associate Synod lay it out in ten prebyteries. They have in all 150 congregations in Scotland, with about 66,000 hearers.

The Anti-Burgher Seesd from divide it among three synods, containing eleven prebyteries. They have 134 congregations, with about 60,000 hearers. The church of Relief divides the country into six prebyteries, including 76 congregations, with about 50,000 hearers. The other presbyterian Scots, as the Cameronians, &c., may amount to about 14,000. The separatists of various descriptions, as Babilities, Bearer, Glissets, may amount to nearly 50,000.

The Methodists, of whom there are supposed to be about 6000 members, or, including children, about 9000 souls, divide the country into circuits, eleven in all, served by eighteen preachers.

The Friends, or Quakers, are so few in number, that they have only five places of meeting, viz. Glasgows, Hawick, Edinburgh, Aberdeen, and Kilmarnock, near Old Meldrum; 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 towns to these in importance are Perth, Aberdeen, Dundee, and Paisley, each containing about 30,000 souls. The other towns of note are Berwick, Dunbar, Haddington, Musselburgh, Aberbrothick, Montrose, Portfoyt, Elgin, Inverness, and Dingwall, situated on the eastern side of the kingdom; Ayr, Greenock, Paisley, Inverary, and Cambell-town, situated on its western side; and Dunfries, Lanark, Stirling, Dunfermline, Dunkeld, 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 these last 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 property. 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 staple manufacture of the kingdom was linen; 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 very considerable. Several other kinds of manufacture are carried on in Scotland, but that of iron is the only one which deserves to be specified in this article. The works of the Carron are probably the most celebrated in Europe for the founding of cannon, cast-iron wheels, &c.

With respect to the commerce of Scotland, it may be remarked, that though on a smaller scale, it is much affiliated to that of England. The chief exports are linen, grain, iron, glafs, lead, soap, cotton goods of every description, also earthenware, cordage, leather, candles, and innumerable other articles, which it is unnecessary to mention. The imports are wines, brandy, and all kinds of colonial produce, likewise butter, linen, fil, wood, oil, and tallow. The principal ports are those of port Glasgow and Greenock, on the west coast, and Leith, Dundee, Perth, and Aberdeen, on the east coast.

To the above foures of Scottish commerce, may be very properly added the fisheries, which, if placed under appropriate regulations, would prove a fund of great wealth, not merely to Scotland, but to the British empire at large. To effect this object several enactments have been made, but their beneficial operation has hitherto been much restricted. A bill, however, is now in progress, which it is hoped will produce a more favourable result.

Roads and Canals.—In the Lowlands of Scotland the great roads are not inferior in formation to those of England; but they are not yet sufficiently numerous, nor are they always planned in the most judicious manner. Rapid improvements, however, are making in this branch of political economy, so indispensable to commercial prosperity, and the advancement of national civilization. From the mountainous character of the Highland, 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. Smeeon. 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, throughout its whole 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 isthmus of Cantire, to connect the Frith of Clyde with the Atlantic ocean, to the north of Jura. But the chief work of this description now going on, is the grand canal from the Moray Firth, through Loch Nefs and Loch Loyal, to the inlet 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 400,000l. to complete it. See CANAL, INVERNEYS.

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 fields in later times. The Caids, 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 cologue are probably overrated. The earliest genuine work relative to Scotland is the Chronicon Picorum, written by an Irish clergyman, supposed, with considerable probability, to have been a dialect of the church of Abertuth, in the commencement of the eleventh century. In the twelfth century the chronicles published by Linnis, and those of Melrose and Holyrood, deserve to be noticed. About the year 1320 flourished Thomas of Er-}

eceldon,
caldon, commonly called Thomas the Rhymer, who wrote a metrical romance, called Sir Tritrim, 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 nineteenth century, when the unhappy events of that turbulent period checked the career of the arts and sciences. Before this, however, the illustrious Drummond had confounded to the world his exquisite poems. In modern times, the field of poetical merit has been more luxuriant. The names of Thomson, Ramsay, Blair, Armstrrong, 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 perils stands unrivalled. The labours of Hume, Hutchinson, 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 praise 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, Glasgow, Aberdeen, and Edinburgh. The first was founded by bishop Wardlaw, in 1412; the second by bishop Turnbull, in 1453; the third by bishop Elphinston, in 1500; and the last by James VI. in 1582. A; the reader will find each of them derived 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 feminaries 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 herds 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 dree, their mode of living, and their amusements, both public and private, are nearly alike. The inferior orders in the Lowlands are likewise much attainted to their southern neighbours in their style of dree, but their food and diversions materially differ. The ordinary diet of the Scottish peasant is parish, a composition of oatmeal and water, boiled together till it amuses a thick consistence. It is eaten with milk twice and sometimes thrice a day, and is seldom varied, except by broast, which differs from parish only in having the addition of butter, and not being boiled. Butcher's meat is rarely eaten, except on Sunday; but vegetable broasts made with butter are not unfrequently used for dinner. Pork and eels were formerly held in great abhorrence, and even yet are regarded as impure articles of food, on account of superstitious 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 dree 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 peastantry have long been distinguished for sobriety, industry, and moral rectitude; and, in point of intelligence, are indubitably the first in the world. Even the artisans are entitled to share in this eulogy, though it must be confessed that exceptions to the rule are too numerous, especially in the great trading towns. The existence of witches, fairies, and ghosts, 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 serious occupations; but they are gradually becoming fainted, and will, no doubt, disappear in the progress of refinement and civilization. For information on the amusements, superstitions, and manners of the Scottish peasantry, the reader cannot consult any works with greater advantage than those two exquisite poems, the "Hallowen," 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 baptism, godfathers, and godmothers are inadmissible, the parents alone being made anwserable 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, confining of vestiges of roads, flintations, 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.
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 but a foot of the walls. The monuments of the Pictish era consist of those circles of stones, cromlechs, &c., usually, but erroneously, denominated Druidical temples; and of those artificial mounds, or hills, whence the Picts and Dalriadic kings were wont to promulgate their laws. The most remarkable stone circles in the kingdom are those in the Isle of Lewis, and on the Mainland of Orkney. The structures commonly called "Picts' houses," and the heaps of stones called "cairns," or "kaross," have also been supposed to belong to this age; but Pinkerton refers the latter entirely to the Dalriads, or Scots, and thinks the former may be Danifh, as it is certain similar edifices have been traced in Scandinavia. They seem to have consisted of a vast hall, open to the sky in the centre, and having cellars for beds, &c., in the wall. "These buildings," 1757, the author last mentioned, "are remarkable, as displaying the first elements of the Gothic style; and the castle of Coningburgh, in Yorkshire, 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 caisles almost innumerable. Among the more remarkable buildings which owe their origin to religion, are the abbeys of Melrose, Jedburgh, and Aberbrothick; the cathedrals of Dunkeld, Glasgow, and Brechin; and the chapel of Koflyn, near Edinburgh. The last is one of the most singular and interesting remains of ancient architecture in Great Britain; and Melrose abbey may vie with many in England, both as to the extent and magnificence of its buildings.


Scotland Neve, a town or rather village of America, in Halifax county, North Carolina, in which is a post-office; 250 miles s. of Washington.

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, 4 miles S.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 dinnings of light.

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 Constantine; Pict's being the denomination of the other. The name and almost the memory of the Picts have been extinguiished by their successful rivals; and the Scots, after maintaining for ages the dignity of an independent kingdom, have multiplied, by an equal and voluntary union, as Gibson 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 cruthnoch, 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, stripped for a day of battle, were distinguished, 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 repel the soil of the husbandmen, and are most profitably used for the pasturage of cattle. Accordingly the highlanders were condemned to the occupations of shep- herds 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 foragers. That the Irish descent 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 super- structure has been gradually reared by the bardic 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 Ulster 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 savage 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 enterprizes, 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 mistaken 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 Hift. 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 comfort, at the desire of several persons of quality, was performed a Scotch fong.

In 1744, in the opera of "Rofelinda," fet 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 confounded to sing, and to which Veracini added parts and ritornelli, 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 expedition failed of its intended effect. See Palma.

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 on the North Pacific coast, on the W. coast of America; 10 miles S. of Queen Charlotte's found.

Scott's Cere, a cape 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° 24'.

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. 231° 2'.

SCOTT, John, in Biography, a clergyman of the church of England, was born in 1638, at Chippenham, in Wiltshire. He was first apprenticed to a trade in London, which not being congenial to his taste, he quitted, and entered himself as a commoner of New Inn, Oxford. After receiving orders, he obtained a rectory 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 Windfor. "The Christian Life," which was published at different times, and finished in 1686, acquired for him a high 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 Windfor, 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 progress 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 "Cales of Conscience resolved, concerning the Lawfulnefs of joining in Forms of Prayer in public Worship;" and "Thirteen Sermons," preached on different occasions. His "Christian Life" is a book very generally read in the religious world.

SCOTT, Michael, a celebrated Scot of the 13th century, was born at Balcarres, 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 Frederick 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 highly 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 Wemys, 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 paffed among his contemporaries as a skillful magician. Boccaceio and Folengo both exhibit him as such; the former in one of his novels, and the latter in his macaronic poem; and he is introduced under the name character by Dante. It is not known where he was interred, but it seems generally admitted that his books of magic were either buried with him in his grave, or preferred in the convent where he died. A Latin translation of Ariflotle's works is ascribed to Sir Michael Scott, but probably upon insufficient evidence. There is a translation of that philosopher's works, partsly from the Greek and partly from the Arabic, by various hands, undertaken at the command of the emperor Frederic II., at whose court Sir Michael resided some time; and as he is reported to have translated Ariflotle'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 "Ariflotelis Opera, Latinae verae, partim e Graeco partim Arabico, per viros leitos et in utriusque Linguae prolacione peritos, juxta Imperatoris Frederici II. Venet. 1496." The works of Sir Michael Scott are numerous, among which the following may be mentioned: "Phylognomenia et de Hominis Procreatione," "De Secretis Nature," "Quello 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 Riccioli, 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. Pepusch, and assisted him in drawing up his paper for the Royal Society, on the genera and styles of the ancient Greek music; and whatever articles he furnished to the Supplement of Chamber'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 unregular succession of chords, in the opening of Pergolesi's "Stabat Mater," at the second bar, where that most pleasing author surmounts the car, as well as the eye and intellect, in modulating from F minor to Eb major. De Moivre, who had no taste or feeling for music, used to calculate ratios for the ingenious and worthy organist of the Charter-houfe, and laugh at him for his Greek and mathematical pretensions; but Scott, the sub-preceptor of his present majesty, was in earnest, and wished to make discoveries in Greek music, as much as Pepusch. For though attatched to old masters 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 Chamber'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.

Scottia, or Scottus. See Scot.

Scotti, Teresa, in Biography, the first woman in the operas of 1764 and 1765, in which Manfoni sung.

The Scotti, with an elegant figure, a beautiful face, and a feeble voice, sung in a very good taste; and though in want of power, she possessed great flexibility and expression.

Scottia, in Botany, bears that name, as we presume, in memory of Robert Scott, M.D., late professor of Botany at Dublin, commemorated by Mr. Davison Turner in the preface, as well as the dedication, of his "Mycologete Hibernico Spicilegium."—Brown in Ait. Hort. Kew. v. 4. 268.—Classification, Diasphilia Decandria. Nat. Ord. Papilionaceae, Linn. Leguminose, Jull.

Ed. Ch. Calyce with five rather unequal teeth; its base clothed with imbricated appendages. Standard folded, shorter than the wings, which are the length of the keel. Stamens all connected. Legume stalked, compressed; thickened at each margin. Seeds few, crested. I. S. dentata. Tooth-leaved Scottia. — Found by Mr. Brown on the south-west coast of New Holland. A burr, sent to Kew garden, in 1803, 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 Odontania, near Berga. — Alto, a town of Greece, in Thessaly, Ptolomey.

Scour, among Cattle, a disease of the flux kind, which frequently affects cows, calves, sheep, and other animals. See Scouring in Cows, 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 let 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 "gall" by sheep-farmers. Early, soft, tawny, luxuriant pastures, is 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 weakneds and relaxation of the bowels. In all these instances, the above changes of food will be highly useful and necessary. The disease may be stopped, 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 weakneds of the affected parts.

Boil four ounces of the shavings of logwood in two pints 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 disorder, 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 molly leaffen 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 hartshorn shavings have been boiled. In high states of the disease, the strength of the medicine must be increased.
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 confluence 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-fall, 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 slimy, 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 clayish coloured substance. This disorder is generally attended with a bad appetite, a weak depressed pulse, harsh dry skin, dull countenance, and something of a low 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 yellowish, 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 unwholsome fog or after-grafs; by not being lodged in dry situations; sometimes from giving them too large a quantity of cut hay and 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 hose the beast, 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 suet, one pound; oil of turpentine, four ounces; boil these together in three quarts of milk till the suet 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; Peruvian bark in powder, two ounces; rock alum in powder, fix ounces: mix these together, to be given in two quarts of old ale or urine, and repeated every other day. The beast should fall 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 oil-flax shells in powder, four ounces; ditto pipe-clay, one ounce; oak-bark powder, two ounces; grains of paradise, one ounce; rock alum, one ounce. Mix these 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 grosly 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 diceordium, without honey. The mixture should be preferved 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 equidistant 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 hartshorn flavings, and one ounce of calsia, stirring the whole carefully. When cold, two drachms of tincture of opium, and one pint of lime-water, may be added; the whole being kept closely flopped in a bottle, and well shaken before it is used; the dose is one or two hornsful in the day.

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

But in order to effect a cure, it has been advised to restrict the calf in the quantity of its food, giving a hard boiled egg, made fine by chopping, in a trench, 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 Essex, 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 mollify 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, hartshorn flavings, and a little courlessly pounded calisia, with a very small quantity of the tincture of opium, will mostly be found of great benefit in cases 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 Marsh during the same feaon, are liable to be attacked with the complaint on the approach of spring. Sheep which are weakened in their constitution, 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 system remarks, that the farmers there consider it fatualy, and believe that the sheep fatten more quickly after it: but he regrets, that when it is long continued, the powers of their systems must be greatly injuried and reduced. In such cases, the disorder ought moly 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 in saving most of them, by means of giving them an altringent cordial drink, with a small portion of opium, and
turning them upon dry, found, old, artificial pasture-land. But three of the number, to which fue boiling in milk had been given, all died. Tar mixed with the finely powdered lime of an old wall, and formed into suitable balls, is said, in some instances, to prove an effectual remedy for this complaint.

On the whole it is thought, that as the disorder evidently arises either from cold, moisture, and poor food, or from weakly sheep being suddenly put upon too rich keep, the most proper and rational method of removing the affection is, in the first circumstances, to turn the sheep immediately into a new warm pasture, and supply them well with fresh good hay, &c. and in the latter case, to put them upon found old ward land. In support of this practice, a sheep farmer in the same neighbourhood affords, that he constantly keeps his wether lambs on or near to the above March, and that he never has 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, Preventative Remedies, for Horses, such as are given to work and other horses, as well as occasionally to other forts of live-flock, for the purpose of preventing the occurrence of disease in them. The incautious and indiscriminate 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 so frequently in need of medicines of this fort as has been supposed, though they may sometimes have occasion for them. The state and circumstances 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, mostly lead point out 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 slow, and the length of the intestinal canals great, unless the stimulant purgative power of the substance 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 best 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 forts, will very seldom require such assistance. It may, however, be occasionally useful. Swellings of the legs, inflammations of the eyes, coughs, and colds, 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 close and warm.

Strong young horses mostly require a few dozes on their first coming into the stables, but by no means so many as are usually given. Horses too, after being long foiled on green food, sometimes are the better for such remedies. Also such as have swelled and cracked heels from high feeding and too much inaction. There may be some other cases in which such remedies are beneficial, but they are only few, as it is not at all necessary to have recourse to them in that general way which is commonly imagined.

The most usual, and perhaps the best mode of giving such remedies, is that of letting the animal have the calomel balls in the evening, and those of the aloe kind in the morning, so as to work them off in some measure.

From one drachm to two drachms, in proportion to the strength of the animal, of the first or calomel, with half an ounce of some aromatic powder, made up with treacle 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 powdered Barbados aloes, with two drachms of powdered ginger, made up in the same way, will form a suitable morning ball in this intention.

Proper measures 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 preferve horses from noxious humours. SCOUTS, in Military Language, are generally horsemen sent out before, and on the wings of an army, 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 Duncanby 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 Scraba, a small port and sea-town of the county of Cavan, Ireland, near Lough Gawnah; 60 miles N.W. from Dublin, and 7 N.W. by W. from Granard.

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

SCRAPING in Mezzotinto. See MEZZOTINTO.

SCRAPING, in Naval Language, is the act of shaving off the dirty surface of the planks, 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 rosin. The instrument with which this is performed is called a scraper.

SCRATCH, in the language of the falt-workers of our country, the name of a calcareous, earthy, or fatty sub stance, 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 pains of taking off once in a week or ten days, otherwise the pans burn away and are destroyed. (See Salts.)

This is no other than the same substance which crusts over the infides of our tea-kettles, and is truly a spar, fultained 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; and it is probable, according to Hoffmann,
that the purgative virtues of many springs are owing to the
quantity they contain of this substance.

SCRATCHES, among Farriers, a distemper incident
to horses, consisting of dry scabs, chaps, or rifts,
that breed between the heel and the pattern joint.

There are various kinds of scratches, distinguished by var-
ious names, as crepanes, rat-tails, mules, kites, pains, &c.,
which are all of many species of the same malady, engen-
dered from some hot humour 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,
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 supple
with carriers’ dubbing, which is made of oil and tallow:
by using this precaution before exercise, and washing 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-pan’s, 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 salt-pan, where the
heat is least violent, catch it as it subdyes there.

SCRATCH-WORK, Soraffiata, a way of painting
in tin-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 laffing; but being very rough, it
is unpleasing to the light. It is chiefly used to embellish
the fronts of palaces, and other magnificent buildings.

SCRAPYLY, in Agriculture, a term provincially signifi-
ying thin and ravelled as grain.

SCREAMER, in Ornithology. See PalaMADEA.

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,
fand, gravel, &c.

SCREEN, or Screen-Machine, in Agriculture, a simple con-
trivance, invented for the purpose of clearing grain of dif-
frent kinds, of various injurious sorts of feeds, by paffing
it through it. It consists of a wooden frame, which has
ledges on the sides, with a foot 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 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 ma-
chine, while that is going on with it. See Threshing
Machine.

SCREEN-Fence, such fences as are raised for the pur-
pose of affording shelter from winds, storms, &c. The writer
of the tract on improving landed estates suggests, that for
the purpose of shelter to paffuring stock, a tall impenetrable
fence is nearly equal to a depth of coppice-wood, and in-
finity 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 mound hedge of Devonshire and South
Wales, and 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-parlure-
grounds 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, be-
tween two foot-fences, battering, or leaning somewhat in-
ward, to the required height; and planting on the top the
roots and lower stems of coppice-plants, gathered in woods
or on waste grounds, or with nursery plants adapted to the
given situation. If the mound be carried to a full height,
three or four feet, and about that width at the top, and this
be planted with strong plants, with stems cut off about two
feet above the roots (in the usual practice of Devonshire),
a sufficient fence is thus immediately formed against ordinary
stock; but if the bank be lower, or if nursery 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 ob-
erves, required (especially against sheep), until the plants
grow up. But where a hedge of this kind is raised as a plant-
ation-fence, (especially on the lower side of a slope,) the
outer side only requires to be faced with sods; the hedge-
plants being let in a rough shelving bank, on the inner side
of the fence.

Further, with respect to the species of hedge-woods pro-
per for mound fences, they depend entirely, he thinks, on
the soil and situation. On mounds of bad foil, in a bleak
situation, he has seen the furze alone affordmg much shelter,
and a good fence. The fides being kept pruned, so as to
shew a close firm face rising above the top of the bank, it
was a secure barrier, even against the wilder breed 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
contributes them in situations where they will flourish; they
grow freely from cuttings, or truncheons set in the ground;
whereas to secure the growth of ordinary coppice-woods,
rooted plants are required. The fallow (Selix cuprea) will
grow in high and dry situations, in a matter so as to be
useful in this fort of business. And it may be further no-
ticed in regard to this description of fences, that on thin
folded stony surfaces, tall mounds are difficult to raise; and,
there, stone walls are not only built at a small expence,
but are convenient receptacles for the stones with which the
soil is encumbered. But a stone wall, unless it is carried up
to an inordinate height, at a great expence, is, he conceives,
useless as a screen-fence, and is laid to be dangerous as such
in a bleak, exposed situation; for as 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 sorts of screen-fences should be more attended to by the proprietors of land in all exposed situations, as they have much effect in promoting the improvement of different sorts of live-flock in such exposures.

Screen-Plantations, and Planting, a term sometimes applied to such belts, clumps, or hedges, as are planted with a view of affording shelter in exposed situations. And Mr. Marshall, in his work on "Landed 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; shattering the cutting blasts, and throwing them into eddies; thus meiorating 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 feverel frost rarely affects the sap of trees; it conseqently appears to him, that trees and shrubs, properly disposed in a bleak situation, tend to improve the lands so situated in a threefold manner for the purposes of agriculture: namely, by giving shelter to flocks, by breaking the currents of winds, and by communicating a degree of warmth or softness to the air in calmer weather, or when the seasons are more mild.

Besides, it is suggested that the proper disposal of screens in this intention, is in lines across the most offensive winds, and in situations bel calculated to break their force. Placed across valleys, dips, or more open plains in bleak exposures, they may, he supposes, be of singular use; and also on the ridges, as well as on the points and hags 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 stature poles may safely be considered as an eligible width for such purposes. With regard to the nature or species of plants which are most suitable, they must constantly be adapted to the given soil and situation. Mr. Marshall thinks, that in bleak and barren situations 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 screen to 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 sheep that have reared it for shelter. A larch plantation margined with firs, and thofe headed at twelve or fifteen feet high, would, he supposes, afford the required shelter for a length of years. The firs, thus treated, would be induced to throw out lateral branches 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 genial 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 state 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, screens of oak might, he conceives, be managed in a similar way: and hollies, or other hardy evergreens, planted as underwood in groves of either of the above descriptions, would, if suitable situations were assigned to them, he supposes, affit much in this intention, especially where proper care was taken in planting and protecting them.

This sort of plantation, when first formed, should always be well suited to the nature of the exposure, both in respect to the kinds of the trees and plants which are made use of for the purpose, and the space or extent of the planting which will be necessary for effecting the business. In common, narrow slips never answer the intention in any perfect manner, as the trees neither rise well, nor afford the shelter which is wanted in such cases. See Shelter.

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

Screw, or Screw, Coehcle, in Mechanics, one of the six mechanical powers; chiefly used in rolling or squeezing bodies close, though sometimes also in raising weights. See Mechanical Powers.

The screw is a right cylinder, as A B (Plate XXXVIII. Mechanics, fig. 1.) furrowed spiral-wise; it is generated by the equable motion of a right line F G (fig. 2.) around the surface of a cylinder; while, at the same time, the point I descends equably from F towards G. Or, 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 as 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; consequently, the forces required for the equilibrium are to each other, as the height of one spire 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; if concave, it is female.

Where motion is to be generated, the male and female screw are always joined; 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 peritrochial, 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 assist in turning it. Sometimes the spires of the 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 the. 1. If, as the compass, described by the power in one turn of the screw, is to the interval or distance between any two threads, or spiral windings, as B I (measured according to the length of the screw), so 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, so 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 whatsoever 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 commended by the losses in time.

2. As the distance between two threads, BI, 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 right, a less power will be required to overcome the resistance, as the lever or feynta CD (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 CD; 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 CD, 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 feynta, or handle: the distance of the threads, and the diameter of the screw, may be assumed 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 CD, in a turn of the screw. The femidiameter of this periphery, therefore, being sought, we have the length of the handle CD. 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 that 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 thicknes 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 cases, be more convenient to make two cylindrical screws of different kinds, at different parts of the flame 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 DF (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 AB, be to the weight, in a ratio compounded of the periphery of the axis of the wheel EH, to the periphery described by the power in turning the handle, and of the revolutions of the wheel DF, to the revolutions of the screw CB, 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 AB, the radius of the axis HE, and the power, being given; to find the weight it will raise.

Multiply the distance of the power from the centre of the screw AB, 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 sustain. Thus, if AB = 3, the radius of the axis HE = 1; the power 100 pounds, number of teeth of the wheel DF 48; the weight will be found 14400; 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 contrived 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 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. Consequentially, if a line G goes round the groove a, and has a weight of forty-eight pounds hanging to it below the pedestal EF, 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 $e$ of the wheel $D$, goes round its axle $I$, the power of the machine will be as much increased, as the circumference of the groove $e$ exceeds the circumference of the axle; and if we suppose it to be fix times, then one pound at $H$ will balance fix times $48$, or 288 pounds hung to the line on the axle; and hence the power or advantage of this machine will be as 288 to 1; i. e., a man, who by his natural strength could lift a hundred weight, will be able to raise 288 hundred, or $14.5^p$ ton weight by this engine.

Ferguson's Mech. edit. 4to p. 44.

SCREW. Archimedes', or the spiral pump, or as it is called in Germany, the water sail, 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. Hydraulics, fig. 11.) is a wheel, which is turned round, according to the order of the letters, by the fall of water $E F$, which need not be more than three feet. The axle $G$ of the wheel is elevated so as to make an angle of about $45^g$, or between $45^g$ and $60^g$, with the horizon; and on the top of that axle is a wheel $H$, which turns such another wheel $I$ of the fame 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.), and mustly 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 screw turns the wheel 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. Thence screws must be covered close over with boards, like those of a cylindrical cask; and then they will be spiral tubes. Or, they may be made of tubes of flax leather, and wrapped round the axles in shallow grooves cut therein, as in fig. 13. The lower end of the axle $K$ turns constantly in the screw 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 rages in the spiral tubes, and runs out at $L$ through the holes $M$, $N$, as they come below the axle. These holes, of which there may be any number, as four or fix, 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 axle 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 as $I$, to turn a third axle by such a wheel upon it. And in this manner water may be raised to any given height, where there is a stream sufficient for that purpose to act on the broad float-boards of the first wheel. Ferguson's Mechanics, Supplement, p. 23.

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 losses must here be occasioned by the want of perfect contact between the screw and its cover; in general, at least one-third of the water runs back, and the machine cannot be placed at a greater elevation than $50^g$; 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 imibed to a considerable depth; so that if the height of the surface of the water to be raised were liable to any great variations, the water screw might be preferable to the screw of Archimedes. Plate XIV. Hydraulics, fig. 14.

When a spiral pipe, consisting of many convolutions, arranged either in a single plane, or in a cylindrical or conical surface, and revolving round a horizontal axis, is connected at one end by a water-tight joint with an ascending pipe, while the other end receives during each revolution nearly equal quantities of air and water, the machine is called a spiral pump. It was invented about 1746, by Andrew Writz, a Pewterer at Zurich, and it is said to have been used with great success in Florence and in Russia; it has also been employed in this country by Lord Stanhope; and I have made trial of it (says Dr. Young) for raising water to a height of forty feet. The end of the pipe is furnished with a spoon, containing as much water as will fill half a coil, which enters the pipe a little before the spoon 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 portion, 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 of water mixed with air, in the ascending pipe. The air near the joint is compressed 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 coil, 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 loose, 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 strain 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 centrifugal force of the water in the wheel would also materially impede its ascent 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 spoon. The machine which Dr. Young had erected being out of repair, he thought it more eligible to substitute for it a common forcing pump, than 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 succeed better; or the pipes might be made of tinned copper, 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 Writz's machines, has sometimes been employed together with the prelure 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 rotate
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 press of the atmosphere on the reservoir below, which forces the water to ascend through the vertical pipe. It has also been propounded to turn a machine of this kind by the counter-pref- 

ture 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 Machine, and Wheel.

Screw, Bed or Barrel, a powerful machine for lifting heavy bodies; and, when placed against the grate of a ship to be launched, for slanting 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 sole of elm plank for the heels of the poppet to work on. When used for launching of ships, the grate of the sole is inclined so as to stand square to the item or grate.

Hand-screws, or jacks, double or single, are used by hand to lift weighty bodies. It consists of an elm box, contain- 
ing cogged 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 Manage. See Splent.

Screw-Pine, in Botany. See Pandanus.

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

See also Conchology.

Screw-Tre of a modern apparatus for raising water. See Heliceteres.

SCRIBE, Scriba, 

f o p h er, derived from 


d f o p h er, ox, number, whence 


d f o p h er, letter, a principal officer in the Jewish law, whose business it was to write and interpret Scripture.

The Scribes, according to the etymological meaning of the term, were persons 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 con- 

dealed, that the office was brought from Chaldaea and 

Alyria, 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: viz. 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, tran-

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

mon scrivener, 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 


d o t o r o f t h e l a w , o r 


t r y m a n , 


d ayers. 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 sacrifices, 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 gospel-history, yet it is probably, 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 tradition of the elders. They much respected these traditions, conferring 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 pretense of explaining the law by their traditions, they had actually made it of no effect. Matt. xv. 2, 3, 6. Mark, vii. 7, 8, 9. The Talmud will amply justify these reproaches. 

Jof. Scaliger endeavours 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. xvii. 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 vii. 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.

Their magistracy had his s trading, editor, or secretary; so that they were 

Scribes antiquity, proctor, quoctor, &c.

The Scribes 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.

SCRIBERING, in Joinery, &c., a term used, when one side of a piece of fluff being to be fitted to the side of some other piece, which last is not regular; to make the two joint close together all the way, then scribe it.

That is, they lay the piece of fluff to be scribed close to the other piece they intend to scribe to, and open their com-

piles to the greatest distance the two pieces any where stand from each other; then, bearing one of the legs against the side to be scribed to, with the other point they draw a line on the fluff to be scribed. Thus have they a line on the irre-


gular piece parallel to the edge of the regular one; and if the fluff be wrought away exactly to the line, when the two pieces are put together they will seem a joint.

SCRIBONIUS LAREUS, in Biography, a Roman phy-

sician, 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 impudently pilfegd and tranffcribed" by Marcellus the empiric, according to Dr. Freind. This work Scribonius dedicated to Julius Calliius, the most favoured of all the freed-men of the emperor; and he speaks of Mellafina and Claudius in a way which evinces that they were living at that time. After giving the formula of a dentifrice, he adds, "Mellafina Dei nostri Caferis hoc utitur." Great faith was, in that age, imputed in particular formulæ, or combinations of drugs, which were suppos'd to poffefs peculiar powers of healing; and it was the practice of many physicians to keep their compositions secret. Scribonius, however, published his collection, and expressed great confidence in their efficacy; but many of them are trifling and founded in superstition, and his practice seems to have been purely empirical. His language, too, is so much inferior in point of elegance to that of Celsus, who had written but a short time before him, and to the general character which the language still maintained in the reign of Claudius, that some learned men have suppos'd that Scribonius wrote his work in Greek, and that it was translated into the Latin drefs, in which it has descended to us, by some later hand. Rhodius, however, and some others, have shewn that his language has the air of originality; and it is remarked, that in his dedication to Calliius, he thanks the favourite for having forced the opportunity of serving him by presenting his medical works, written in Latin, to the emperor: "Scripta mea Latina medicinalia." It is remarkable, indeed, that two men, living about the same time, should write their native language so differently as Celsus and Scribonius; but the latter was probably a man of inferior education. The farceur 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 tone of the first Claudius, when the Roman language was in some tolerable degree of purity, ought, as I may lay, to be translated into Latin, in order to be understood by those who are conversant only with the classics of that age." The treatise of Scribonius has been several times rejected, and flands among the "Medice Aristo- principals" of Henry Stephens, 1567. See Freind's History of Medicine, vol. i. Sprengel, Geschichte der Arzneikunde, ii. Theil. Le Clerc, Hist. de la Medicine, p. 3.

SCRINIA, in Geography, a river of France, which runs into the Po, five miles N. of Tortona.

SCRIPTORIUM, a particular apartment in monasteries, where writers were employed in transcribing copies of works intended for preservation; and to their labour the cause of literature has been much indebted.

SCRIPTORIUS CALAMUS. See CALAMUS.

SCRIPTORIUM CALAMUS. See CALAMUS.

SCRIPTORIUM, among the Jews. See Caraites.

SCRIPTORIUM, among the Romans, the twenty-fourth part of an ounce, and equal to two oboli. See OBOLUS.

SCRIPTORIUS, a word used by some instead of ser- lupus, a scraping, or weight of twenty grains.

SCRIPTORIA, in Antiquity, the name of the revenue which the Roman people raised upon the paffure-lands, 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 to put into these paturages, was registered; and it was by that number the yearly sums which they engaged to pay were regulated.

SCRIPTORIA, or Scriptures. See BIble.

The collection of tracts, says the learned and judicious Vol. XXXII.
many ancient authors, which he illustrated by comments of his own: among these works were those of Vegetus, Fronto-
tinus, Hyginus, Apuleius, Martial, and Seneca the trag-
edian. Scriverius 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 pro-
vinces. Scriverius, at the age of 74, lost the use of his
eyes, but he continued to solace himself with literature till
his death in 1666. His funeral was attended by the uni-
versity of Leyden in a body, and an oration was pronounced
over him by Frederic Gronovius. A collection of philo-
logical and poetical pieces from his MSS. was published
at Utrecht in 1737. Morei.

SCROBICULUS Cord., in Anatomy, the small
depression in the middle of the upper part of the abdomen,
just over the eniform cartilage. In common language it is
called the pit of the stomach.

SCROBILUM, in Ancient Geography, a promontory of
the Arabian gulf, which is supposed to have been the
Hercopolis and Elan-
nitic gulfs.

SCROFA, in Zoology, See Sus.

SCROFA, in Ichthyology, See Scorpaena.

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 scorpaena.

SCROFULA, or Scorophula, from scrofa, scrova,
called also fruma, or the king's evil, in Surgery. The name
of scorfula was derived from an opinion that swine were par-
ticularly subject to this disease. The scorfulous constitution
is observed to be, in many instances, denoted by partial
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 scorfulous 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
unica albuginea is frequently of a dead white colour, and
more pale than usual. The edges of the eye-brows are some-
times affected with a degree of tenderness which easily dege-
erates into a troublesome inflammation, that distresses 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 hoqfris and
point of the nose. Rufell on Scorfula, p. 8.

One of the most frequent symptoms of scorfula is a swell-
ing in the superficial lymphatic glands, especially in the
neck. Such glands swell without any previous com-
plaint, and often attain a large size before the swelling at-
tracts notice. The swellings are frequently accompanied
with pain or discoloration; a circumstance which favours the
conclusion that the inflammation attendant on scorfulous
disease 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 scorfula
to be altogether a disease of the lymphatic system. Mr.
Rufell, 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 scorfula. It is very frequently attacks
the joints of the extremities, the bones, and the mucous mem-
branes, without any previous or concomitant affection of
the lymphatic system. Besides, it is to be recollected that
the absorbent system is not only liable to idiopathic attacks
of scorfula, in common with the rest of the body, but is
likewise exposed to suffer symptomatically, in conquene-
ence 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 scorfula 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 stationairy, or
at least very slow in their progress of increase or diminution.
The same indolence and absence of inflammatory symptoms,
which characterize scorfulous 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 tumefaction
which follows is frequently very considerable.

The greater number of scorfulous affections are accom-
panied with a preternatural swelling of the parts attacked.
The tumour is of two kinds, one remarkable for its softness,
the other of a more firm consistence. Soft scorfulous
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
fleshy and flaccid. When they are opened in the early state,
they are found to contain nothing but a serous 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 examiner
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 diffusion of the partitions which are between the
cells of the cellular substance. As these collections, how-
ever, are not accompanied with any sensible degree of
inflammation, they are not surrounded with a firm, solid, cir-
cumferibed bafe; and they do not betray any great tendency
or ulcerate the skin, and burst of their own accord. Hence
they sometimes become very prominent, and the skin is gra-
dually dilated to a tumefying 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 masses, resembling congealed milk.
The remaining portion of the fluid is rendered thinner, and
resembles whey. A quantity of purulent 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 color.

Although the tendency to ulceration is not confiderable,
the skin at length gives way, and allows the matter to
escape through a narrow opening. After the contents are
evacuated, the tumour hardens; but there being in general
little disposition in the parts to heal, a scorfulous sore is
usually formed, which discharges a watery matter, and con-
tinues open for an indefinite length of time.

The other more firm kind of scorfulous swelling always
increases slowly, and is felt commonly attacks the neighbour-
hood of joints. The affected part enlarges, without ac-
quiring any circumferibed 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 inconsiderable, they have little
effect
SCROFULA.

In diminishing the size of the swelling, or in producing any other change of importance. The only difference occasioned is the addition of little ulcerations, which lead to sinuses, and emit matter.

A common abscess is in the presence of a scrofulous constitution often exhibits appearances, which betray the diseased state of the system. The matter first secreted is formed with extraordinary rapidity; the swelling is somewhat more transparent; the surface more shining, and the color of the tumour more blue, than is observable in a case of healthy abscesses. Scrofulous abscesses also contain, before they burst, a larger quantity of purulent matter, in relation to their size, than common phlegmonic abscesses. When abscesses in scrofulous patients burst, an empty cavity is not left; but there is seen a mass of cellular membrane apparently deprived of life. It resembles wet cotton, and often separates in the form of a solid mass. The separation is effected without pain. This state of the cellular membrane bears some remote analogy to the death of the central parts in a carbuncle; but it differs from the latter disease by there being no malignancy, pain, nor danger.

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

With regard to scrofulous ulcers, their margin is commonly of a pale red or purplish cast, with a shining surface; the edges in general thin; and the surface of the sore sunk somewhat below the level of the surrounding parts. These fores are mostly attended but with a small degree of inflammation, and little pain; they are not very feable, 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 viscidity, it adheres to the surface of the sore, 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 veltiges of former scrofulous ulcers, or other proofs of a scrofulous constitution, often manifest 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 seldom recovers its natural look.

In general, scrofulous complaints are most troublesome in the springs, and get better towards the end of the summer. Ruffell on Scrofula.

Scrofula 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 diseased 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 the offspring of persons who never have had any symptoms of this disease. The children of scrofulous parents may, however, remain during life free from every mark of the disease. This fact is not at all questioned by such writers as employ the term hereditary; for the whole of their meaning is, that scrofulous parents more frequently have scrofulous children, than is the case with perfectly healthy parents. The offspring of the former, however, are not certain of being diseased in this manner; nor are the children of the latter sure of not being so.

Scrofula is undoubtedly not a contagious disease, nor can it be communicated by contact, or even inoculation. Ruffell tried to transfer scrofula from one person to another by inoculation; but although he took great pains to infest the matter completely, and repeated the experiment frequently, yet all his attempts failed, as no disease was communicated to the person inoculated, nor even any very evident irritation excited at the place where the matter was infested. De Vito Scrofulofo, p. 218.

The proximate cause of scrofula is a subject, 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. Ruffell, 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 fea is 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 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 bar-mattan 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 endemical 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 salt 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. Ruffell) is very nearly the winter weather of Scotland. Upon the whole, therefore, we may lay it down as a general maxim, that the greatest degree of cold, which can be conjoined with moisture, is the most which tends to favour the appearance of scrofula.

The long continuance of inclement weather increases the predilection 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 unwholesome indigestible food, promote the accesse of scrofula. The fame may be laid of uncleanliness.
uncleanliness; 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 these 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 *scrofulosis habit.* But there are many medicines which seem to improve this state of the system, and to promote the spontaneous amendments, which flourish 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 plethora and colletive, are indispensably 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 affect a specific virtue in the cure of this distressful disease.

A draught of salt-water is recommended almost indiscriminately 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 fort of constitution, and purgatives are then only useful for the purpose of obviating colletive.

Several mineral springs, besides saline ingredients, contain sulphurous 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 hydrargryi submuras, 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 effects 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 indurations. An alternative course with this medicine, however, must be main-
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eacy in changing the condition and forwarding the cure of certain malignant scrofulous ulcers, which counteract the appearance of cancer. He has likewise found it of service in promoting the cure of certain scrofulous affections of the tongue, which bore a near resemblance to some rare venereal ca\(c\)es. In a few cases, Mr. Ruffell has had reason to ascribe to it a share of efficacy in promoting the resolution of scrofulous swellings of the breast. The medicine must be given in as large doses as the constitution can bear. The head being affected with a degree of giddiness, and the stomach with a little nausea, is the criterion of the dose being sufficiently powerful.

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

The muratic of lime is another remedy that has been of late much talked of, for its good effects as a specific in cases of scrofula. In order to derive the utmost benefit from it, Mr. Ruffell is of opinion that it is necessary to prefer it in much larger doses than those which have usually been directed. One of the most successful instances of its efficacy was the confluence of an ounce of the saturated solution having been taken, for many weeks, three times a day. It well deserves attention, however, that professor Thomson employed muratic of lime in various cases of scrofula, without a single example of its having any efficacy. He admits that some patients got well, while under a course of muratic of 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 muratic of lime produced severe sickness and oppression of the head, and that the patients got worse, till the medicine was left off, and other remedies employed. The relief, experienced from the discontinuance of the muratic of 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 scrofula, the muratic of lime is attended with prejudicial effects.

With respect to the local treatment, stimulant applications are found not to be in general advantageous for scrofulous complaints. For ulcers, the mild saltpetre and mild dressings are the resort. When the patients are using a course of sea-bathing, it is usual to wash the sores with sea-water frequently every day. Cold spring water is likewise a favourite application; and experience seems to prove that the operation of cold is well suited to counteract the state of inflammation which accompanies scrofulous sores. Preparations of lead are employed, 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 sore is kept constantly moist.

Upon the same principle, simple ointment and Gouland’s cerate 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 scrofulous sores; for when they are more malignant, or combined with any other disease, a different mode of dressing becomes necessary. Venereal sores, for instance, breaking out in a person of a scrofulous constitution, partake of the nature of both disorders, and require correspondent treatment. Even a pure scrofulous sore, attended with more meviteracy 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 efficacies.

Those scrofulous swellings which contain a fluid, when they are superficial, and not connected with any parts of importance, are in general better left untouched. They are very slow in their progress, but they slowly burst at last by a superficial ulceration, which forms a small aperture. They do not often admit of resolution. The most likely applications for promoting this desirable object, are solutions of the acetate of lead, and of the muratic of ammonia.

The progress of the cure, after the tumour has discharged its contents, is very variable; 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 separate cavities remain, 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 discharge 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 scrofulous cases, such practice is, upon the whole, feverish, disadvantageous, and even dangerous.

Scrofulous 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 extent. 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 wall 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 flow 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 flossing plaster. For our 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 phæo abscesses. See Phæo Abscess.

With respect to the treatment of swelled 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 muratic of ammonia, and a decoction of chamomile, are eligible for remissions. Friction with camphorated and ammoniated oils, 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 enlarged glands, which lie superficially, are attacked with inflammation, and in danger of suppurating, Mr. Russell 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 abcess. An artificial opening is hardly ever necessary, as the abscess in a short time bursts of itself. The only influence, in which the surgeon is called upon to open the swelling, is when the matter flows a tendency to spread over a large space. When the suppuration is completely suppurative, 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 gloomy appearance, and becoming thick and callous at its edges. In the end, however, a cicatrix is mostly produced.

In cases of indolent, stationary, scrofulous 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 cautery. 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 facility with which they sometimes subsist, 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 useless 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 scrofulous gland in the neck with cautery would be liable to objections, fully as strong as those which are applicable to the use of the knife. The action of cautery can never be regulated with much precision, and the cicatrix, produced in this manner, is always a considerable deformity.

Firm scrofulous 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, infusions, and blisters repeated, or kept open with the favour ointment, are the most eligible remedies. Here also the employment of friction as a sufficient deferves 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 becoming chafed. The friction is to be applied two or three hours a day, and the plan continued for some months.

Permanent compression by means of tight bandages, or long strips of adhesive plaster, is another means of reducing the indolent scrofulous 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 scrofulous disease is circumscribed and incurable, and attended with so much pain and irritation, as to injure the health in a feverish and dangerous degree, the removal of the part by an operation becomes indispensabile. The symptomatic enlargement of the lymphatic glands, which are nearer than the diseased to the heart, presents no solid 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. Russell on Scrofula, p. 137.

SCROGS, in Rural Economy, a term provisionally applied to such thunted thrubs as have been browsed upon by cattle, as hazel, &c. They are mostly met with on commons and waffle 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 Escrol.

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

SCROON, in Geography. See SCAROON.

SCROPHULARIA, in Botany, an old name, supposed by some to have been given to the herbs of this genus, because swine, scrof, were fond of them. But the most probable derivation is from scrophula, the king's evil, for which disease some of them have been recommended as a cure; especially Scrophularia nodosa, whose knobby roots, compared to scrofulous tumours, are thought to have given rise to that opinion. Yet there can be no doubt that one of this genus is the real genus of Dioscorides, as Fuchsius, and some other old botanists, have maintained, which 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 Scrophularia peregrina, 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 Gelenchus of Fuchsius is indeed Scrophularia nodosa; Anguillara being, as far as we can find, the first writer on drugs who fixed upon the precise plant of Dioscorides, Scrophularia peregrina, and whose opinion is confirmed by the recent enquiries of Dr. Sibthorp. — Linn. Gen. 212. Schreb. 408. Willd. Sp. Pl. v. 3. 269. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 662. Prod. Fl. Græc. Sibth. v. 1. 435. Ait. Hort. Kew. v. 4. 22. Pursh v. 2. 419. Juff. 119. Tourn. t. 74. Lamarck Dict. v. 7. 27. Illrus. t. 533. Gerani. t. 53. Clas. and order, Didynamia Augitofermia. Nat. Ord. Proftanae, or rather Lr. Linn. MSS. Scrophularia, Juff.

Gen. Ch. Cal. Perianth of one leaf, inferior, with five rounded segments shorter than the corolla. Car. of one petal, unequal, revered; tube globoso, large, inflated; limb very small, five-cleft; its two lower segments (turned uppermost)
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uppermost) largest, erect; two lateral ones spreading; the odd one (turned downwards) reflexed. Stam. Filaments four, linear, the length of the corolla, declining towards its lower segment, two of them later than the others; anthers two-lobed. Pith. German ovate; style simple, agreeing in length and position with the filaments; stigma simple. Peric. Capsule roundish, pointed, of two cells and two valves, bursting at the top; partition double, formed of the inflated edges of the valves. Seeds numerous, small. Capsule roundish, protruding into each cell.


1. S. marilandica. Maryland Fig-wort. Linn. Sp. Pl. 863. Willd. n. 1. Ait. n. 1. Pursh n. 1. (S. nodosa, americana; Michaux Borell-Amer. v. 2. 21.)—Leaves heart-shaped, doubly ferrated, acute, smooth; decurrent at the base. Stem with blunt angles. Footstalks connected by a hairy line.—In low grounds, from Pennsylvania to Carolina, flowering from June to August, perennial. Flowers greenish-brown. Plant often more than four feet high. Pursh. Mr. Miller is said to have cultivated this herb, but it is scarcely to be met with in gardens, nor could it be expected to engage much attention, being to like other common species, carefully weeded out of all gardens. What we have been shown for it, in collections of primary authority, was S. peregrina. Michaux unites it with the following, but Linnaeus appears correct in distinguishing it. Besides the greater size of marilandica, its leaves are doubly, and far more coarsely, ferrated; their base, though heart-shaped, not cut away to the lateral ribs, but decurrent along the footstalk. An elevated hairy line runs across the stem, from the insertion of one footstalk to the other.

2. S. nodosa. Knotty-rooted Fig-wort. Linn. Sp. Pl. 863. Willd. n. 2. Fl. Brit. n. 1. Engl. Bot. t. 1544. (S. major; Ger. Em. 716. Scrophularia; Riv. Monop. Illr. t. 107. f. 1; also S. minor; ibid. suppl.)—Leaves heart-shaped, acute, nearly equally ferrated, smooth; three-ribbed at the base. Angles of the stem acute.—Native of woods and hedges, in dry, rather fertile, places, throughout Europe, flowering in July and August. The root is perennial, tuberous, whitish. Stem two or three feet high, erect,imple, leafy, smooth. Leaves opposite, falcate, nearly and acutely ferrated; of a shining dark green above; paler beneath. Flower-flats axillary and terminal, forked, angular and glandular, purplish, with lanceolate bracteas, and all together composing a compound, terminal, upright clusfer, or panicle, interspersed with a few leaves. Calyx smooth. Corolla dull green, with a livid purple, or brownish, lip, bearing a small internal appendage. The whole herb, when bruised, has a fetid scent, something like Elder, which is common, under various modificatians, to the whole genus.

This species is mentioned, by several authors, as varying occasionally with green flowers, of which we have seen an instance; as well as with three leaves together, instead of two.

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. fac. 5. t. 44. Fl. Dan. t. 507. (Betonica aquatica; Ger. Em. 715.)—Leaves heart-shaped, falcate, deciduous, 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. The root is fibrous, and, we believe, perennial, though Linnaeus says biennial. Whole plant larger than the last, and distinguished by the membranous edges of its stem, as well as blunt leaves.

Cluster terminal, compound, bracteate, without leaves. Calyx bordered with a white membrane. Lips of the corolla of a deep blood-colour, with the fane small intermediate lobe as in the former. Herb fettid, smooth.

4. S. auriculata. Ear-leaved Fig-wort. Linn. Sp. Pl. 864. Willd. n. 4. Ait. n. 4.—Leaves oblong-heart-shaped, doubly ferrated; downy beneath; with a pair of leaflets at their base. Cluster terminal.—Native of Spain, from whence it seems Loebligent feeds, which produced the specimen in the Linnaean herbarium. This specimen appears to us a mere variety of S. Scrodonia, with accidentally auricled leaves; whereas the synonym of Lobel represents a precisely parallel variety of S. aquatica. The figure we have cited above, from Ger. Em. 715, is the flower of Lobel's. Barrether's t. 274 has not the character of the auricled leaves, and the foliage is all too long for the Scrodonia; see betonicae foliis hereafter, n. 6. S. auriculata may therefore, if we mistake not, be reduced to a variety of the following species. We have not examined Mr. Aiton's plant, sent to Kew by Richard, in 1772. Scopoli's auriculata, Fl. Carn. t. 32, is most assuredly very different.

5. S. Scrodonia. Balm-leaved Fig-wort. Linn. Sp. Pl. 884. Willd. n. 6. Fl. Brit. n. 3. Engl. Bot. t. 2209. (S. Scrodonia foliis; Morif. sect. 5. t. 35. Plk. Phyt. t. 59. no. 5.)—Leaves heart-shaped, doubly ferrated; downy beneath. Cluster leafy.—Native of watery swampy places in Jersey and Cornwall, as well as in Portugal and Italy, and near Constantinople, flowering towards autumn. Root perennial, fibrous. Stems two to four feet high, square, leafy, clothed, like the backs of the leaves, with soft spreading hairs. Leaves opposite, falcate, acute, various in size, veiny; three-ribbed at the base, like S. nodosa. Flower-flats axillary and terminal, doubly forked, confluent at a terminal leafy clusfer, clothed with capitulate glandular hairs. Flowers rather small, of a paler more vivid hue than in our more common species, their intermediate, or acceller, lobe green. Calyx downy, obtuse. Capsule smooth.

6. S. betonicae. Betony-leaved Fig-wort. Linn. Mant. 87. Willd. n. 8. Ait. n. 7. (S. betonicae folio; Tourn. Infl. 166. S. aquatica montana mollior; Barrel. Ev. t. 274.)—Leaves heart-shaped, oblone, somewhat downy, doubly toothed; veins radiating from the base. Panicle leafy. Calyx downy.—Native of Portugal. Cultivated by Linnaeus at Upsal. Root perennial. Stem two feet high, square, slightly downy, purplish, especially at the bottom. Leaves all simple, rather large, acute, broad at the base, strongly and sharply toothed, each tooth again notched or ferrated, even in the original specimen; nor do we comprehend the description of Linnaeus, where he says "the teeth are quite entire, and therefore very like F. foliis. Flower-flats branched and forked, rough with glandular hairs, and accompanied by toothed leaves. Corolla dull purple; its little lip, or acceller, lobe, greenish.—This is nearly akin to the last, but we have little doubt of their being distinct species. Barrether's figure is as good as most of his, and tolerably expressive. What he represents as leaves on the stalk of his separate leaf, and which originally perhaps led Linnaeus to quote this plate for his own auriculata, are probably small axillary leaves only.

7. S. nupetris. Catmint-leaved Fig-wort. (S. auriculata; Scop. Carn. v. 1. 446. t. 32.)—Leaves heart-shaped, obtuse, nearly smooth, simply ferrated, on short broad foot-flats. Clusfer leafless. Bracteas lanceolate. Calyx smooth. Gathered by Scopoli on the mountains of Carniola. We have a specimen, found by the late Dr. Brouillon at Tangier, flowering in June, which answers exactly to Scopoli's description, and seems not referrible to any of the species in Linnaeus.
Linnaeus or Willdenow. In this the leaves are about an inch long, on broad, flat, smooth stalks, 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 neatly, regularly, and acutely serrated. Clusters erect, long, quite naked, except the lanceolate bracteas; its pedicels 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.


9. S. petraea. Flat-leaved Fig-wort. Linn. Sp. 866. Wildl. n. 26. Alt. n. 18. Camer. Hort. 157. t. 43. Sm. Fl. Græc. Sibth. t. 597, unpublished. (S. folio urtic.; Baum. Pin. 233. S. eretica altera; Haff. Hilt. v. 2. 210.)—Leaves heart-shaped, acute, finely serrated, smooth and shining. Stalks axillary, two or three-flowered. Bracteas lanceolate. Calyx acute.—Native of Italy and Crete. Very common about hedges, paths, and courtyards throughout Greece, as Dioscorides describes his Græcicus to be. We cannot but accord to the opinion of Anguillara, Fuchsius, and Sitnorph, that this, and not our Galeopsis, was the 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 flowers in stalks from near the bottom of the stem to the top; each bearing two, three, rarely more flowers, whole tube, as well as the limb, is of a blood colour, and the segments of the calyx are ovato-lanceolate, with sharp points, and without 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 thence 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 peregrina.

S. chinesis. Linn. Mant. 250, consists of an imperfect specimen of what seems to be an Ocyum, accompanied by a still more imperfect branch of what may be a Céfia, or Verbæcum; 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. meridionalis. Linn. Suppl. 280, sent by Mutis, is indubitably the same genus, and very nearly the same species, as Hemimeris urticifolia, Wildl. Sp. Pl. v. 3. 282, Alnifia incisifolia, Alt. Hort. Kew. v. 4. 27. The capitate only forms a little more elongated, and the leaves less deeply cut, than in our garden plant; see Hemimeris. The shape of the calyx is indeed important in distinguishing the species of this genus. We are at a loss to distinguish Alnifia from Hemimeris.

10. S. coccine. Scarlet Fig-wort. Linn. Sp. Pl. 866. Willd. n. 25.—Leaves ovate, four in a whorl. Flowers whored, fuscous.‘—Native of Vera Cruz. Houttoun lent an account of this plant to Miller, by the name of S. flori coccine, folis urtic. quaterni cautum undulatis. Hence probably this definition reached Linnaeus, and it was all lie ever knew of the plant, for he had no specimen. We should not be surprised if it proved another Hemimeris, which Houttoun might very excusably take for a Scrophularia. We now return to more certain species.

11. S. orientalis. Hemp-leaved Fig-wort. Linn. Sp. Pl. 864. Wildl. n. 9. Alt. n. 8. “S. Scholzii Handb. v. 2. 196. t. 173.” (S. orientalis, folis cannabinis; Tourne. Cor. 9.)—Leaves lanceolate, harshly serrated, opposite or whorled; auricled at the base. Clusters, leafy, with hoarded, coriaceous, downy, vivid 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 five or four in a whorl, widely spreading, forked, or four or five inches long and one broad, smooth, copiously deeply, and rather unequal, serrated, either sharply lobed, or furnished with a pair of lanceolate serrated leaflets, at the base. Clusters 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 serrated; acute at the base. Footstalks without appendages. Branches of the panicle coriaceous.‘—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. altaica. White-flowered Fig-wort. Murr. in Comm. Gott. v. 4. 35. t. 2. Wildl. n. 13. Alt. n. 10.—Leaves heart-shaped, nearly smooth, doubly toothed, somewhat lobed; the lower teeth turned towards the base. Clusters terminal, compound. Bracteas lanceolate, Calyx acute.—Native of the Altai mountains of Siberia. Introduce into our gardens by Mr. Hunnemann in 1786, where it proves a hardy perennial, flowering in May and June. The stem is furred, one or one and a half feet high, obscurely angular, scarcely branched. Leaves on long stalks, of a broad roundish—heart-shaped figure, with strong branching ribs, plant, nearly smooth, somewhat siniuted, harshly toothed. Flowers pale yellow, or white, larger than the following, from which they are essentially distinguished by the lanceolate acut segments of their calyx.

hairy beneath. Flower-flats all axillary, about as long as the leaves, bearing some small opposite serrated leaves, and a few lanceolate 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 not nearly equal to the diameter of the tube. Segments of the calyx deep, elliptical, obtuse, downy, without any membranous border. A striking resemblance between the habit and flowers of this plant, and the Peruvian genus Calceolaria, is pointed out by English Botanists.

15. S. arguta. Slender Upright Fig-wort. Ait. n. 12. Willd. n. 15.—Leaves heart-shaped, doubly serrated, smooth. Flowers isolated, axillary, forked, leafy. Bracteas linear. Calyx obtuse. Limb of the corolla nearly equal to the tube.—Gathered by Mr. Maffon in Madeira and Teneriffe. An annual greenhouse plant at Kew, flowering in May and June. Root fibrous. Stem two feet high, erect, angular, smooth in the lower part. Leaves an inch or less and half long, sharply and deeply serrated. Flowers, few, in the upper part of the stem, downy and rather villose. Flowers small, red, their limb bearing its usual proportion to the tube. Caulis ovate, pointed, as in the last, but febrilis half fo large.

16. S. trifoliata. Three-leaved Axillary Fig-wort. Linn. Sp. Pl. 865. Willd. n. 16. Ait. n. 13. (S. fimbriolata, flore rubro luteo vario paluro; Grill. Virid. Lufit. 75. Pluk. Alm. 73. Pl. t. 313. f. 6.)—Leaves serrate, roundish, coarsely serrated; the lower ones ternate. Stems axillary, about three-flowered. Segments of the calyx orbicular, with a wavy membranous margin.—Native of Barbary, Corsica, and Portugal. A hardy biennial, sometimes met with in curacious gardens, flowering in summer. Stem about a foot high, febrilis branched, leafy, nearly smooth, thick, with four blunt angles. Leaves opposite, enlarged, flexible and glabrous, about two inches long, and nearly as broad, bluntish, veiny; many of the upper ones quite simple; the root accompanied by a pair of smaller leaflets, more or less distinct or remote, at the top of the footstalk, which is about an inch long. Flowers all axillary, large, two or three on each stalk, which is shorter than the footstalk, rough, with glandular hairs, and bears several linear-lanceolate bracteas. Calyx glabrous, 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 Clustered Fig-wort. Jacq. Hort. Schonbr. v. 3. 19. t. 286. Willd. n. 6. (S. lavigata; Vahl. Symb. v. 2. 67. S. trifoliata; Desfont. Atlant. v. 2. 54.)—Leaves smooth, heart-shaped, doubly serrated and bluntly serrated; the lower ones ternate. Clusters terminal, leafy, compound. Segments of the calyx orbicular, with a wavy membranous margin.—Native of the borders of fields, and the neighbourhood of the sea-shore, in Barbary. We gathered it in August 1866, 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 root is said to be perennial. Plant entirely smooth, of a light glaucous green, larger than the leaf, 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 footstalks. The flowers are very similar.


verbenaefolius; Tourn. Infl. 167. S. peregrina frutecens, folis tenuei crassifolius; Herm. Lugd. Bat. 545. t. 547.)

19. S. rapelris. Rock Fig-wort. Willd. n. 11. "Leaves oblong, falcated, toothed, nearly smooth. Clusters terminal. Stalks three-flowered."—Gathered by the celebrated botanical traveller Marshall of Beverley, on the rocks of Taormina. Wildenow, to whom specimens were sent, says this plant is very nearly related to S. frutescens, of which it is perhaps only a variety; but it differs in having a stem only half a foot high, and very finely downy; leaves all falcated, more rigid, and of a smaller size; a terminal cluster, composed of three-clf three-flowered stalks; and small, obtuse, not acute, bracteas.

20. S. caesia. Sea-green Dwarf Fig-wort. Sm. Prod. Fl. Grac. Sib. n. 1460. Fl. Grac. t. 624, unpublished. (S. orientalis minor, melastema folio; Tourn. Cor. 9.) Buxb. Cont. 5. 16. t. 17. f. 2.)—Leaves smooth, rather glaucous, lyrate, finely serrated, cut. Stems numerous. Clusters short; branches two or three-flowered. Gathered by Dr. Sibthorpe on rocks about Athens and Melissa; as well as in Laconia. The root is perennial, thick and woody. Stems very numerous, somewhat fuscous at the base, spreading in all directions, a span high, leafy, febrilis branched but at the bottom, bluntly quadrangular, smooth. Leaves opposite, falcated, an inch and half long, sharply cut and toothed, of three principal lobes, one of them very large and pinnatifid, the others smaller, besides one or two very small ones below, mostly entire. Clusters or panicules 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. Tube of the corolla inflated, greenish, brown on the upper side, two longer segments of the limb chocolate-coloured, the rest greenish-white. We can but guess at the synonyms. The leaves are not much like basil, Melissa. Buxbaum's rude figure is not unfitted to our plant.


Lower leaves interruptedly pinnate; upper ternate; leaffets...
leaflets heart-shaped, ferrated, smooth; unequal at the base. Flower-flanks 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 subject 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; their flasks usually shorter than the flower-flanks, simple, divided, or forked; sometimes elongated towards the upper part of the branch, and the leaves being occasionally contracted, or wanting, there, the inflorescence becomes racemose. Calyx smooth, or slightly downy; segments orbicular, with a membranous edge. Corolla of a pale purplish tawny hue, with a greenish limb. Capitate as big as a small forbid, with a conical point.

We can find no decisive character between the two plants of authors, which we have here combined. The leaflets of \( \theta \) 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 us by the botanist left mentioned, is \( \textit{Sambucus} \), which not being mentioned in his work, he plainly did not distinguish from his \( \textit{mollifera} \). Those who have mentioned these two supposed species, have not contradicted them with each other, nor have we had an opportunity of comparing them in a living state; but it is to be presumed the fame honey-bearing glands are to be found in the bottom of the corolla of each, they being in every other respect so much alike.

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

23. \( \textit{S. canina} \). Wing-leaved Fig-wort, or Dog's Rue. Linn. Sp. Pl. 865. Wildl. n. 20. Ait. n. 16. Sm. Fl. Græc. Sibth. t. 598, unpublished. (S. saxatilis lucida, laceritvel magniflens folius; Tourn. Infl. 167. Bocc. Muf. 166. t. 117. S. indica; Ger. Em. 716? S. glauco folio, in amphis lacinias divo; Tourn. Cor. 9. Voy. t. 1. 84, with a plate.)—Leaves pinnate, fleshy, smooth; leaflets pinnatifid, recurrent, cut. Stem round. Cluster leaflets; its branches forked, cymose. Flowers flaked; 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 safe to disinguish this species, by description, from the \( \textit{canina} \), 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 flaked. The four uppermost segments of the corolla are all of one nearly uniform blood-red, (without any intermediate lobe,) the odd one green. Capitule nearly twice the size of canina. Linnaeus quotes the plant of Tournefort's Voyage as the fame with that which writer had previously mentioned, by another name, in his \textit{Institutions}. Dr. Sibthorp's exactly answers to the plate of Tournefort, and is drawn with leaves more glaucous than \textit{canina}.

24. \( \textit{S. variiseta} \). Spotted-flowered Fig-wort. Marf. von Biebr. in Sims and Kon. Ann. of Bot. v. 2. 445. Wildl. n. 22.—"Stems shrubby at the base. Leaves bipinnatifid, downy. Clusters elongated; flower-flanks short, rough, with hooked hairs."—Native of the flanks of rivers, and barren hills, between the rivers Terek and Kur, in the neighbourhood of the Caffian 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 \( \textit{S. canina} \). 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 last, but, according to this description, sufficiently distinct.

25. \( \textit{S. lucida} \). Shining-leaved Fig-wort. Linn. Sp. Pl. 365. Wildl. n. 21. "Hort. Berolin. t. 57." Ait. n. 17. Sm. Fl. Græc. Sibth. t. 599, unpublished. (S. saxatilis lucida, laceritvel magniflens folius; Tourn. Infl. 167. Bocc. Muf. 166. t. 117. S. indica; Ger. Em. 716? S. glauco folio, in amphis lacinias divo; Tourn. Cor. 9. Voy. t. 1. 84, with a plate.)—Leaves pinnate, fleshy, smooth; leaflets pinnatifid, recurrent, cut. Stem round. Cluster leaflets; its branches forked, cymose. Flowers flaked; 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 safe to disinguish this species, by description, from the \( \textit{canina} \), 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 flaked. The four uppermost segments of the corolla are all of one nearly uniform blood-red, (without any intermediate lobe,) the odd one green. Capitule nearly twice the size of canina. Linnaeus quotes the plant of Tournefort's Voyage as the fame with that which writer had previously mentioned, by another name, in his \textit{Institutions}. Dr. Sibthorp's exactly answers to the plate of Tournefort, and is drawn with leaves more glaucous than \textit{canina}.

26. \( \textit{S. filicifolia} \). Fern-leaved Fig-wort. Mill. Dict. ed. 8. n. 10. Sm. Profl. Fl. Græc. Sibth. n. 1456. Fl. Græc. t. 600, unpublished. (S. folius filicis modo lacinias, vel ruta canina latifolia; Tourn. Infl. 167.)—Leaves pinnate; leaflets pinnatifid, recurrent, 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, recurrent leaflets. It is readily distinguished from \( \textit{S. canina} \); lucida, and their allies, by the squareness of its stem, to the very top of the clifer, 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: nine on the lowest branches of the cluster, even on those about the middle; five or three on the uppermost. *Calyx* with a white membranous edge, as in all this tribe.

27. S. livida. Vivid Fig-wort. Sm. Prodr. Fl. Græc. Sibth. n. 1457. Fl. Græc. t. 601, unpublished.—Leaves pinnate; leaflets pinnatifid, deciduous, angunt and cut, all uniform. Stem square. Cluster leaflets, straight; its branches forked, with three to seven flowers. Corolla with an intermediate lobe.—Gathered by Dr. Sibthorp in Asia Minor, probably near Smyrna. This appears to be annual, and differs from the lath in the uniformity, lighter colour, and smaller size, of its leaves, whose segments are small, wedge-shaped, slender, and channelled. The *inflor-efcence* is similar, but more slender and condensed. Two upper segments, and intermediate lobe, of the *corolla* pale purple, or lilac-coloured; lateral and lower ones, like the tube, of a light green.

28. S. bicolor. Striped-flowered Fig-wort. Sm. Prodr. Fl. Græc. Sibth. n. 1458. Fl. Græc. t. 602, unpublished. (S. chrysanthesfolia; March. von Bieberit. in Sims and Kon. Ann. of Bot. v. 2. 446) S. orientalis, chrysanthes folio, flos minimo variegato; Tourn. Cor. 9.)—Leaves bipinnate, bipinnatifid, narrow, sharply cut. Stem round. Cluster leaflets; its branches simply forked, their divisions racemose. Flowers infert, without an intermediate lobe.—Native of Sicily and the Levant. A tall, branching, panicled species, with very narrow, smooth, shining leaves, whose segments are sharply cut and pointed. The **inflor-efcence** forms a large compound panicle, with numerous lanceolate *bracteas*. *Calyx* elegantly bordered with a purple line, within its white marginal membrane. The two upper, as well as the lower, 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 fo very apposite in character; respecting that of Von Bieberstein, we are more doubtful. The present elegant species is left naturally allied to the tall, than to those of thence immediately preceding them; but its leaves are more finely divided than in any other known *Sporhularia*.

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

*Sporhularia*, in *Gardening*, comprises plants of the fibrous-rooted, herbaceous, and shrubby kinds, of which the species cultivated are, the shrubby fig-wort (S. fruticosa); the three-leaved fig-wort (S. trifoliata); the elder-leaved fig-wort (S. fumicifolia); and the flax-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, unless destroyed by fever frolts. It is therefore a good practice to have some in pots protected by a frame and glasses; and as the young plants flower the *froglings*, a proper succession should be begun annually. They may also be sometimes raised from the *parted roots*; and the shrubby sorts 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: *silo* when set out among collections, in pots.

*Sporhularia*, in *Botany*, a natural order of plants, named from one of the most remarkable and bell-known genera, *see Sporo-ularia*; making the fortieh order in Jussieu's system, or the seventh of his eighth clafs; see *Labiatae* and *Gentianae.* See also *Peronizate*, a Linnean order, to which that under consideration is, in a great part, parallel. The character of the *Sporhulariae* is thus given by Jussieu.

*Calyx* divided; often permanent. *Corolla* often irregular; divided in the limb. *Stamens* often four, two longer than the others; rarely only two in all. *Style* one; *stigma* simple or two-lobed. *Fruit* capsular, of two cells, split at the summit, if not completely separated, into two valves, which are in some few instances divided again into two parts; their inside is naked and concave, with a central receptacle, bordered vertically all round, and bearing seeds at each side, supplying the place of a partition, being parallel to the valves, and often connected, in its whole circumference, with their margins. *Seeds* often numerous and minute. Stem herbaceous, rarely shrubby. *Leaves* opposite or alternate. *Flowers* bracteate.

Section 1. *Stamens* four, two longer and two shorter.

**Buddleia**: *Scoparia*; *Rafflesia* of Jacquin; *Capsaria*; *Stemodia*; *Halberia*; *Galvezia* of Dombey; *Abelmoschus* of Browne; *Scrophularia*; *Maturea* of Auleit, suspected by Schreber to be a *Vandella*; *Dedaria*; *Gerardia*; *Cymbaria*; *Linaria* of Tournefort; *Antirrhinum*, comprehending *Ajarina* of Tournefort; *Hemiscellis*; and *Digitalis*.

Section 2. *Stamens* two.

**Pederota**: *Calcolotria*; and *Bea* of Commeron.

Section 3. *Genus* akin to *Sporhularia*, with opposite leaves.

**Columnnea**: *Beffleria*; *Cyrtaandra* of Forlter; *Gratiola*; *Torenia*; *Vandella*; *Lindernia*; *Mimuscius*; *Polyspermum*; and *Mentira* of Auleit.

Section 4. *Genus* akin to *Sporhularia*, with alternate leaves.

**Schwarzella**: *Schawiola*; and *Brownella*.

**SCROPHULOUS TUMOURS**, in *Hoes*, swellings of the glands about the necks and other parts of the body, arising from colds and obstructions caused in other ways. They may most safely be removed by mild camphorated mercurial ointments, used two or three times in the day to the diseased parts.

See *Hog* and *Swine*.

**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*.

**SCROLLS**, or *Scroils*, in *Architecture*. See *Volute*.

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

**SCRUPI**, in *Natural History*, the name of a class of silli, formed in detached mallets, without any crust; of no determinate figure, or regular structure; and composed of a crystalline or sparay matter, debased by an admixture of earth, in various proportions.

Under this class are comprehended, 1. The *teleghia*. 2. The *petridia*. 3. The *thozoua*. 4. The *jafipides*, or *japlers*.

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

**SCRUPLE**, *Scrupillus*, *Scrupalum*, or *Scrupulum*, the lead of the weights used by the ancients, which, amongst the Romans, was the twenty-fourth part of a 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 the part
part of an hour, called by the Hebrews helakia. These
ferpents are much used by the Jews, Arabs, and other
eastern people, in computations of time.

SCURRILUS, in Astronomy. Scurrilus eclipsed, that part of
the moon’s diameter which enters the shadow, expressed in
the same measure in which the diameter of the moon is
expressed. See Digit.

SCURRILUS 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.

SCURRILUS 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.

SCURRILUS of Emission, an arc of the moon’s orbit, which
her centre describes in the time from the first emersion of
the moon’s limb, to the end of the eclipse.

SCRUTAIN, SCRUTAINM, in Antiquity, an examination,
or probation, practiced in the last week of Lent, on the cate-
chumens, who were to receive baptism on the Easter-day.

The scrutiny was performed with a great many cere-
nomies: exorcisms 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 rehearse.

The process was called feretinum, 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 some mislaid, to have
been likewise used, though much later, in the Gallican
church. It is supposed to have ceased about the year 650.
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, so as it may not be known for whom
they vote.

SCRUTINY, among us, is chiefly used for a strict perusal
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 escrioire)
a kind of cabinet, with a door or lid opening downwards, for
convenience of writing on, &c.

SCRI, in Falconry, denotes a large flock of fowl.

SCUD, in Agriculture, a term used provincially to signify
to clear with a spade or spittle.

SCUD, in Sea Language, a name given by seamen to the
lowest and lightest clouds, which are most swiftly wafted
along the atmosphere by the wind.

SCUDDING, the movement by which a ship is carried
with great velocity before a tempell.

As a ship moves through the water with so great a ve-
cocity whenever this expeditious is put in practice, it is never
attempted in a contrary wind, unless when her condition
renders her incapable of fulfilling the mutual efforts of the
wind and waves any longer on her side, without being ex-
pended to the most imminent danger. See Drining.

A ship either foods with a sail extended on her fore-mast,
SCUBERI, in Geography, a mountain of Sicily, in the valley of Demona, 10 miles S.W. of Messina. Next to Etna, this is the highest mountain in Sicily, and retains snow all the year.

SCUDO, in Commerce, a money of account, and also a silver coin, in different parts of Italy, in Sicily, and also at Malta. At Rome, accounts are kept in crowns or scudi, called feudi romani, and scudi monetari; each scudo being divided into 10 paoli or grani, and each paolo into 10 bajocchi. The scudo is likewise divided into 3½ telti, 500 quattrini, or 1000 mezzi quattrini; so that 5 quattrini make 1 paolo, and 3 paoli 1 teltino. The scudo di fompa d'oro, by which many of the foreign exchanges are regulated, is reckoned at 1525 or 1525 mezzi quattrini; that is, when a bill is drawn from Rome on a foreign place, the scudo di fompa d'oro is reckoned at 1523 mezzi quattrini; but when drawn from another place on Rome, it is reckoned at 1525 ditto: this scudo is divided into 20 foldi, or 2½ denarii. Among the silver coins are scudi romani, and half ditto. The scudo weighs 22 denari 10½ grai, Roman weight, or 409.99 English grains; and the silver is 1012½ ounces fine in the lb.; it therefore contains 403 grains of English standard silver, and is worth 4s. 4d. sterling. The scudo di fompa d'oro, of 1525 mezzi quattrini, is worth 6s. 7½d. sterling; and the paolo, 5½d. sterling nearly; or 1d. sterling = 4 scudi 6 bajocchi, all valued in silver. All payments above 5 scudi are made in cedole, or schedules, a forti of bank notes, which cannot be refused in payment, and which are constantly at a discount. At Malta, accounts are kept in scudi of 12 tari, each tari being subdivided into 2 carini, 20 grani, or 120 picciosi. These monies of account are valued in silver and copper money, silver money being to copper money as 3 to 2. At Mantua, a scudo of account is 6 lire, or 120 foldi. At Milan, a scudo di cambio, or imperiale, is reckoned at 5 lire 17 foldi, or 117 foldi imperiali; a scudo corrente at 5 lire 15 foldi, or 115 foldi correnti: 1219 scudi imperiali are equivalent to 1755 scudi correnti. Among the silver coins are scudi of 18 denari 21½ grani, at 6 lire, and halves in proportion. In copper the scudi are about 10 denari 18 grani (or 10 oz. 15 dwt.) fine; but the lire are only 6 denari 14 grani (or 6 oz. 11½ dwt.) fine. The scudo imperiale is worth 5½. 2½d., and the scudo corrente 3½d. If valued in gold, the scudo corrente is worth 3½. 6½d. sterling. According to the mint price of gold and silver in England, viz. 3l. 17½. 10d. per ounce for gold, and 51. 2d. per ounce for silver, the scudo of 7 lire at Bergamo is 35. 6½d. in silver, and 36. 5½d. in gold:—At Florence the scudo d'oro, or gold crown, is 63. 9½d. in gold:—at Geneva, the scudo di cambio, or crown of exchange, is worth 54. 75½d. in silver, and 56. 0½d. in gold; and the scudo d'oro marche 83. 8½d. in silver, and 84. 7½d. in gold:—at Lucca, the scudo d'oro is 55. 50½d. in silver, and 58. 27½d. in gold; the scudo corrente 51. 80½d. in silver, and 54. 30½d. in gold:—at Malta, the scudo, or crown, is 21. 32½d. in silver, and 23. 34½d. in gold:—at Milan, the scudo imperiale is 60. 90d. in silver, and 61. 60d. in gold; and the scudo corrente 42. 32d. in silver, and 42. 78d. in gold:—at Novi, the scudo d'oro marche is 85. 49½d. in silver, and 84. 77½d. in gold:—at Rome, the scudo, or crown, is 52. 05½d. in silver, and 51. 63½d. in gold; and the scudo di fompa d'oro 79. 37½d. in silver, and 78. 73d. in gold:—at Sicily, the scudo, or crown, is 49. 02½d. in silver, and 49. 02½d. in gold. For the aßay, value, &c. of the scudo, see the table under Coin. For the Impressions on the scudo, and other particulars, we refer to Kelly's Universal Cambitt.

SCUFFLE, or SCUFPELL, in Agriculture, an implement of somewhat the same kind as the furrower, but which is moystly lighter, and employed in working after it. There is a great variety of these sorts of implements described in works on agriculture. The following have been found to perform the work well in actual practice. It is noticed, that a tool of this sort, invented in Norfolk, has been found highly useful in that district. It is described in the Agricultural Survey of the above country, as being formed from a double-breasted foot-plough, by taking off the beams, and having a share larger and flatter than the original one made. To the end of the beam of the plough, a cros-beam of wood, three feet long, four inches broad, and four inches thick, is fastened; and at the distance of twelve inches and a half each way from the centre of this cros-beam, are inserted two coulters, each twelve inches long, three inches broad, and a quarter of an inch thick on the back, but reduced to three-eighths in the front; and into these coulters, at the bottom, are riveted two shares, of nearly the same size as the first share, which was nine inches broad, but these two only eight inches. The cros-beam is strengthened by two iron reins fixed to the cros-beam, and also to the beam of the plough, in the belt manner for the purpose.

It may also be noticed, that the coulters which are fixed to the cros-beam do not stand perpendicularly; but inclining, as the couler at the head of the plough: thus they are fixed into a cros-beam by means of a screw and a nut, so as to keep them quite fast and steady.

The advantage of this scuffle above any that the inventor has seen is, that it is used with two horses only. It does the work of more than two ploughs, as the three shares cut nearly the width of thirty inches, whereas two ploughs would cut only twenty-four inches. It is used on farms which confit of heavy land, as well as land of a mixed soil. But a scuffle recommended by Mr. Amos is occasionally in use, which has wheels on which it is carried from one field to another, and by which the depth of working is regulated. These wheels turn round upon their axles, and also upon the under end of the upright share, in imitation of bed-callers. The middle beams are the parts to which the horses are fixed; but there are likewise side-beams; and the flanks of the shares are fixed in the beams by nuts and screws. They are fifteen inches long below the beams, and made of iron, one inch and a half by an inch square; they are riveted on their flanks. The handles for managing the machine are about four feet three inches long.

This tool is said to be of great utility in cleaning bean and pea stubbles, in order to their being sown with wheat. And it is very advantageous in destroying weeds and grasses, which usually grow among the shoots of young wheat. It is likewise admirably adapted to the cleaning of land that has been sown with the garden pea, in order to its being ploughed, harrowed, rolled, and drilled with turnips or rape-seed in the latter end of summer, at the beginning of August.

And with this tool it is asserted that one man and two horses are capable of scuffling fix or eight acres per day. It is advised, that after the land is scuffled over, it should be harrowed twice or three times in a space of time, and the weeds collected and destroyed. But it has been made an objection to these sorts of tools with some, that they cannot be made to operate in a beneficial manner, except where the land has been previously brought into a fine condition, and rendered clear from weeds. These, as well as furrowing implements, are likewise liable to objection from their being subjected to clog much when the land are wet. A tool of this sort has however been employed in the midland districts, which is said to be in a great measure free from the
the half objection. It has been recommended by Mr. Bower. In this tool, by the teeth being only twelve inches from each other, and their interjecting, that distance is reduced to fix inches, where the breadth of the shares, from being full three inches, afford another reduction, which brings them so near together, that the land is almost wholly broken and reduced, and the intention of a ploughing as well as a harrowing accomplished at once, without cutting the roots of the couch-grass in two, which is a great superiority that it possesed over the plough. And from the teeth bending 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 six 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 hilt 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 fix feet. And the length of the iron that shifts through the beam, and fastens with a screw, 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, save much labour and expense. They are some of them made with two rows of shares, five and four in each, about six inches in breadth; the front ones cutting the interstices of the hinder 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, moist, land districts with great utility and advantage, and it may probably be employed in almost every part 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 flate 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 ground 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 farm will frequently be the cafe with all other lands which have been ploughed before the commencement of the winter season; such as those of the taro, bean, and pea stubble 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 essentially 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 it is fall coming into use in other districts. In Essex, some farmers find it a more effectual and cheaper method of cleaning falls than that of trudging 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 fort.

SCULCOATS, See Geography. See HULL.

SCULION, in leksyology, 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 bouse.

SCULK, among Hunters, denotes a company; as, a feul of foxes.

SCULL. See SKULL.

SCULL-CUP, in Gardening, the common name of a curious garden plant. See SCUTELLARIA.

SCULPONE, 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.

SCULPTURE, English, is from the Latin, sculptura; and the verb sculpto, I carve or engrave, which is the same as the Greek ἱαυτόν: therefore basso-relievo was called analaphobic in that language; which word was also understood for carved representations in general. The Greeks had other words by which they signified particular works of sculpture; as Engravers, images; and 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, these 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, Moses receives commands and injunctions 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, Bezaleel and Aholibah are inspired with the spirit of God to devise cunning works in gold, and in silver, and in brass, and in cutting of stones, and in carving of timber to work all manner of workmanship.

The importance of the arts of design is here particularly demonstrated by the manner in which Bezaleel and Aholibah 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 Moles.

"And Moses said unto the children of Israel, see, the Lord hath called by name Bezaleel, 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 brass. And in the cutting of stones, to let them, and in carving of wood, to make any manner of cunning work."
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It on his heart, that he may teach, both he and Ahohiah, the son of Ahifamach, of the tribe of Dan. Thus hath he filled with wisdom of heart, to work all manner of work of the engraver, and of the cunning workman, and of the embroiderer in blue, and in purple, and in scarlet, and in fine linen; and of the weaver, even of them that do any work, and of those that devise cunning work."

Such inspired works being ordained, and Moses coming down from the Mount to cause all to be performed according to the divine will; he finds that the people have made a golden calf, crying out, "These are thy gods, O Israel, who brought thee out of the land of Egypt." The golden calf is evidently the Egyptian Osiris or Apis.

The manner of making the golden calf is thus described by Aaron: "I said unto them, whoever hath any gold let them break it off; so they gave it me; then I called it into 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 Ahohiah, and every wise-hearted man, in whom the Lord had put wisdom and understanding, sat 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 cherubims which were woven in the curtains and the veil are to be considered simply as mentioned in Exodus; or, according to the more extended and poetical representations in Ezekiel, accompanied by their dreadful wheels, containing Orion and Pleiades, Mazzaroth and his sons, Arkurus and the chambers of the south, as mentioned in Job, Isaiah, and Amos; 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 cherub on the end on this side; and another cherub on the other end on that side: out of the mercy-seat made he the cherubims on the two ends thereof. And the cherubims spread out their wings on high, and covered with their wings the mercy-seat; with their faces one to another; even to the mercy-seatward were the faces of the cherubims,"

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 figure, with the names of the children of Israel; must have been worthy of their divine author.

And the necessity 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 practice any art or science, but that of his fathers; who, like him, were kept from every indication of individual character. And the Hebrew being born a slave, continued so while under the Egyptian yoke; let his inspiration be what it would, he was compelled to work in making bricks, and in iron-furnaces. Such then was the deliverance of art and science from destruction, and the earth from returning to its primeval chaos.

All idolatrous sublitudes for fine art, wood and stone deformities, God, by the mouth of Moses, repeatedly commands the children of Israel to destroy, in thee and the like words. "And destroy all their pictures and defile all their molten images."

After the establishment of Israel in Canaan, there are continual indications of fine art. So early as the song of Deborah, we hear of those who delineate with the pen or pencil of the writer. Gideon destroys the altar of Baal, but afterwards himself makes an idol. Micaiah'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 causes 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 emerods and golden mice, which were put into a coffer by the side of the ark, for a trespass-offering.

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

But the most magnificent production of Hebrew art was the temple of Solomon. It contained the same cherubim that Moses had seen on 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 effects at perfection in art, and this no doubt they had, being done by divine command, for purpooses 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 bases 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 dispensations 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 Providence; and the abstinence only of this art was forbidden when perverted to idolatrous and impious purpooses.

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 successively 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 remains have nothing like the Egyptian or the Persian style of construction,
constructions, 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 signified 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. Cafa in Paris.

Of Babylonian and Persian Sculpture, also of Asiatic Sculpture in general.—It may be proper to take only 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 succellent; 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 supposed 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 sacred writings do not mention any thing of sculpture in this building. But Berosus says, that representations of the terrible 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 consisted 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 colossal 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 stades 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 stade 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 place, where those who go 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 Belus, 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 consume yearly a thousand talents in incense, when they celebrate the festival of this god. Besides these things, a statue of 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 adorned, 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, before they were burnt, the forms of all sorts of living creatures, laid with great art in curious colors. 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 surrounded 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, artifically expressed in the most lively colors: 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 Nimus, 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 brick, was but thirty furlongs in circumference. Instead of the curious portraiture of beasts, there were the brazen statues of Nimus 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 the built a temple to Jupiter, whom the Babylonians call Belus. Upon the top the placed three statues of beaten gold, of Jupiter, Juno, 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 Babylonian 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 Juno stood upright, and weighed eight hundred talents, grasping a serpent by the head in her right hand, and holding a cæptre, 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 deferts, 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 colossal monuments carved on high in the rock mentioned by Isaiah in these words. "He that hewneth himself out a temple on high, that graven 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 Ahæruæus removed the feast of government from Babylon to Shushan. We hear that Alexander took possession of Babylon, Shushan, 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 Ahæruæus, who isarius Hylæas.

This palace of Persepolis has its walls still remaining on three of its sides. The extent of the front comprehends six hundred paces, from north to south; it is three hundred and ninety feet from east to west. On the west front are two magnificent flaire-cafes, consisting of each of two flights of steps. On the top of these flaire-cafes 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 fline, the heads and breasts, and front feet projecting beyond the portals, of two animals somewhat like sphynxes, 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 turret. 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 flaire-cafes like the former. The walls which belong to these flaire-cafes are six feet seven inches high, of which the lower stories 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 flaire 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 but comparatively few remain, and these terribly mutilated.

The other ruined portals are ornamented with figures carved in the inides of the jambs, of rude grandeur; one portal is a man fighting with a lion; on another, a man fighting with a griffon or horned lion; and on a third, a figure like a king, with two figures behind him, one with a parapet, the other with a sea-horse's tail, which being set in a gold handle, is used in Persia at the present time to drive away flies. Over his head, in the air, is a little figure on 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 ruined pilaffect, 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 pilaffects have had other ornaments, and unknown characters of letters shaped like the heads of arrows, disposed 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 sacrificing instrument: other windows have also the same unknown characters of letters engraved on their sides.

The flaire-cafes 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 flaire-cafes, have been ornamented with sculpture, in two ranges, one above the other. The first six figures at the entrance are smaller than the rest, and have large vestments with plaïed sleeves, and a round bonnet rising in plaits, 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 veils, and pointed bonnets formed into five plaits; these are properly the tiaras, called also reflexa, sloped into a curve backwards, contrary to the tiara Phrygiana, which are bent forwards. Two of these figures hold a basin in each hand; a figure following them has two hoops or circles in his hands. This is followed by two horses drawing a chariot, and by two other figures that place their left hands on the back, the other on the neck of the horses. They are all represented with hair and beards; the two last bare-headed, the other has a bandage or diadem.

Between each compartment of six or seven figures, is a kind of vase, and the two first figures always hold each other by the hand. A horse, led by a bridle, follows the two first figures in the second compartment; three figures following this, one of which bears something that resembles a vegetal. In the third compartment are five figures with little basins or buckets, and two others with balls or globes. These in the fourth compartment are not habitated as the others, having only a very straight veil, with a cinature, 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 its back, with a little bell hung round its 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 like wise to those who have lost their way, and enables them to join their companions. The last compartment is distinguished by a figure bearing a pole, with a pot suspended at each extremity; and in each of these pots are seen...
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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 meanly habit ed; each of them has some veiment in his hand. Those that follow carry the same, 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 deflected horn. After these appears a figure armed with a buckler, and another leading a horse by the bridle, followed by a third with two hoops: 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 altar-case. 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 drefs 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 practiced at this day.

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

There is another immense ruin in the deserts of the ancient empire, called Palmury 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 the 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 BALEB.) As for those many great 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 Abur 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 Heshbon 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 cormorant and the bittern poffefs them, the wolf howls there, and the wild beasts inhabit those forlorn places, where ancient kings and their counsellors, and warriors, thought they had built an everlasting habitation; even Ni neveh and Damascus are now indeed no more; they are, as the prophets said, “gone down into the nether parts of the earth,” nor does history design 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 timagnosticus, which shone by night in a surpining 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 tabrets and pipes was prepared in thee in the day that thou wert created. Thou art the anointed cherub that coverest, and I have set thee in a most holy temple, in the presence of the Lord; and thou hast walked up and down among the filones 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 filones 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 cupiditv, 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, affiled by the regular progres in science, soon gave their productions a decided superiority over those of every other people.

The caverns of 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 feryes, of the mythological personages, and acts of the Brahmin religion.

The sculpture of Elephanta is of the same kind, with the addition, at one end of the temple, of a colossal built of the triple-faced Brahah.

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, canes, 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 dimensons, but of the same sacred character, obelisks magnificently adorned, the figures of oxen, horses, tygers, elephants, 

The necessity of halting to the great object of our present
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Of Egyptian Art.—Egypt, the land of science, was visited by the most distinguished of the Greeks in arts and letters, among whom we find more especially the names of Orpheus, Dædalus, Linus, Homer, Thales, Pythagoras, Plato, and others of distinguished wisdom; all went to Egypt, as to the wise-felt nation of antiquity, for instruction. The earliest historian, Herodotus, went also, and has given an account of this extraordinary country. He says, that in the time of their king Amais, Egypt contained 20,000 populous cities. The remains, at this present time, as described by the latest travellers, are more stupendous than those of any other, with their attendant sculptures and paintings: though devastated by the tempest of war deluge after deluge, still the colossal power of Egypt has a remnant left to testify what it once was.

Herodotus says, on the authority of the Egyptian priests in his own time, from Egyptian records, that Mene was the first king of Egypt, the posterity of whom reigned three hundred and thirty kings; and after those were twenty, named Nitocris. Of the actions of these kings, he was told, no record remained, except of Nitocris, and of Memnon, 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 3500. When Herodotus saw them, the hands had dropt off through age, and were lying on the floor of the temple. Afterwards reigned in succession four kings, who were succeeded by twelve kings, all reigning at one time over Egypt, who built the magnificent labyrinth which Herodotus describes. These were succeeded by four more kings in succession; but no work of importance is ascribed to any of them. They were succeeded by a king named Amais.

The works of Amais, as described by Herodotus, are exactly like those whose ruins remain to this day. Herodotus says, that Amais was a great lover of the Grecians, and permitted them to establish themselves in Egypt, and erect temples and altars to the gods. He also took a Grecian wife, and sent consecrated donations to Greece, particularly a gilded statue of Minerva to the city of Cyrene, a colony of the Greeks, with his own resemblance taken from the life. To Lindus he gave two statues of stone, representing the same goddef, together with a linen pectoral or admirable workmanship. He sent two statues of himself, carved in wood, to the city of Samos; where, our author says, this day they are seen standing in the great temple of Juno, behind the gates.

His works in Egypt Herodotus thus describes: “He caused a colossal, lying with a face upwards, 74 feet in length, to be placed before the temple of Vulcan at Memphis; and on the same basis erected two statues, of 20 feet each, wrought out of the same stone, and standing on each side of the great colossal. Like this, another is seen in Sais, lying in the same posture, cut in stone, of equal dimensions. He likewise built the great temple of Isis, in the city of Memphis, which well deserves to be admired.

“He built the admirable portico, which stands before the temple of Minerva in Sais; far surpassing all others in circumference and elevation, as well as in the dimensions of the stones; and adorned the building with colossal statues, and the monstrous figures of androcephali. One part of the stones employed in this work were cut in the quarries of Memphis; but those of the greatest magnitude were conveyed by water from the city of Elephantis, distant from Sais as far as a vessel can make in twenty days. But that which I beheld with the greatest admiration was a house he brought from Elephantis, made of one stone. Two thousand men, all pilots, were employed during three whole years in the transportation of this house, which is in front twenty-one cubits, in depth fourteen, and eight in height. This is the dimension of the outside.”

Such works are ascribed to Amais, who was conquered by Cambyses, the son of Cyrus the Persian, about the year of the world 3400, a hundred years before Herodotus; so that 500 years will remain to be occupied in Egyptian history, from Sesostris to Amais; and within this time, the Egyptian buildings and works of sculpture, which the priests represented to Herodotus as so 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 remaining monuments, it may give some date to the early works of Egypt and Greece.

The moderns have been no less zealous to examine the remaining ruins of Egypt, than the ancients were to contemplate its ancient glories.

Of these wrecks, 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 what Egypt once was.

The ruins of Egypt are contained in a compass of about 550 miles along the banks of the Nile, among pyramids, and pillars, and porticoes, and subterraneous palaces hewn out for the dead.

The first objects of Egyptian sculpture that seize hold on the imagination are the colossal statues: among these are the sphynx, and the statues called Menmon or Olomandu. The sphynx is situated to near the pyramids of Giza, as to make it apparent that these maules of solid bulk were accompanied by other maules of ornamental sculpture; and being divested of their gigantic accompaniments of intellectual labour, the pyramids are left alone, inexplicable monuments of loft 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 been given, is about 95 feet; its height from the knees to the top of the head is 38 feet. The ancients very generally believed that there was a passage in the body of the sphynx, which led by subterraneous channels to the interior of the pyramid. It is still conjectured that, beneath these enormous maules, cavens have been dug, which some suppose to have been employed in the mysteries of initiation. On the head 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.
The head of the sphynx bears the lineaments of a Negro. It is deprived of the nose.

Of this monument Denon says: although the proportions of the sphynx are colossal, the contours are free and pure; the expression of the head is sweet, graceful, and tranquil. It is the character of an African: the mouth and lips thick, with a softness in its movements, and a fineness 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 surprised 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 fupposed 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 figure; the first court was occupied by four rows of columns; the second court had 130 columns, the largest 11 feet in diameter, the smallest 7 feet; the third court was adorned with obelisks 90 feet high, and colossal statues, surrounded by various royal apartments. On each side of the entrance to the fourth court was a saloon 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 50 lions; in another avenue, sphynxes; 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 with bafio relieves and pictures. The lesser structures in this group of buildings were adorned in the same manner, and communicated with the other palaces of Luxor and Medinet Abou, as well as the Memnonium, which was the magnificent tomb of Ozymandus 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 subsists almost entire, whose breadth is 46 feet; and one of its ears measured 39 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 were 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 Ozymandus. We are confirmed in this conjecture, by the conformity which exists between the monuments in their present state, and the extensive as well as precise descriptions which that writer has left of pictures which are found in both palaces. They reprent 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 tide 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 Ozymandus, 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; these are in bafio relief; 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 Ozymandus; the figure of Ozymandus 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 minute of their dress are finished with a purity and delicacy most admirable, considering 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 intercolumns to the right and left. The saloon succeeds to the portico, and is supported by fix 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
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Beautiful proportions; its feet, well preferred, are in a beautiful style; it does not present any attribute, except a collar, which is often seen on figures of Isis; the hair is curled, 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 remains of a palace, having in its front two obelisks of granite; their height is twenty feet above the earth. Near these are two colossal figures buried 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 finished; the labour 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 preferred of the two colossal pieces are admirable pieces of sculpture, 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 moles and the obelisks, comprehending the colossal statues between them, is but eleven paces; each of which objects in an insulated position, would astonish the beholder with its size.

The temple of Hermopolis was consecrated to Isis, whose delivery from Typhon is sculptured on the walls in baffle relief; it is a beautiful, elegant structure, but dreadfully ruined.

Eune, the ancient Latopolis, 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 represent 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 till remain, and their fine execution, as for the very interesting pictures, which relate to those minutiae of Egyptian 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.

Edu, or Apollinopolis, is the most spacious as well as the best preferred of all the Egyptian temples, and where the Egyptian architecture displays itself with supreme magnificence. It was dedicated to Horus, 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 perspective in the statues of Isis, 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 excellent with the admired Corinthian, or Ionic.

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

But the abodes of the dead were particularly distinguished by the care of the ancient Egyptians. All the Lybian mountain, which is half a league to the west of the Memnonium, and ends opposite to Medinet Abou, is pierced from its base to three-fourths of its elevation, with a great number of sepulchral grottoes. Thoje which are nearest the surface of the ground are most spacious, as well as the most decorated; 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 proportion of space and ornament. Thoje 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 practised at that epocha. The plan of these grottoes is in a great measure the same. A door opening towards the east 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 indifferently supported by columns or pilasters. At the extremity of the gallery is a well that leads to the catacombs, where the mummies are deposited. The depth of these wells varies from forty to sixty feet; and they are connected by long subterraneous passages rudely shaped in the rock, which terminate in a chamber of about thirty feet square, whose sides are supported by pilasters, and contain large remains of the mummies. There are evident traces of numerous other subterraneous communications, which probably lead to other chambers that are at present concealed.

In the upper gallery are sculptured in baffle relief, 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 represented their first occupations, such as the chafe and the fishery. Thence we may trace the progress of civilization in the employments of the fudder, the carpenter, 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 hundred 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 these tombs will be sufficient to explain the general disposition of the rept.

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 arms of coats of mail, tygers’ skins, bows, arrows, swords, lances, and quivers. In other sepulchral chambers are found housetop utensils, couches, chairs, floors, cabinets of exquisite 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 vases in all variety. Other funerary 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.
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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, whose 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 fix paces: a square suloon 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 saloon of the sarcophagus another apartment succeeds, of twenty-five paces in breadth, and forty in length; the height of the tomb is seven, its length eight, 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 phantastic subjects. The refearches into Herculanæum 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, and 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 sepulchres 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 those of the ancient Egyptians, who had remained faithful to their worship, endeavoured to conceal the knowledge of the sepulchers of their kings from their conquerors, or from the professors of other religions.

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

The quarries of Sísís, 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 lewd, 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 flucso, representing offerings; the ceiling are also Heccean with ornaments and serpills; 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, three, or four figures as large as life, cut out of the rock, perhaps two brothers and their wives: the men fit in the middle and the women on the outside, with their hands passed under the arms of their husbands, who fit each with their arms across upon their bosoms. Some tombs have but one figure, perhaps of one who led a single life; another has three figures, a man and two women; the man in the centre and the women on each side, with their hands passed under the arms of the man, who has his arms crossed 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 mummies, 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 Sísís, 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 inlfe 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 is a niche, 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, reforted as 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 all the whole of Egyptian sculpture was faced, that is, representing divine qualities, attributes, and perfections, if we except the historical figures 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 fit 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 flat; 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. Winkelman has remarked, that the Egyptians executed quadrupeds better than human figures, for which he
he gives the two following reasons: first, that as professions in that country were hereditary, genius must be wanting to represent the human figure in perfection; and, secondly, that superstitious reverence for the works of their ancestors prevented improvement. This is an amusing but needless hypothesis, for there are statues in the Capitoline museum with as great a breadth and choice of grand parts proper to the human form, as ever they represented in their lions or other inferior animals. In addition to the other observations on Egyptian statues, we may remark, that the form of their hands and feet are gross; they have no anatomical detail of parts, and are totally wanting in the grace of motion. This last defect, in all probability, was not the consequence of a superstitious determination to perfilt in the practice of their ancetors; it is better accounted for in another way: Pythagoras, after he had studied several years in Egypt, sacrificed to an oxen for joy of having discovered that a square of the longest 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 affihed by geometry.

The rate of Egyptian science in the time of Pythagoras being noticed, leads us to another consideration respecting the date of their architecture and sculpture. Most of their works are mentioned by the ancients as done in the reign of Sesostris, and afterwards. Sesostris lived in the time of Rehoboam, king of Israel, about the time of the Trojan war, or one thousand 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 residing with them to study 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 Naucratis, and other parts of Egypt, we may fairly conclude their communication in arts was just as free as in other conccrns, 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) sunk into the back-ground, being left level 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, basaltes 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 hundreds or 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 diffinseness to the spectator. These baso reliefs, which we comprehended in the general term hieroglyphics, or sacred gravings, represent different subjects, according to the place and purpose for which they were employed. On the walls of tombs they represent the profligions, actions, and funerals of the deceased: in palaces, wars, negotiations, triumphs, procelions, trophys, with civil, military, and domestick employment of kings. In temples, they were the symbolical register of theology and sacred facre. On obelisks, they express hymns to the gods, or the praises of their kings. Ammianus Marcellinus has preferred part of a translation by Hermaptopoia, the Egyptian, of the hieroglyphics on the obelisk which formerly stood in the centre of the Circus Maximus; and at present before the church of St. John de Lateran in Rome. It imports, that the fun, the lord of the universe, gives to Rameli the kingdom of Egypt, and dominion of all the earth in the city of Heliopolis. This translation seems sufficiently justified in the upper lines of the hieroglyphics, where a divinity is sitting, in the act of beholding on a man, who kneels before him, stretching his hands to receive. In the following line the same man is seen again taking possession of an altar, on the side of which is the ox Apsis, and on the top the mitred hawk, symbol of Ophis. Thus of the sacred emblems of Egypt.

The enormous works of Egypt have struck every foreign visitor with wonder and awe, from Herodotus to the members of the French Institute. Herodotus says, one of their buildings is equal to many of the most considerable Greek buildings taken together, and M. Ripaud observes, those works are so prodigious, they make every thing we do look little; and indeed, if we consider the execution of a statue 65 feet high, in so hard a material as granite, the boldest heart would be appalled at the incalculable labour and difficulties of the work.

In the Egyptian sculpture we shall find some excellent first principles of the art. Their baso statues 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 os pubis; the rest of the proportions are natural, and not disagreeable. The principal forms of the body and limbs, as the breasts, belly, shoulders, biceps of the arm, knees, shin-bones, and feet, are expressed with a flvely roundness, although without anatomical knowledge of detail; and in the female figures their parts formed so as to convey a considerable 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 Ophis, although sometimes underflow 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, strike the skilful beholder, and have been highly praised by the best judges. The 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 siege, a battle, taking a town by storm, there is not the smallest idea of perspective in the place. or magnitude of figures or buildings. Figures in violent action are equally delirious of joints, and other anatomical form, as they are of the balance and spring of motion, the force of a blow, or the just variety of line in the turning figure. In a word, their historical art was informing the beholder, in the best 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 single statues.

What has been hitherto said of Egyptian sculpture describes the ancient native sculptor of that people. After
the Ptolemies, successors of Alexander the Great, were
kings of Egypt, and that sculpture was enlivened by Grecian
animation, and refined by the standard of Grecian beauty.
In proportions, attitude, character, and drees, Oisiris, Isis,
and Os, their three great divinities, put on the Macedonian
costume; and new divinities appeared among them,
in Grecian forms, whose characters were compounded
from materials of Egyptian, Eastern, 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 Tivoli;
several of which have been dug up, and placed in the Capitoli-
Museum. But Winckelmann has remarked of these,
that they may be known from the ancient Egyptian sculptur-
ture, having no hieroglyphics on them. But, besides this
distinction, they are entirely unlike the genuine Egyptian;
as the drawing and character are Roman, in Egyptian atti-
ures and drees.

The ancient authors, who give the most satisfactory ac-
count of Egyptian antiquities, are Herodotus, Diodorus,
Siculus, Jophesius, Strabo, Clemens of Alexandria, Jan-
blichus, and Ous Apollo.

The best modern books on this subject are Pococke's
Voyages, Savary's Travels in Egypt, Norden’s Egypt,
Denon’s Egypt; to which may be added, the most magnifi-
cent work of Ancient and Modern Egypt, now publishing
in Paris, which will occupy twelve folio volumes, contain-
ing 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 Pliny observes upon the works of
Egina.

In early times, the greater divinities were worshipped
under the form of rude flones; and afterwards the lifelefs
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 mses.

But about 1200 years before the Christian era, a sculptor
appeared, who works exacted the praise of poets, the
speculations of philosophers, the record of historians,
and continued to be preferred with zeal, and spoken of with
repect, centuries after sculpture had risen to its zenith.
This was Daedalus, the countryman and contemporary of
Theseus, not inferior perhaps in fame and variety of adven-
tures to that hero. Born of a royal race, the occieional
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 Veget
at Memphis; the Cretan labyrinth, which was the copy of
a hundredth 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 Daedalus are indeed rude,
fays 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 multi-
plied. 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 attempt at bold
action, the peculiarity of Daedalus, the general adoption of
this action in the early ages, the traits of savage 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 name author fays, the Gnoiffians had a chorus in
white fhone, made by Daedalus for Ariadne, which is men-
tioned in the 16th book of the Iliad, as youths and damsels
dancing hand in hand. The loft early Greek baffo re-
lievos and paintings represent charades of the Graces and
Hours in this manner.

Endeus, the disciple of Daedalus, made a fluate of
Minerva, which Paufanias faw in the Aeneas of Athens.
The learned author of the Introduction to the volume of
Sculpture, published by the Dillettian Society, supposes
the heads of Minerva, on the early coins of Athens, were
 copied from this fluate, which femea very reasonable, when
we compare the style and costume with other works of the
high loft antiquity. And here we must obferve, 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
felf fame face, figure, and action, as the Hercules of Da-
edalus defcribed above; the fame narrow eyes, thin lips,
with the corners of the mouth turned upwards, and pointed
chin; the fame narrow loins, turgid muscular forms of
breast, thighs, and legs; the fame 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 paint-
ings of this period is dressed with great pains, collected in a
club behind, and sometimes entirely curled, in the fame
manner as powdered by the native Americans, and the in-
habants of the South sea iflands. Daedalus and Endeus
first formed their statues of wood. Metal was also used for
various purpofes of sculpture in the loft ancient times, as
we learn from Homer, Hefiod, and Plutarch.

Dipnus and Scyllis, the Cretans, were celebrated for
their statues in marble, about 776 years before Chrifl; yet
retaining much of the ancient manner in the advancing po-
tion of the legs, the drawing of the figure, and the perpen-
dicular folds of drapery, disposed in zigzag edges. Soon
after elaborate finifhing was carried to excess, 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 paflion for high finifhing in ftulture, will re-
conce to our reason a paflage in Pliny b. xxxv. c. 81, which
has frequently been thought to disagree with the general his-
tory of ancient painting: he fays, ‘that the picture of the
battle of Magnete, painted by Bularchus, was paid for,
with
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with its weight in gold, by Candaules, king of Lydia, who was coeval with Romulus, and lived in the 20th Olympiad, or about 750 years before Christ: thus," continues Pliny, "proving the fame and perfection of the art." Now, according to the fame 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 mimicking we fee in the earlist marble statues, of which the following are examples:—colossal busts of Hercules and Apollo, in the British Museum, most likely those done by Diphæus and Scyllis for the Sicelians:—very ancient statues of Minerva, and a priest of Bacchus, lately in the Villa Albani, published by Winckelmann in his Monumenta Inedita, and Storia dell Arte. To these might be added examples of extreme finishing in early Greek pateras and other bronzes. This observation on Bularchus's picture, and the sculpture of the same time, will naturally lead to anothor 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 Amynecian Apollo, described by Pauly as very ancient. The shrine, with the image fitting upon it, Paulya 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, Paulya describes as of very rude art. Paulya also mentions a brazen Hercules of ten cubits, as the work of a disciple of Dædalus.

Philocles the Egyptian, or Cuttinges the Corinthian, is said first to have introduced outlines among the Greeks, in the practice of which they were followed by Archilles the Corinthian, and Telephanes the Sicelian, 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 Cleonius invented catograpy, or 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 plaitts 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 easily enabled 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 age of Diphæus and Scyllis 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 letters are wanting, and whether the inscription is in the Boulephedon 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 Dædalus, to the time immediately preceding Phidias, in attaining a tolerable representation of the human form, which proves the flow growth of art perfected by manual labour in the infant state of science; whilst the means of sublimity are precarious, the rights of individuals undefined, and the general attention of society employed on self-preservation 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 earlist states of society, distinguished as an intellectual and rational creature, scatter the first seeds of knowledge, lay down theories for the government of future generations, expand the mind, and direct the powers 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 confederations 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 Persian armies, whose might, like locusts, wasted the country, crushed the first deadly blow to the Persian power, and gave a beginning to the Greek or third great monarchy of the world. An event of so much importance, by changing fortune and transferring power in to large 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, fought 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 reared with a magnificence unknown before, and decorated with all the powers of art. Archilochus, Euripides, and Sophocles, enraptured the minds of the people by their dramatic poetry. The five exercices 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 Phidas, with a beauty and perfection which eclipsed all former efforts.

About 490 years before the Christian era, Phidias flourished at the same time with the philosophers Socrates, Plato, and Anaxagoras; the idatemen 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 practiced before sculpture, gave a grandeur

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to his compositions, a grace to his groups, a softness to flesh, and a flow to draperies, unknown to his predecessors, the characters of whose 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, alluded him in felecting and combining ideas, which Stamph his works with the sublime and beautiful of Homer's verse.

How this sculptor was esteemed by the ancients will be understood by 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, possessed 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 full room for our surprise, 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 Helenus and Callistratus, under the direction of Phidias; and to him it is we likewise owe the compositions, style, and character of the sculpture, in addition to much skillfulness 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, Nellonclus, Hegia; and twenty years afterwards, Agelades, Callon, Polycleitus, Phraddmion, Gorgias, Lacon, Myron, Pythagoras, Scopas, Parchus. In this list we certainly have the names of the sculptors employed on the temples of Minerva and Theleus; and as the styles of different hands are sufficiently evident in the alto and baso reliefs, so there might perhaps be so 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 contention of Neptune and Minerva for the patronage of Athens. Forty-three metopes were charged with battles of the Lapithae and Centaurs, and a frieze of three hundred and eighty feet round the wall of the temple, under the portico, was decorated with the procision 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, fitting 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 char, while the reins are governed by Thetis and Mars; from behind Theseus, a genius leads Victory forward to attend the patron of Athens; on the left of Jupiter, Vulcan stands by his mother Juno; Amphitrite sits next, whose foot rests on a dolphin; Latona succeeds, with her infants Apollo and Diana, beautifully implying that the maturity of divine wisdom was older than the sun and moon. The last group is Venus fitting on the lap of Ocean; the figures at each end of the pediment are not shewn, because they are mere contingeats, 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 stature, and completely armed, leaning on the head of Jove; Olympus, the whole earth, and surrounding sea, trembling at the vibration of her spear; the fun flaying her couriers in their race, and partaking in the same 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-fix cubits, formed of ivory and gold, standing upright, her tunic reaching to her feet, holding a Victory fixing her feet high in her right hand, and a spear in her left; the drapery is of gold; that the uncovered parts of the statue are of ivory; and the head of Medusa on the breast-plate of the goddes is of ivory; at her feet is her shield; in the convex part of her shield is 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 present thirty in number; the Lapithae and Centaurs are sculptured on her sandals; a serpent at her feet admirably executed; a sphyx 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 by the Persians, Phidias made Minerva's statue of bract, in whose shield the battle of the Lapithae and Centaurs was engraved by Mys, and painted by Parrhasius, the son of Eucra. The top of the spear, and crest of the helmet, might be seen by those who fail by Saniun.

But the great work of this great master, the adornment and praise of after ages, was the Jupiter at Elis; 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 bearing a Victory, also of ivory and gold; she bears a fillet, and is crowned; the left hand of the god holds a sceptre of various coloured metals, an eagle of gold, fitting upon the sceptre; his garment is of gold, and on his garment are wrought animals and flowers, particularly the lily; his sandals 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 Thebans taken away by the sphyx; and beneath the sphyx, 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 also Theseus. There were also pillars which joined to the feet supporting the throne, equal in size to the feet. There is not an entrance under the throne, as under that of Apollo at Amulis. 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
SCULPTURE.

Painted blue; the sides have the pictures of Panænus. Among these is Atlas sustaining Heaven and Earth. Hercules stands near him lifting off his burden. Here are also seen Thefeus and Perithous, Græcia and Salamin, two figures; the last of which carries a rostrum in her hand. Hercules’ strike with the Nemean lion. Ajax under the reproach of Cassandra. Hyppodamia, daughter of Oenomaus, with her mother. Prometheus bound in chains, Hercules coming to his help; Hercules also, having slain the eagle, which was the punishment of Prometheus on Caicus, delivering him from his chains. On the hinder part is painted Penthesilea dying, Achilles supporting her. The two Herpides bearing the apples of which they had the keeping. Panænus, the brother of Phidias, who did these, painted also, in the Pecile of Athens, the battle of Marathon. Upon the throne, above the head of the god, Phidias carved the Graces and the Hours. Three of them large; these are called daughters of Jove. Upon the feat, lions of gold, and Thefeus warring with the Amazons. Upon the base of the throne, which great masts was wrought in gold, are other ornaments relating to the god. The rising Sun in his chariot, and Jupiter and Juno, and by them the Graces; these lead Hermes, and Hermes, Vesta. Cupid also from the sea receiving Venus, who was crowned by Perseus. Apollo was with Diana, and Minerva with Hercules; and on the lowest part of all was Neptune, and the Moon in her chariot urging on her horses.

The temple at Elan also, which contained this astonishing statue, was itself a noble work of Doric architecture; and the architect was Libon, an Elan. The sculptures on the outside of the temple have a relation to the great work within. A gilded Victory crowns the whole. In the front pediment is the contest of the chariot race between Pelops and Oenomaus, and in the back pediment the Lapithæ and Centaurs, with the nuptials of Perithous; and in the temple, and over the doors, the labours of Hercules in very many compositions, which are the work of Acalemenes. The temple has brazen doors and an interior portico, which opens an entrance to the statue of Jupiter; under the statue is inscribed “Phidias, the son of Charmides the Athenian, made me.”

It may be proper to take notice in this place, of another temple dedicated to Jupiter Olympus, at Athens, by the emperor Adrian, and in it a colossal statue of ivory and gold, described as not inferior to the colossal statues of Rhodes and of Rome.

Pausanias describes also a temple and statue of Æclepulius at Corinth, in the following manner. The statue of Æclepulius is almost half the size of the Olympian Jupiter at Athens. It is of gold and ivory, and is the work of Thrasymedes, the son of Arignatus, a man of Paros. He is seated on a throne, holding a great staff, and with his other hand presenting the head of a serpent; a dog lies at his feet; in his throne the acts of the Ægean heroes are sculptured: Belerophon killing Chimaera. Perseus holds Medusa’s head cut off. Above the temple are places where those who come to pray to the god repose.

Several other statues of great excellence, both in marble and bronze, are mentioned among the works of Phidias, particularly a Venus, placed by the Romans in the forum of Octavia. Two Minervas, one named Callimorphous, from the beauty of its form; and it is likely that the fine statue of this goddess in Mr. Hope’s museum is a repetition in marble of Phidias’s bronze, from its resemblance to the statue of an Athenian silver coin, in attitude, drapery, and helmet. Another statue by Phidias was an Amazon, called Eucnemon, from her beautiful leg; of which there is a print in the Museum Pium Clementinum.

Acalemenes was celebrated for his Venus Aphrodite, to which Phidias is said to have given the last touches. Praxiteles excelled in the highest graces of youth and beauty: Pliny says he not only excelled other sculptors by his marble statues in the Ceramicus at Athens; but his Venus was preferable to theirs, and all other statues in the world, to see which many failed to Gnidos. This sculptor having made two Venuæ, one with drapery, the other without; the Coans preferred the clothed figure, on account of its severe modell. The same price being set upon each, the citizens of Gnidos took the rejected statue, and afterwards refused it to King Nicomedes, who would have forgiven them an immense debt in return; being resolved, says our author, and with reason, to suffer anything, so long as the statue of Praxiteles ennobled Gnidos. 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 Cedrenus; and it is represented on a medal of Caracalla and Plautilla, in the cabinet of France. This Venus existed in Gnidos during the reign of the emperor Arcadius, 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 Venus, 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 Coans.

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

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

Polyeuctus of Sicyon, the scholar of Agelades, 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 artists, from which they studied.

The Difcobolus 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 Difcobolus of Naucydus 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 Winckelman.

Ctesilas, or Defilas, is known by his wounded Amazon. Pliny mentions the nine muses by Philiscus of Rhodes; 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 Hermaphrodite of Polyceles is one of the most delicate and graceful productions of antiquity. The Apollo Philiscus, or in love, by Cnachus, isHelvetica many fine repetitions in the different galleries of Europe.

The Ganymede, borne in the eagle’s talons, is exactly described by Pliny. An example of this work exists in the pope’s museum.
The Apollo Belvidere, believed by the learned Vifconti, to be Apollo Alexieaco, the deliverer from evil, the work of Calamis; mentioned both by Pliny and Paulania; and the history of its removal is given in the Museum Pium 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 Tyrias describes a statue by Phidias very similar to this, but in greater motion, either discharging an arrow, or preparing to do so. (Ieom.) There are traces of this statue in some ancient ballo-releives; 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 Calamis in a comparative production.

The Venus de Medici is so 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 Gnido.

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 artificers 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 artificers.

The heroic statue by Agafis 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 so represented on the coins of Locris, his country.

The Hercules Farneis was evidently one of the first favourites of antiquity, from its frequent repetitions in bronze and marble, gems and coins. Its history, according to thefe, seems to be this. The city of Perinthus was twice besieged by Philip of Macedon; the citizens, however, by the strength 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 relating from his labours. The flanding figure is the Hercules Farneis, 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, excelling before us.

The group of Laocoon, animated with the hopeless agony of the father and sons, is the work of Apollodoros, Athenodoros, and Agefander 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.

Zeus and Amphion, tying Dirc to the bull's horns, an example of filial vengeance for a perfecuted mother, is as heroic in conception as vast in execution. The restorations of this group are so 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 Tauros of Rhodes.

The group of Herecles and Anteus, in the Palace Pitti at Florence, may be a marble, from the bronze of which the copyist incribed the name of the original artist.

The groups of Atreus, bearing a dead Son of Thetides; Orestes and Electra; Ajax supporting Polydorus; 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 expostes 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 that had 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 Chrillian era; and Pliny's catalogue of the most celebrated Greek artists continues 160 years later, or to 350 years before Chrill. After which time, however, the Laocoon, and several of the finest groups and statues, seem to have been executed: nor can we believe, from the admirable bulls and statues of the imperial families still remaining, that sculpture began to lose its grace until the reign of the Antonines; and, indeed, so strong were the flamina of Grecian genius in the art of design, that after the time of the Iconoclastes in the fifth and sixth centuries, when the noblest works were destroyed, when great works of sculpture were not required, even then, and until Conftantinople was taken by the Turks in the 15th century, the Greeks executed small works of great elegance, as may be seen in the dyptichs, or ivory covers to confular records, or facred volumes used in church service.

The works of sculpture, here enumerated, will also shew, that almost all the greatest and most valued productions were of marble, and not bronze, as some 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 Vennes, and the Cupid by Praxiteles, with many others.

The principal schools of sculpture were Athens and Rhodes. The sculptors of the Laocoon, and the Toro Farneis, and the Colossus, were Rhodians; and it is almost incredible, that from this little island, only forty miles long, and thirteen broad, the Roman conquerors brought away 5000 statues. But we shall more readily believe this when we recollect that the force and enterprise of these inhabitants were sufficient to conquer the navy of Antiochus, commanded by Hannibal.

Sicily had long been the workshop of metals of all countries.
countries. Egina was also famous for bronze sculpture, and continued the Egyptian style.

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

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

As the enterprise and taste of the present age have revived two noble examples of Grecian sculpture, the pediments of the temple of Jupiter Panellenius, in the island of Egina, and the frieze which surrounded the interior of the temple of Apollo Epicurus at Phigalaia, 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 Panellenius, 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 right seemed to be combatants, as well in this pediment as 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 in fine small nature; and, according to Pliny’s description, partaking of the Egyptian style of workmanship.

Among the ruins of the temple of Apollo Epicurus at Phigalaia, 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 elastick; the lines of the bodies and limbs are beautifully variegated by the draperies, as flowing from the motion of the figures, or flourished in the air by impulse of wind; the beauty of the figures and countenances is heroic; and the general style and character of the work resembe the altorelieves in the temple of Theseus. The figures are about two feet high; and the whole extent of the different bafse relieves, 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, Diodorus Siculus, and other Greek writers of indubitable 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 early 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 cast money or weights, signed with an ox, lead to a strong supposition that they were imitations of similar weights alluded to by Homer, which had relation to the value of an ox. Their cast coins 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 earliest fyllables of philosophy, fees that which is pæt 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 perfonage, he is represented with the petasus 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 Grecian divinities, as Jupiter, Hercules, Mercury, Ceres, &c.; and by far the greater number of them from Grecian heads of those divinities not earlier than the time of Phidias.

Concerning their painting, though it may be difficult to make the same assertion so positively and so extensively as that concerning their coins; yet we must allow that the subject was of their painting, whether on walls or earthen vases, represent Greek philosophy, Homerick personages and stories; scenes from the Greek tragedians or Grecian sacred rites; and that the superfluous to those paintings were written in Greek, expressing Grecian names of the artists who painted, or the perfons represented.

The sculpture also which has been called Etruscan has the same Grecian characteristics with the paintings; to which we may add, in many instances, that it represents Grecian 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 Grecian schools of art eltablished in Eturia; and such were all the works of painting, sculpture, and architecture, executed for the early Romans, who do not appear to have polifhed any works of magnificence or distinguished merit, before the Scipios introduced them to an acquaintance with Grecian 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 cupiditi and ostentation for works of fine art, which palled in some instances for patronage. They filled their palaces, villas, theatres, 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 satisfactorily accounts of Etruscan, Italian, and Grecian sculpture, 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 italque art was familiar in Italy in ancient times, as is shown by a Hercules confecrated by Evander, as it is said, in Foro Boario; which is called the Tumbral, by his having on the triumphal habit: besides the double Janus dedicated by king Numus, which exprsippes peace and war, and by its fingers signifies the number of days in the year, the god himself indicating the times and seasons of the year. There are also Tuscan italues differed very widely, which there is no doubt were made in Eturia; such were also believed to be their gods, except by Metrodorus Scæfus, which surname was given to him through the hatred of the Romans; for two thousand italues, when the Volscians were conquered, were difperfed abroad. We have wondered to fee the original italues of ancient Italy, of wood perhaps, or modelled in clay, the images of gods dedicated in temples until the conquest of Aetia, from whence came luxury.

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

When Scævus was ede, three thousand italues made the scene of a temporary theatre. Mummius, when he conquered Achæia, filled the city; but dying, left his daughter without a dowry, which was inexusable. Lucullus brought many; from Rhodes there are as many as three thousand italues.

Mutianus,
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 distinguishe, or noted for some reason or other; indeed, to have named the distinguishe artificers would be a pleasurable task. Their number also is infinite, when Lysippus alone produced to the number of 600 works, which were all famous; their number appeared at his death, when his heirs opened his treasuries; he was used, on receiving his payment, to deposit a golden denarius for every work. The art, in the succese of its darings, is elevated above human faith. One example of such succese we shall offer: the similitude expressed is not of God nor of man. Our age saw in the Capitol, before it was confumed in the fire of Vitellius's times, in the chapel of Juno, a dog of brasta, 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: mallese have been devised equal to towers. Statues which are called Colossi, such is Apollo in the Capitol, brought by M. Luellus from Apollonias, a city of Pontus, of 30 cubits: its expense was 300 talents. Such, in the Campus Martius, is the Jupiter dedicated by Claudius Cæsar, which is called the Pompeian, from its vicinity to Pompey's theatre. Such is that at Tarentum, made by Lysippus, of 40 cubits; admirable in this, the hand being stretched out and in danger of being broken by the stormy wind; the artif is 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 disiphe of Lysippus 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 vast caverns of its broken members were displayed within great mallese of stone, whose weight kept it readiant. Twelve years it was in making, at the expense of 300 talents, which were supplied by king Demetrius, being interrupted by the tediousness of delay. There are other less Colossi in this city, 100 in number, each of which would ennoble the place whereforever it was fixed. Besides these were those of the five gods made by Bryaxis, who made many Colossi in Italy, in particular an Apollo, which is seen in the Tuscan library of Augustus, 50 feet high, of fine brasta, and exquisite workmanship. Sp. Carvillus made a Jupiter, which is in the Capitol, from the breast-plates, helmets, and greaves taken from the Samnites, of an amplitude to be seen from the temple of Jupiter Latarius. The rest of the figures which are before the feet of the statue, are also from his file. Two heads also are admired in the same Capitol, which P. Lentulus, the consul, dedicated, one made by Chares above spoken of, the other by Decius, overcome in the comparison to that degree, as seemed by no means probable, according to the works of the artif. 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 70 approved, that he was called to Rome by Nero, where he was desired to make the colossal statue of that prince, 150 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 size, but there are many first sketches in small, like first attempts. This statue indicates that the art of founding in brasta is perished.

Nero had prepared liberally both gold and silver, and Zenodorus in modelling and carving was not considered as inferior to any of the ancients. When he had finished the statue for the Arvernians, Vibia 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 Syllanus, his uncle. As much as the excellence of Zenodorus was greater, so much may be found the decay in works of brasta.

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 Hortenfus, the orator, received as a present from Verres, and occasioned a reply from Cicero. When Hortenfus said, 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 said, took about with him a statue of an Amazon. And a little before our time, C. Cælius, the consul, always carried an image with him in the field of battle. Alexander the Great had a tent furnished by four single statues, of which two are now dedicated before the temple of Mars the Avenger, and the other two before the palace. The art is ennobled by almost innumerable letifer statues. Before all, Phidas the Athenian made a Jupiter of ivory and gold. He also made statues in brasta. He flourished in the 84th Olympiad, about 300 years from the building of Rome. It was celebrated that wealthy emperors were Alcaneus, Critias, Neocrese, and Hegias. Afterwards, in the 87th Olympiad, Agelades, Callon, Polyclese, Phradmus, Gorgias, Laccos, Myron, Pythagoras, Scopas, and Parches. Among these, Polyclese had for his disciples Argus, Aepodorus, Alexius, Arlistes, Phryone, Dinon, Athenodorus, Dames, and Myron. In the 95th Olympiad flourished Naucyes, Diniennes, Canachus, and Parches. In the 102d, Polyclese, Cepheidoros, Leochares, and Hyppodorus. In the 104th, Praxiteles and Euphranor. In the 107th, Echion and Thymarchus. In the 114th was Lysippus, in the time of Alexander the Great; and at the same time Lysiphatratus and his brother Sthenis, Euphranides, Solfratus, Ion, Silanion, who was admirable, none being more learned. He had for disciples Zeuxis and Jades. In the 120th Olympiad, Euthychides, Euthycrates, Dareiphalus, Cepheidoros, Timarchus, and Pyramoeus.

The art then ceased. And again, in the 127th, revived, though allowed to be inferior, yet approved; Anterus, Caligatiatus, Polyclese, Atheneus, Callixenus, Pythoeus, Pythis, and Timoques. We shall pass halfly over the most distinguishe of the celebrated artificers 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 artif is judged to be next in merit to his own. This was the work of Polyclese; the next was Phidas, the third Cefillus, the fourth Cydon, the fifth Phradmon. Phidas, besides the Jupiter Olympius, which no one attempted to rival, made also, from gold and ivory, Minerva at Athens, which stands in the Parthenon. Of brasta, also, before that Amazon just mentioned, he made a Minerva of supreme beauty, from which it received the name of Callimorphos. He made also Cliduchus, or the key-bearer, and another Minerva, which Amillus Paulus dedicated at Rome in the temple of Fortune. Also two statues clothed in the pallium, which Catusus dedicated in the same temple, and another which was colossal, naked. He first discovered the art of alto relievo, and demonstrated its merit. Polyclese of Sicyon was the disciple of Age-
lades;
lades; he made a statue of tender youth, called Diadumenus, from his binding on a garland, valued at one hundred talents. Also one called Doryphorus, from his carrying a spear, a youth in the vigour of his age. He made also what by artists was called the Rule, seeking the lines of art from it as from a certain law. He was the only man who made art its own judge. He also made a strigili, and one throwing a die; also two boys at the dice, which are called Aftragalizones; they are in the emperor Titus's court. No work is judged to be more perfect than this. Also a Mercury, which belonged to Lytmachus, and Hercules pulling Antaeus from the earth, which is at Rome; also Artemon, an ephemeris voluptuary, who was called Periphehtetes, from his being born 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 particularly 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 Agesilaus, was very famous for a beifer, praiied in celebrated verses, whereas many are commended more by the ingenuity of others than their own. He made a dog and Dicobolus; Pericles, Eumolpus, and a fatyrs admiring the pipes; a Minerva; a Pentathletis, or master of the five exercitias; a panathlets or boxer; a Hercules also, which is at the Circus Maximus of Pompey the Great. He made also the monument of a grafs-hopper and locusts, to which Eunima refers in her verses. He made also Apollo, which the triumvir Antony took away, but it was restored to Epeus by Augustus, admonished for this purpose in a dream. No artist, for multitude of variety, surpassed Polycleitus, 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 pudes, he made like the rude ancient work. Pythagoras of Rhegium surpassed him in a Paneratit, placed in Delphi; and also Leonitus, who made the pedestrian Alyson, which is shewn at Olympia, with Libys, the boy holding tablets, and one bearing apples, naked; a Syracusan, also fame, the sufferings of whose ulcer affect the beholder; also Apollo the harper, the serpent flain with his arrows, which is called Dicamus, and which was taken from Thebes 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 praiied. This artist was said to have been indiscreet in the likenesses of the face. The disciple of Rhijnus is said to have been his father's son, called Soturus. Whereas Tullly affirms, that Lyppus was his disciple, which Doris denies. He first became a worker in brases, from hearing the answer of Eupompos the painter, who being questioned who should be followes of those before his time, answered, shewing a multitude of men, that nature should be imitated, not the artif. It is said that he made more statues than others, being more prolific in his art; among which is a man using the frigil, which Marcus Agrippa placed before his baths. This was very much admired by the emperor Tibere, 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 repentment, and demanded it to be restored, which was done. Lyppus made a drunken piper, a hunting dog, and a chariot and four horses, with the fun of Rhodes. He made also Alexander the 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 dif- covered to be destroyed by it, it was taken off; and it was esteemed more precious with the cuts and scars remaining in the work to which the gold adhered. He made also Heraklion, Alexander the Great's friend, which has been ascribed to Polycleitus, who was too years before him. Also Alexander hunting, which is consecrated at Delphos, and at Athens a crowd of satyrs: of Alexander's friends he made the strongest resembances. Metellus, 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 flatuaries, expressed the hair, made the head less than the ancient, the body more slender and dry than the ancient made theirs, by which the magnitude of the statues appeared enlarged. The Latins have not the word symmetry, which they most accurately observed, by a new and untried rule in changing the squared statues of the ancient; he said they made men as they are, he made them as they appear to be. He left sons and discipiles very much admired artists, such as Darius and Bedas; but above all, Euthycriates, although he emulated rather the complacency of his father, than his elegance, and was praiied with the auferere than the agreeable. Therefore he best expressed the Delphian Hercules, and Alexander, Theopis the hunter, and Thephaides, a battle of horsemens before Telephus's oracle, chariots and four horses, many statues of Medea, horsemans, and hunting dogs. His disciple was Diphales the Sicelitian, the nearest to Lyppus of all his followers, so that their statues are scarcely distingible; a Thban old man, king Demetrius, Peucides, Alexander the Great's preferrer, worthy of so much glory. Artificers, who have brought these things together in the volumes they have composed, celebrate Telephus, the Phoenian, unknown on other accounts, because in Thessaly, where he dwelt, his works are concealed; otherwise by the effigies of others he is equal with Polycleitus, Myron, and Pythagoras. His Larilla is praiied, and his Weatler with the thorns, and his Apollo. Some think he had no other demerit, but that he gave his workshops to Xerxes and Darius. Praxitels was also particularly happy, and also celebrated in his works of marble. He made also in brases beautiful works; the rape of Proserpine, the Sybil or prophetess, and the drunken woman Bacchus, and a most famous fatyrs, which the Greeks call Peribiodon; statues also which were before the temple of Pelis, and a Venus which was consumed in the fire of Claudius's palace; his marble, famous through the earth, was equalled by himself only. Also statues called Telephus, Splanome, Oenophorus, Harmodius and Aristogeiton, the Tyrannicides; which were taken by Xerxes, the Persian king, and were sent back to Athens by Alexander. He made also a youth, fleaping upon a lizard, which he approaches to strike with an arrow; it is called Sauronoton. He made two statues, expressing opposite effects, a mourning matron, and a rejoicing harlot; they think this to be Phryne, discovering in her the love of the artif, and the reward of the woman: this statue poiffes much grace. Calamis 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 Calamis made other chariots, both with four and with two horses, in which the men are not inferior. Nothing is nobler than his Alcmenes. The disciple of Phidias, Alcmenes, worked in marble; also in brases he made a Pentathlet, who is called Enerinomenes. But Arifides, the disciple of Polycleitus, made chariots both with two and four horses. And Laza, by Iphocrates, is praiied. This is the harlot who in the lyre and song was the familiar of Harmodius and Aristogeiton, 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 Æsculapius and Seleucus; Bedas made Battus adoring Apollo, and a Juno, which are at Rome, in the temple of Concord. Ctesilus made a wounded man fainting; in which might be understood how much life remained; and an Olympian Pericles, worthy of the epitaph. 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 Philæus in Didymæus: it is of the Ægæentic mixture of brass. Also, 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 starts from the repulse of his action by turns. He made also Cele- tizontes, or boys holding hatchets. Chares made Alexander the Great and Philip his father. Ctesilus, or Desilus, made a Doryphorus and a wounded Amazon. Demetrios made a Lyphmachus, who was priest of Minerva fifty-four years. He married a wife of Minerva, which is called the Musical; he killed the serpents in her Gorgon and found the stroke of the harp. He also made Simonides, the horfeman, who first wrote of horfmanship. Darius made, among his famous works, two boys using the tirigg. Dimonyes made Proteus and Pythodorus the wrestler. Euphron's work is Alexander Paris, in which we praise all that is intelligible at once; the judge of goddeses, the lover of Helen, and also the lover of Achilles. His is the Minerva at Rome, which is called Catulliana, being dedicated in the Capitol by Quintus Lutatius Catulus; also the statue of Good Fortune, in his right hand holding a patera, and in his left a spike of corn and a poppy. Aloa Latona, the nymph, in the temple of Concord, suffaining in her arms Apollo and Diana. He made also achairot with four, and another with two hores: also Cliduchon, or the key bearer, of the most perfect form; also Virtue, and Gracia, both of them colossal; also a woman, admiring and adoring; and Alexander and Philip, in a chariot and four hores. Eutychides made Eurotas, in which many saw that art was more liquid than the river itself. Heglias made Minerva, and king Pyrrhus, highly praisd; and Cezilizontes, boys; and Cal- ton and Pollux, before the temple of Jupiter the Thunderer. In the Parian colony is the Hercules of Tisodoros. Eleutherus, the Lycian, was Myron's disciple, who made (worthy of his preceptor) a boy, blowing the languard fire; and the Argonauts. Leochares made an eagle, who understood what he took away in Gunymede, and what he bore, fearfully touching the wet with his talons; also the boy Autolycus, victor in the Pancratium, on whose account Xenophon wrote his Symposion; Jupiter also, thundering in the Capitul, praised above all; also Apollo with a diadem. Lyceus made the boy Lagon, cunning, false, and impudent. Lycus made a boy offering incense. Menechmus made one, with his neck bended, and his face pressing his knee: this Me- nechmus wrote of his art. Naucyes made Mercury, and a Discobolus; and, as it is thought, a person sacrificing a ram. Naucerus made a wrestler, drawing his breath. Niceratus made Æsculapius and Hygeia, which are in the temple of Concord at Rome. Pyromachus made a chariot with four hores, governed by Alcibiades. Polycles made a Her- maphrodite, a noble work; Pyrrhus, Hygeia and Minerva; Phoenix, the disciple of Lytippus, Epitheatæ; Stipax, the Cyprius, one celebrated statue, an augur; here was the flame 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 furnamed the Madman: in this he expressed not the man made of brass, but rage itself; a noble Achilles he also made, and Epithe exercising the athlete. Strongylos made an Amazon, which, from the beauty of her leg, was named Eucnemon: the emperor Nero always carried it with him; he also made a boy, whom the love of Brutus of Philippi rendered illustrious with his name. Thedorus, who made the lab- yrinth at Samos, cast his own likenes in brars: besides the admirable resemblance, it is celebrated for the delicacy of its execution; the right hand holds a file and the left a squire; it was taken to Præneste. He also composed a car and driver, so small, that they might be covered with the wing of a fly. Xenocrates, disciple of Titocrates, or, as others say, of Euthyraces, excelled, both in the number of his statues, and composed volumes on his art. Many artists made Attalus and Eunenous fighting against the Galatians. Isthmous, Pyromachus, Stratonicus, and Antigonus, composed volumes on the art. Boethus, although more excellent in working silver, made a most beautiful infant slanting a goafe. But of all the works I have mentioned (says Pliny), the principal were dedicated by the emperor Vespasion in the temple of Peace, and his other buildings, being brought together by the rapine of Nero into the city, and disposed in situations in his golden hourse. Befides, there are other artists equal in their merits, but none of their works are pre- eminent; Ariston, who was used to work in silver; Callides, Cefitas, Cantharas of Sicyon, Dionysodorus, disciple of Critia, Deliades, Euphorion, Eunicus, and Heata. Among the sculptors in silver were Leboedex, Prodrus, Pythodorus, Polygenius; these were noble painters; also among the sculptors in silver; Stratonicus and Scymnes, who was the disciple of Critias. Pliny then enumerates those who made works of this kind, as Apollodoros, Androphulos, Alece- dorus and Alevas, who made philosophers; Apellas made adoring females; Antigonus and Peryxionemon made the Tyrannicides above spoken of; Antiachus and Athene- dorus made noble women; Arilodemus made wrestlers, and a chariot with two hores, with their charioteer; philosophers; an old woman, and king Seleucus; his Doryphorus also is a graceful work. There were two of the name of Cephildoros; the first made Mercury feeding the infant Bacchus; he made also an orator, with his hand raised up, but the person is uncertain; the other represented philosophers. Colotes, who worked with Phidias on his Olympian Jupiter, represented philosophers; also Cleon and Chen- charms, and Callicles, and Cephis. Chalcodon was a comedian, and an athlete; Daisippus made a dirigilist; Dai- chon, Democritus, and Daimon, the philosophers. Epigonus excelled almost all the rest already recorded, in his imitation of a trumpeter, and a mother piteously embracing her slain infant; and Eutholis counting by his fingers. Mycon made a beautiful Athleta; Menogenes a chariot and four hores. Nor was Niceratus inferior to them all, representing Al- cibiades in his attack; and Demartarius facriciating; his mother lighting a lamp. Tistracres made a chariot and two hores; Pitho placed a woman upon it; also he made Mars and Mercury, which are in the temple of Concord at Rome. Perillus, whom no one prises, more cruel 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 himself, by a more just act of cruelty, was made to experience it. Thus a most humane art was called away from the simi- litude of gods and men. Was it for this that so many laboured to rear an art that it might become a torment?
SCULPTURE.

Therefore one caufe of preferring his work was that, who-
soever should fee 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 
arcer. Scopas worked in all kinds; athletes, and soldiers, 
and sacrificers. Batten, Eucharis, Cnideus, Heliodorus, 
Hicamus, Lophon, Lyfion, Leon, Menadorus, Myiaigrus, 
Polycrates, Polydorus, Pythocrates, and Protagenes, who 
were famous in painting. Patrocles, Polis, Fofidonius, who 
also carved excellently in filver; they were Ephesians. 
Pericles, Philon, Sinenus, Timothenus, Theomneatus, 
Timarchides, Tinon, Tiffas, Thrafon; among all thefe 
the most known and remarked is Callimachus, always his own 
calculator, nor did he fee any limit to his accuracy; hence 
he was called Cacizotechonas: he exhibited memorable 
examples of his exoffive attention. His are the dancing Lae-
demonian females, an over-laboured work, in which all the 
grace was taken away by the accuracy; he also, as it is 
faid, was a painter. One fature alone of Zeno, Cato 
in his expedition to Cyprus, did not feer: not gratified with 
the brafs, nor with the art; but because it was the portrait of 
a philofopher; this we observe by the way, although it 
may turn out an ufefcale example. One fature we much 
miff mention and not pafs over, though the author is uncertain 
concerning the Rochurn at Rome, a Heracleus, clothed in 
a tunic of the Elean habit, with a frowning face, as fuffering 
in the highest degree from the tunic. On this are three 
inscriptions, L. Lucullus, imperator, from his fpoils; the 
other is the fon of Lucullus, a minor, from fenatus confu-
tum: the third is, T. Septimus Sabinus, a curule edile, 
from his private property restored to the public. This 
fature was thought worthy of fuch a diftinftion. Pliny, 
I. xxxiv. c. 16, &c.

Dibutades, a Scyphonian potter, first found the art of 
making likenefles of clay, in Corinth, by the help of his 
daughter, who being in love with a youth who was going 
on a journey, fcored lines round the shadow of his face 
by a lamplight on a wall, which her father impreffing 
with clay, made a type, or cast, and with the reft of his 
pottery placed to be hardened in the fire. It was pref-
werved in the Nymphceum till Mummius overturned Corinth, 
as it is faid. There are thofe who fay that Rhaccus and 
Theodorus firft found out modelling in Samos, before the 
Battides were driven from Corinth. Demaratus fled from 
that city, and in Etruria was the father of Tarquin, the firft 
king of the Romans; he was accompanied by Euchira and 
Euframus, the modellers; by thofe modelling was firft 
broad into Italy. Painting them red, or making them 
of red clay, was firft practifed by Dibutades; he is the firft 
who added marks to the extremities of tiles which threw 
off the flowers, which at firft were called protypes; after-
wards he made clypves, or moulds of them; hence arifing 
at the top of the tile, they were named models. The like-
fets of man was taken from the face itself in plater; and 
clay was produced in that form as poured into the plalter. 
Lyflafatus, the brother of Lyfippus the Scyphonian, improved 
this invention; he firft determined the representation of 
portraits; for before him, they endeavoured to make them as 
handfome as possible. He did the like in his fature. Since 
improvements were made that no fature was produced witho-
ut a model. It appears, therefore, that this art was more 
ancient than casting in brafs. Damophilus and Gorgafus 
were very eminent modellers; they were also painters, who 
exercifed both arts: in the temple of Ceres at Rome, and in 
the Circus Maximus, there are vefers ineribed in Greek, 
which signify that the work on the right hand was that of De-

mophilus, and on the left that of Gorgafus: before this all the 
work in this temple was Tuscan, as M. Varro fays. From 
this temple, when it was reftored, the surface of the walls 
being cut away, the pictures were included in frames; the 
flates from the roofs also were difpcrcd. Chalcithenes 
made unburnt models at Athens, in a place which was called 
Ceramicus, from his workfhop. M. Varro fays that he 
knew a man named Alcis, who made at Rome bunches of 
grapes and apples, which could not be difcerned from real 
ones. He alfo extols Arceflus, the intimate friend of Lucius 
Lucullus, whose cafs often fold for more than the other 
works of his art; by him was made a Venus Genitrix, in the 
forum of Cifar; it was placed before it was finifhed, from the 
halfe of the dedication. Afterwards by the fame hand, 
a fature of Felicity was to have been set up, but both defigns 
were frustrated by death. A cup was made for Octavius, a 
Roman knight, the model of which in platter cost a talent. 
Pailetes is praised, who fays modelling is the mother of 
figurative, fculpture, and engraving. This art was very 
much used in Italy, and chiefly in Etruria. Turianus, 
being called from Fregillum by Tarquin the elder, made the 
fature of Jupiter, to be dedicated in the Capitol; it was a clay 
model, and, as ufual, coloured red; his was also the model 
on the top of the temple of a chariot and four horses, which 
has often been fpoken of. In this way he made a Her-
cules, which at this day in the city retains the name of its 
material. Pliny, I. xxxv. c. 43. 45.

The firft of all who were famous for marble fculpture, were 
Dipaeus and Scyllis, born in the ifland of Crete. When it 
was under the dominion of the Medes, before Cyrus began 
to reign in Perifia, that is, about the 50th Olympiad, they betook 
themselves to Sicyon, which was a long time the workfhop 
for the metals of all countries. The images of certain 
gods they publicly placed at Sicyon, but before they had 
finifhed them, the artifts, complaining of some injury, fled to 
Etolia. Forthwith famine and barrenness invaded Sicyon, 
and direful afflictions. A remedy being alfked from Apollo 
Pythias, he immediately anfwered, "Let Dipaeus and Scyllis 
perfect the fatures of the gods." They were intreated 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 ifland of Chios, Malas, a 
sculptor; then his fon Misciades; and then his grandfon An-
thenus, a Chian, whose fons, Bupalus and Antemerus, 
were famous in this fience 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 likenefs, produced in a vulgar joke, was 
held up to public ridicule: at which Hipponax, indignant, 
bore to hard upon them with the bitterrefs of his verfe, and 
compelled them to hang themselves. But this is an er-
ror, for many great fatures afterwards in the isles. 
In Delos, where the fong was compos'd, they 
could not escape the cenfure; but at昔 fome of 
Antemerus, the fon; and there is shown at Jaffus a 
Diana, made by their hands; and in Chios it is faid there 
is a Diana of their work, whose face is much above the 
fpicator's eye, and fo contrived, that to thofe entering the 
temple the appears fevere, but to thofe going out the ap-
pears exhilarating. At Rome their fatures are on the Pale-
tine Hill, on the top of Apollo's temple. In their country 
of Delos alfo are their works, and in the ifland of Leibos 
Dipaeus has certain works at Ambraecia, Argos, and 
Clone. All thofe artifts ized 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 finy glebe, divided by the wedges, fell apart, and an image of Silenus appeared within. It must not be omitted, that these arts, both of painting and sculpture, so anciently produced, were taken up by Phidias in the 3d 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 first of the Athenians; whose works are at Athens, in many sacred temples. Famed above the rest is his Venus without the walls, which is called Aphrodite in the Garden. It is said that Phidias put the finishing hand to this statue. His disciple was Agoranctus 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, Agoranctus sold his statue. It is a furnamed Nemefis. M. Varro preferred it to all statues. There are in the temple of Magna Mater, in the fame city, works of Agoranctus. Phidias is undoubtedly famous through all nations, which have understood the fame of his Olympian Jupiter. That thofe may know how deferestedly to praise his works, who have not seen them; we shall 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 25 cubits, composed of ivory and gold: in her shield the Amazonian war is engraved; in the swathing of the buckler, and in the concave part, the war of the gods and giants; in her sandals the Lapith and Centaurs, every minute particular put together with the greatest art. In the base 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 crest of her helmet, the sphynx of brafs. There are tranfient observations: the art can never be sufficiently admired, whilst it is known that he was no lefs distinguished by fuch magnificence, than by the smalllefs things. We have spoken of Praxiteles, among the ftatutes of his age, as having excelled in the glories of marble, others, and alfo himfelf. His works are at Athens, in the Cerameicus. But before all, not only of Praxiteles, but on the whole globe of the earth, is Venus, which is viewed by multitudes who fail to Gnidus. He made and alfo fold two ftatutes, one clothed, by means of which it was intended that there might be a preference. The Count took one at the fame price, confidering that as the more fervent and modeled. That which was rejected was bought by the Gnidians. Immense the difference in their fame! Afterwards King Nicomedes would have purchafed that of the Gnidians, promising to pay the whole debt of the city, which was immense. But they rather bore all, nor without caufe, as long as the fame of Praxiteles embaffed Gnidus. Her little temple was wholly open, that the ftatue of the gods might be viewed from all points; the gods favouring them, as it was believed. No part was seen with lefs admiration than another. It is said, a certain perfon was enamoured with the ftatue, and bid himself in the temple all night. There are in Gnidus other ftatues of marble, by illuftrious artists: Bacchus, by Bryaxis; and another, by Scopas; and a Minerva. Neither is there any other fpecimen of the work of Praxiteles more excellent than the Venus, that fould be recorded among them by ifelf. Of the fame artist there is one a Cupid, objected by Ciceron againft Verres; it is that for which Theophras was visited. It is now in the Octavian Gallery. His is alfo another Venus; in a Parian colony of Propontis, like the Venus of Gnidus in noblenefs and alfo in injury. At Rome are works of Praxiteles: Flora, Triptolemus, Ceres in the Servilian gardens, Good Fortune, and another ftatue of Good Fortune in the Capitol; alfo the Mazandes, and thofe called Thaidyes and Caryatides; and Silenus in Afinius Pollio's monument, alfo Apollo and Neptune. Cephisidorus was the fon of Praxiteles, and the heir of his art as well as of his eflate; whose wor of children embracing is at Pergamos, a very much admired and a noble performance of art: the fingers seem to imprefs the body rather than the marble. At Rome his works are, Latona in a chapel of the palace, Venus in Afinius Pollio's monument, and in the temple of Juno, which is in Octavia's portico, Eceusium, and Diana. The fame of Scopas contains with his: he made Venus, and Potnon, and Phaethon, which are worshipped in the sacred ceremonies of Samothracia; alfo the Palantine Apollo. The fitting Vesta is very much praised in the Servilian gardens; two charioteers or companions around her fitting on the ground. Two like them are in Afinius's monument, where is a canephorous, or man bearing a bafket, by the fame artist. But the greatest honour in Cn. Domitian's temple, in the Circus Flaminius, belongs to his Neptune and Thetis, and alfo Achilles; Nereides fitting upon dolphins, sea-monsters, and hippocamps; alfo tritons, and a chorus of phoræ and prifles, which are different kinds of fsea-monsters, and many other marine fubjects, all by his hand. This was a moft famous performance, if it had been the whole wor of his life. Now, besides what has been faid above, we shall speake of things of which we are not certain. A Mars of his work, colossal, a fitting figure: it is in the temple of Brutus Calliacus, in the Circus. Besides a Venus, in the fame place, furprifing the Gnidian, taking a preference to that of Praxiteles: it would have emblazond any other place. Rome, from its greatness, has caufed that work to be forgotten; and the crowd of bufinefs and offices draw away from obfervation, becaufe admiration of fuch things is fitted to great silence and more lefure. Equal doubt is in the temple of Apollo S. Ilians, whether Nobe and her children were made by Scopas or Praxiteles. Alfo James the father, which Augustus brought from Egypt, and dedicated in his temple, but of whose hand it is fame does not tell us. Likewife in Curia Oetavia, there is on attention concerning a Cupid holding the lightning: though at length it is affumed to be the likeness of Alcibades at that age. Many other things are in the fame gallery, which pleafe, whose authors are unknown: four Satyrs, with Bacchus, one of whom holds a flying garment over his shoulder; another similer Bacchus; a third quixing a crying infant; a fourth with a cup, satisfying the thirst of another with drink; two winds with flying vefts. Nor is there lefs queftion 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, Timothaeus, and Leochares, who are always spoken of together, because they wrought together on the Maufolenum. This was the sepulchre of Maufolus, king of Caria, which his wife Artemis made for him, who died in the second year of the 126th Olympiad. It is a work reckoned among the feven wonders of the world, which thefe great artists made. It is from forth to north 65 feet, but shorter in front: its whole
whole circuit is 411 feet, raised in height 25 cubits, surrounded with 36 columns. To the east it was sculptured by Scopas; to the north by Bryaxis, to the south by Timotheus, and to the west by Leochares. But before the work was finished, queen Artemisia, to whose husband's memory, and by whose command, this work was built, herself died also. They did not, therefore, recede from the work, judging this monument necessary to the glory of their art. Adjoined to them was a fifth artist, who, above the pediment, added a pyramid on 24 steps, contrasting like a cone toward the summit. On the top of all is a chariot and four horses, of marble, which was the work of Pythis. This being added, the height of the whole is 140 feet. The Diana in the palace at Rome is by the hand of Timotheus. In great admiration is a Hercules, by Menelcatus; and a Hecate, in the Ephesian temple of Diana, behind the building; in the contemplation of which, the keeper of the building admonishes you to spare your eyes, such is the radiance of the marble. Not less admirable are the Graces, in the vestibule at Athens, which Socrates made. The painter is another person, as some think. But Myron, who is famous for works of brass, made a drunken old woman, which is celebrated in Smyrna. Pollio Afinius being a man of ardent courage, wished to exhibit it in the monuments he collected. Among these are statues carrying nymphs, by Architas; Thephiades, by Cleomenes; Oceanus and Jupiter, by Eutychus; Hippiaides, by Stephanus; Hermocrates, by Tauriscus, not the celebrated carver, but one belonging to Trallianus; Jupiter Hopstitialis, by Pamphilius, bishop of Praxiteles; Zethus and Amphion, and Diere and the bull, the coids being of the same stone; it was brought from Rhodes, the work of Apollonius and Tauriscus, with their parent, who contended concerning the work. Mencrates was seen here; but Artemidorus was perfect nature. In the same place Bacchus, by Eutycides, is much praised; Apollo in his own temple, on the portico of Octavia, by Phileicus the Rhodian; also Latona, and Diana, and the nine Muses, and another Apollo naked. He who holds the lyre, in the same temple, was made by Timarchus. Within the portico of Octavia, in the temple of Juno, the goddess herself, by Dionysius and Polycles; another Venus in the same place, by Phileicus; other statues by Praxiteles. Alto Polycles and Dionysius, sons of Timarchus, made a Jupiter, which is in the adjoining temple; Pan and Olympus wrestling; and in the same place Heliodorus, which is another of the noblest groups in the world; Venus washing herself; Daedalus futing, by Polycharmus. The work of Lyfias is held in great reverence, from the honour which it appears to have had: it is in the palace over the arch. Augursus Cæfar dedicated it to the honour of his father Octavius, in a little building adorned with columns; also a chariot and four horses running, and Apollo and Diana of one stone. In the Servilus gardens are found, very much praised, Apollo, by Calamis, the sculptor; Pytheas, by Daucydes; or, as other copies of Pliny have it, the pythia or pugiles by Dercyli; Callithenes, the writer of history, by Amphilothius. Of many the fame is more obscure, because fame in great works is obstructed by the number of artificers; for each cannot occupy the glory which many equally partake; as in Laocoön, which is in the emperor Titus's palace, a work to be preferred before all both of painting and statuary. It is made from one stone, both Laocoön and his children, and the wonderful connection of the serpents, by the conjured counsels of those greatest artists, Agelander, Apollodoros, and Athenodorus, the Rhodians. In the like manner, in the Palatine palace of Cæfar, abounding with approved statues of Craterus with Pythodorus, Polyeuktos with Hermolus, another Pythodorus with Artemon; a single statue, by Aphrodius Trallianus alone. Diogenes, the Athenian, decorated the Pantheon of Agrippa; and the Caryatides, on the columns of the temple, are approved among a few of his works, such as being placed at the top of the temple, because of the altitude of their place, are less celebrated. Unhonoured is one, not in the temple, a Hercules, to which the Carthaginians a great many years offered in sacrifice human victims. It stands on the ground, before the entrance of the portico that leads to the statues of the Nations. There are standing the statues of the Thephiades before the temple of Felicity, of which one was loved by a Roman knight, Junius Phiceculus, as Varro relates; admired also by Pavius, who wrote five volumes on the noble works in the whole world. He was born on the Italian Greek shore. Rich both in the city of Rome and its towns, he made a Jupiter of ivory, in Metellus's temple, which looks toward the fields. It befell him, that in a ship, in which were African wild beasts, flanding at a den and carefully observing a lion, which he meant to carve, a panther broke loose from another den, not of flight peril to the diligent artist. He made many works, as it is said; but of those which he made, the names are not reported. Arcesilaus also is very much praised by Varro, who himself had a marble lioness, as he says, and winged cupids sporting with her; of whom some hold her bound, others force her to drink from horns, others kick her with their shoes: all of one stone. He made also, for Coponius, fourteen nations, which are in Pompey's circus. I find Canachus (says Pliny) very much praised among statues for works he made of marble. Nor must Saurn and Battrachus be forgotten, who made the temple of Octavia, included in the portico. They were Lacedemonians. 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 volutes of the columns, the signature of their names carved: a frog and a lizard. In Jupiter's temple is to be seen a picture, containing articles of dress, and all other things relating to women; for when the temple of Juno was completed, they and it carried in the statue, they are reported to have changed the moveables; and that being guarded by religion, even as the feat 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 testimonials 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 noblest 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 finest productions of portrait sculpture. The whole imperial series, both in busts and statues, down to the emperors Balbinus and Pupienus, pollutes the highest merit, and scarcely in that period flowed the decline of art; but from the time of these emperors to that when Constantine fixed his capital at Byzantium, the decline was so evident, that the life and beauty of former times were nearly extinguished in their productions.

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

The Trajan column is one of the most beautiful monuments of ancient Rome, and the most superb column in

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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 bas reliefs with which it is ornamented; which represent the first and second expeditions, and the victory obtained over king Decebalus. These bas reliefs are correctly designed, and most beautifully executed. There are numbered 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 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 Thomaso Porta. The fame 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 Blair-cafe contains 185 steps, cut in the fame blocks as the column; and to them are made 44 windows, which light the Blair-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 11 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 13; 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 porticos, and the edifices were built with the greatest magnificence after designs by the celebrated Apollodorus. These consisted of a temple or palace, where the confuls sat in judgment; the temple of Trajan, where was the Upian 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 structure. Trajan caused a valley to be filled up, andlevelled 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 so frequently 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 artist 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 Blair-cafe of 190 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 victors; 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 subdued 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 middling sculpture. It has suffered very much, and because it is partly buried in the earth, we cannot so well judge of its beauty; formerly there was an ascent to the top of the arch, by a Blair-cafe in the interior; and there was placed upon its roof the emperor Severus in a triumphal chariot 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, which were taken away from the arch of Trajan, present 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 empress 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 earliest of them, the arch of Titus, must have been executed about the year 70 of the Christian era, consequently when sculpture had lost much of its primitive ideal beauty; we shall of course find in these works little of sobriety and more of coarseness in the forms, confiling of subjects which were confined to battles, oblems, triumphs, and acts immediately confined to them. The Roman generals 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 felection of beauty in the works of Greece. The drapery and
armour are more complicated and divided than those of the ancient Greeks, added to the inferiority and confusion of parts, still augmented by the introduction of ships, bridges, piles of wood, battering rams, catapults and other military engines, &c., wholly omitted in the works of the belles-lettres. The contents are of the coarsest means, and of the most brutal force, unrelieved by any intercession of suprême beings, and unexcelled by the beauty of the ancients. With such a character in the whole, the sculpture on 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 Paulina, formerly on the arch of Marcus Aurelius, is a more sublime conception, the sculpture of the Trajan column has a great variety of natural attitudes, according to the situations in which the per sons are placed, and the relief has that general breadth, which is best suited to 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; from two colossal statues of marble on Monte Cavallo, standing before the pope's palace, each nineteen feet and a half high. The figures are in the prime of youthfully 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 Callot and Pollux, Achillies 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 Pegaseus. One of these statues bears the name of Phidias on its pedestal, the other statue seems to be of this original, revered by some other artist, to stand as its companion in some conspicuous situation.

In the court 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 gaiter is of one tone, and about 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 a cloak, to have had a chlamys hanging on the left arm; and is perhaps the same colossus of Domitian as that described by Philo Byzantius, according to his testimonies from different Latin authors.

There is, in the same court, a head in bronze, believed to be that of the emperor Commodus, which from other remaining fragments was a colossal statue also.

The equilibrated 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's Jupiter or Praxiteles's Venus, but in the cause of that sacred person who disclosed, and of his followers who propagated the new dispensation of mercy. The architects were employed in building Sancta Sophia and other great sacred 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 Alexander against the Christian divines, as induced the successors of Constantine to abolish the schools both of Athens and Alexandria; they also filled 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 Elis by Phidias, and the Venus at Gnido by Praxiteles, with other of the most distinguished works of pagan sculpture, were destroyed, either by imperial orders or the ravages of barbarians. The Iconoclasts, and the irruptions of the followers of Mahomet and other barbarous people, very nearly destroyed all the remains of the fine Greek sculpture in the East as well as in western Europe. This destructive fury against the arts and artists, continued with interruptions for a hundred years; still, however, the Christian Greek compositions 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 sack 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 Conius, 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 sacrilegiously rifed the corpses of those blessed 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 inestimable 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 bronzes, 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 basso 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 frolicking 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 Anemode. This excellent piece was also melted down for coinage, as was also an equestrian statue, fixed upon a quadrilateral pedestal in the Tauris. This was a bold figure, of an heroic countenance, and surprizing stature. He was faid to be one of the Spies who were sent by Joshua, the Son of Nun. With one hand he pointed eastward, 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 most likely figured, couring the plain, defying a rider, flying and driving about in a headstrong manner. This horse and his rider were also united down; the barbarous soldiers expressing their utmost fury against the fine statues and most curious pieces of workmanship in the Hippocum. The great statue of the Hesperian Heracles, which was fixed upon a magnificent pedestal, and clothed in a lion's skin, which seemed to live and affright 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 kneeled upon his left knee, and leaning upon his left elbow with his hand open, supported his head in a thoughtfuil manner, seeming to lament his misfortunes. This figure was broad-chested, the shoulders were large, the hair long, curled, and reaching to the waist; the arms were brawny, and as long as those made by Lyphimachus, which was the original of this, and was the first and last masterpiece of his skill. In short, of such a furious size was this statue, that his wrist was as thick as a man's body, and his leg equal in height to any ordinary person. This noble statue did not escape the rage of these mighty pretenders to virtue and honour. Besides this they also carried away the image of the aub and his driver, which figures were set up originally by Augilius Cesiar at Actium, of whom the story reports, that when he went out privately in the night time, to take a view of Antony's camp, he met a man driving an aub, and asking him who he was and where he was going; the man answered, "my name is Nicon and my aub's name Nicander, and I am going to Cesiar's army." The statues of the hyena, and of the wolf which ftruck Romulus and Remus, underwent the same fate, and were coined into little brazen flaters. The several statues also; of a man fighting with a lion; of the horse Nellus covered with scales behind; of an elephant with a moving probocis; of the sphynxes, beautiful as women and terrible as beails, 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, as she appeared when she fent her dogs to destroy Ulyfes. There was also placed in the Hippocum a brazen eagle, which was the invention of Apollonius Tyanes, and a celebrated monument of his forcry. This impofor being requested by the Byzantines to heal them of the bitings of ferpents, which were then common among them, using charms and diabolical ceremonies placed this eagle upon a pillar. It was a pleafant fight enough, and deferved to be more narrowly infpeded, for it made an agreeable harmony, and has dangeroufs than the Syrens. Its wings were stretcnd out as ready for flight, and it was trampling upon a ferpent, which wreathed itself about the eagle. The ferpent deemed to make the utmost effort to bite the eagle; the eagle looked brisk and lively, and deemed to have obtained the victory, and to be ready to bear him through the air in triumph, de-

noting that the ferpents that tormented the Byzantines would hurt them no more, but fuffer themselves to be handled and itroked by them. But there were not the only curiosities to be oberved in this aquiline flature; for the twelve hours were engraved under his wings, under each wing fix, which showed the hour of the day, by the fun darting through a hole in each wing made for that purpofe. There was also a fine flature of Helen, whose charms laid Troy in ruins; her fine proportions, in breathing brafs, captivated all beholders; her habit fat hoile upon her, which discovered too great an inclination to gallertry; 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 roes, you would fancy they moved; and fuch an agreeable fmile brightened her fountenance, as entertained the spectator's eye with pleafure. 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 flature flood the equantian flature of a man; the horfe 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 horfe was mallefome 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-feets and prancing as a war horfe. Near this flature, hard by the eafon general called Rufius, were a range of flatures of charioteers, dextrous in driving the chariot and turning the goal. They were very busy in managing their bridiles and养成ing their whips, and directing their horns, with their eyes fixed steadily upon the goal. There seemed to be defcribed in these figures all the tumult and fury of a chariot race, with the most vigorous struggle for victory. But what excited the greatest admiration was a large pedeftal, having on it an animal called in brafs as 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 prong, another animal, clothed all over with scales that seemed impenetrable. This appeared to be a bafilik; it had a mouth somewhat like a ferpent's. These figures seemed to reprefent an odd kind of fight, each of them furiously striv-

ing for victory. The creature which seemed to be the bafilik was in colour like a frog, and was all over blooted from head to foot; he was calling out his venom upon his antagonist, to deftroy him, while he was reprefented as bear-

ing upon one knee and in a languifhing flate. There was also a figure of another animal, in whose jaws were reprefented a fmalher creature whose mouth was open, as almoft choked by the teeth which held him, striving to get loose but to no purpofe. His tail, which was very short, seemed to tremble; his shoulders, his fore-feets, and a part of his body, were hid in the mouth of his enemy and mashed by his jaws. This is the cafe with nations and kingdoms, which thus mutually deftroy one another.

For further satisfaction concerning the flate of sculpture in the fourth and fifth centuries, a short description of the column of Theodorus, erected at Constantinople, will be added.

This column was, in its general flape and fize, an imitation of that of Trajan in Rome; although, by the description of fuch travellers as faw it flanding, it appears to have been larger, and formed of the fame material, flatuary marble, decorated like that column, with a spiral bas relief, from the bottom to the top of the shaft, furmounted by a flature of the emperor. The pedeftal was covered with mi-

litary
The marble bas reliefs, on one side of which was the emperor fitting, crowned by two victories, with a glory, including the crofs. The shaft of the column was drawn by Gentile Bellini; the subjects are, the triumphal entry of Theodosius, Arcadius, and Honorius, as it is believed, with the captive Goths and Lefter Tartars; their idols, kings, generals, waggoners, horses, draymen, elephants, and oxen; the captive multitude, with embolism figures, representing the city of Conflantinopole: and the various figures of the virtues, complimentary to the emperors, particularly relating to their valour and clemency. Whoever desires to be more particularly informed of the remains of ancient sculpture which decorated Conflantinopole, may consult Glyfius and Du Frenes, and the Byzantine writers.

Of Modern Sculpture.—From the fourth century the art continued to decline, by the inroads, 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 in his capital, and at Rome, and in the principal places of Romana and Lombardy, to build 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 of good architecture. The fame may be said of the church of St. Stephen at Rimini, of St. Martin at Ravenna, and of the temple of St. John, built in the same city in the year 438, by Gallia Placidia.

The capitals of column in buildings erected by Theodoric and his family, are grofs copies from the ancient Doric and Ionic, in which no attention is paid to the outline: the leaves and volutes are without relief; the whole malleys are coarse, and without effect: the sculpture of baffle relieve on the facrepofa of this king, 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 caufed the church of St. John the Baptist to be built at Monza, where was painted the history of the Lombards; her daughter, queen Gundigera, caufed a church to be built at Pavia. They are all of the ancient Gothic.

By the ancient Gothic is here meant a grofs imitation of the Roman buildings and Roman sculpture, without harmony, proportion of parts, or design, as nearly as the unpractised barbarians could imitate from the ruins of Roman buildings, without any science, and with clumsy instruments.

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 barbarians, who still remained averse 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 barbarous remaining works.

In the year 496, Clovis, king of the Franks, was converted to Christianity; 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. Germain, built by Childebert, fon of this king. Although these two venerable remains of antiquity have been destroyed in the French revolution, yet specimens of the sculpture are preferred among the French monuments at the church of the Little Auguflina; some of which, said to be of this age, appear to be much later, as the statues of the kings in the portico of St. Germain de Pres, which appear rather to have been done in the eleventh century. The capitals in this collection of the age of Charlemaigne, brought from St. Denis, exhibit sculpture, if sculpture it may be called, in its lowest rate of abatement; it is wanting in every principle of art, both of design and execution, and it is not without attention that you can discover that its efforts were intended for the representation of human figures.

What we have said of the rate of sculpture in France will answer equally well for every thing that was done in England, Italy, Germany, and throughout the continent, at this time.

In the year 805, Charlemaigne built the church of the Apostles in Florence, which has always been esteemed by architects of singular beauty, so that Brunifchetti took it as a model for long afterwards as the year 1400.

In the eleventh century, when the terrors of the Norman invasions, in addition to those of former barbarians, had passed away, the governments began to be more regular and established; agriculture and commerce began to revive; and the crusades had diffused a ray of light among the northern nations, derived from the arts and literature of the East, fo that then the arts of design began that regular course of improvement which has been denominated their revival.

In 1016, the Pifans founded their great church, called the Dome of Pifa. The commerce they had by sea, and particularly into Greece, was a favourable means for the re-establishment of architecture and sculpture. They brought from thence several columns and fragments of ancient architecture, 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 shadowing; their works were not very artificial, notwithstanding these remains of art taught the Italians the practice of painting in water colours, or fresco and molaco.

But among all the artists of that time was Bucchetto, a Grecian of Dulichium. The cathedral of Pifa 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, to compound together with his; these were fragments 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 they were known in other countries; and very great fabrics were reared in several cities of Italy. At Ravenna, in the year 1152, Il Buono, a sculptor and architect, built a great many palaces and churches: he also founded at Naples the calle of Capoano, now called the Vicarage, and called Delluno; also at Venice he built the temple of St. Mark.

In the year 1693, the spoils which the Pisans brought from Sicily enabled them to add to the magnificence of their cathedral. The capitals and fragments of pillars they had brought from Greece and Sicily, were employed in the cathedral church and in the Bell tower; in which latter building every capital almost is of fine ancient Greek workmanship. The sarcophagi, still preferred in the Campo Santo, formed the school in which Nicolo Pisano, and his successor improved their sculpture. The consequences of these improvements are seen in the works of Nicolo Pisano, which are the pulpit of Siena, the pulpit of the baptistry of Pisa, the bas relief
of St. Martin’s at Lucca, the bas-relief in the cathedral at Orvietto, and in other parts of Italy, in which his constant attention to the ancient bas-reliefs is everywhere observable. At this time the carvings had diffused such a spirit of piety, that magnificent churches were built all over Italy, in the designing of which, as well as in 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 bas-reliefs, 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 figures 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-two inches high, very highly finished in flat and color. There is in many of them a beautiful simplicity of sentiment, in those of the Last Judgment, and the other bas-reliefs that immediately relate to it, there are various expressive mannerisms of passion and terror. The pulps also in the cathedral of Sienna, and in the basilica of Pisa, which were before mentioned, are magnificent architectural designs, richly adorned with sculptural bas-reliefs by this artist.

At Pisa, in 1274, William Oltramontano and Bonnano, a sculptor, founded the steeple of the dome. The royal gate of braies in this church was made by Bonnano.

John Cimabue was born at Florence in the year 1248; he very much improved the art of designing; his disciple Ghiberti 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 mosaics; he went to Venice to perfect himself in that art; having learned that there were several painters who worked in that way in Venice, he engaged Apollonius, 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 platters that would last a long time; he died in the year 1294.

About the year 1215 appeared Marchione, architect and sculptor of Arezzo, who worked much at Rome for the popes Innocent III. and Honorius III.; he made the fine chapel of marble at St. Mary Maggiore, with the epulchre of that pope, which is the chief work of Ghiberti. 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 Amalfo Lipo, who learned architecture of his father, and designing of Cimabue. He founded the church of St. Croce, 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 sculptor and architect. In 1293 he was at Naples, and built there, for King Charles, the new castle, and several churches, and being returned into Tuscany, he made several pieces of sculpture at Arezzo, and also in other places 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 and delicacy 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; and there is so strong a resemblance between the styles of these statues and those of queen Eleanor at Northampton, Goddington, and Waltham, on her crooks; as affords reason to believe they were produced by one of the ablest of John Pisano’s scholars, if not from some statue or model by himself: nor is it here that the resemblance ceases, for this little 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, Agostino and Agnolo Sanedi; they were, in the opinion of Ghiberti, the best sculptors of the time, who procured them the chief buildings of Tuscany. They worked also at Bologna and Mantua, and bred up several ingenious pupils, and particularly carvers in silver, as Paul Aringino, a goldsmith, Maestro Cione, and Jacomo Lauriano, a Venetian, and Peter Paul, of the same city.

Ghiberti made designs for the bas-reliefs 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 Ghiberti was for painting. The bas-reliefs on the doors of the baptistery represent the life of St. John the Baptist, and pupils great simplicity and grandeur for the age in which they were produced.

Stephen Florentin, Taddeo Gaddi, and Peter Cavallini, were scholars of Ghiberti, 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 studies, and there is a fine Greek body of a man 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 assisted by the princes of Medici, 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 Sicily; where, in the time of the first ancients, the first academy of design had been established; this quickly flowed at Florence those great genius of Lorenzo Ghiberti, Donatello, and Brunelleschi, and many other ingenious contemporaries.

Bartoloccio 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 doors 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 pannels, 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 cast 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 also are too minute, curvilinear, and not well accounted for. He executed some bas-reliefs in bronze, on 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 fountains, and a triple crown for pope Eugenius; it was of gold and jewels, valued at thirty thousand ducats of gold. Afterwards he became supreme magistrate of Florence, but still practised architecture, managing for some time the building of the church of St. Mary del Fiore.

Donatello very much excelled the sculptors who had gone before him, in his copious compositions, and the passion and
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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 1403, and lived to be above 80 years old. His statue of St. George is a youthful pedestrian figure, standing with his legs considerably apart, his two hands before him, leaning on his shield. Michael Angelo admired the head of this figure so much, that he copied it in the monumental statue of Julian, Duke of Normut. Donatello designed some fine bas-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 composed and executed the greater part of those noble bas-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 excel. 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 fad of this artist, upon the Pythagorean idea of transmigration, 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 confuted. But there is another statue of a youth naked, about twelve or fourteen years old, in the ducal gallery, which is worthy to be ranked with the fine statues of antiquity.

Bruneleschi, 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 Verrocchio and Dominico Ghirlandaio, sculptors and painters in Florence. Verrocchio was an excellent sculptor and engraver, not only in brons, 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 brons for the oratory of St. Michael. He was the master of Pietro Peverino and Lionardo 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.

Dominico 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 from 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 1450, 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 of 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 Palquin. The Lacoone was found in the year 1506.

In the year 1474 was born at Florence Michael Angelo Buonarroti; he was brought up to learning, but burying himself always in private about designing, which his father observing, put him to Dominico Ghirlandaio. In a little time Michael Angelo distinguished himself above his other disciples by the surprising facility with which he designed. This great genius was very fortunately favoured by prince Lorenzo de Medici, who, with great love to art, and desiring to allure men skilled and learned therein, established in the gallery of his gardens an academy, which he filled with fine pictures and pieces of sculpture, both ancient and modern, and bought out at Florence those young designers who promised well, 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 so great an affection for Michael Angelo, that besides allowing him the pension, he made him a companion at his table, and gave him a lodging at his palace. After the death of this prince, his successor, 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 Lionardo 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 Pisa, and in the correctness of his naked figures; and to have an opportunity to shew it the better, he chose the time when the soldiers were bathing in the river Arno, to introduce the figures naked. Raphael, and the artists his contemporaries, improved the grandeur of their designs 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 stand 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, Mofes, 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 engaged by the pope to paint in fresco the archband 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 presents. 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 vestry, in the same church, for a mausoleum for the house of Medicis, and adorned the altar and walls with statues of Julian, duke of Normut, and
and the duke of Urbino, opposite to each other; with three
to the north side, the Virgin and Child, St. Peter,
and another faint. Both architecture and sculpture are
still admired among the finest productions of this artist.
The fortification of the city of Florence was committed
to him; he fortified mount St. Miniato; but when the
wars of Italy in 1525 obliged the artists to leave Rome and
Florence, Michael Angelo was one of the number, and
went 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 some 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 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 horsemen, and thoes on foot in dif-
ferent directions and inexpressible 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
surrounding 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 cauè 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 Farnese
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 piety 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; Solymn,
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 this great duke
called his body 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. Croce, at Florence, attended by all
the academy of design, who on that occasion gave sufficient
testimony of the esteem they had for their matter by the
magnificent representation which the Italians call Cattalino,
and adorning the whole church with painting, and sculpture,
and lights. A panegyric was there pronounced over him
by Mellor 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 sublime
and original; and his execution equally powerful, beyond
all those who went before him and all his subfrequent
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
fludied 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 pedestal is most whimsically adorned
with bas relief and chimerical figures relating to the sub-
ject.

After these artists, the Florentine school of sculpture
lingered into a late of inanity.

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 innumerable figures
for the colonnade of 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-
ginus; and four doctors, which support the chair of St.

This sculptor, whose works were so numerous, as he was
first a painter, and formed in the Lombard school, ende-
voured 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, smirking and con-
coited in their countenances; their forms are flabby and in-
correc; and their draperies confuted: yet this style, de-
praved and shony 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 these, it produced a train of
followers, Ruffon, Algardi, Mocc, &c. &c. who continued
to be employed, till within these fifty years, in Italy,
where
where the flimy materials upon which they formed themselves were entirely worn out; and the human intelligence returning to the essence 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 a better school, which promises something like a just emulation of the bell 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, were imitated 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. Lionardo 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, Couin, and John Goujon, whose bas-reliefs on the fountain of the Innocents 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 instance 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 Innspruck; 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 assemblage, 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 masculine 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. Also 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 provincial Roman arts. The Norman architecture and sculpture of this country were likewise an imitation of Roman art; but through the more distant 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 seen from the sculptures 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 in 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 exiled from the churches, the native genius of the country was 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 best of the foreign sculptors who have been employed since that time were Cibber, who executed the statues of raving and melancholy madness 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 are too often mean and vulgar. Scheemaker executed some of the statues on St. Paul's, and the bas-relief in the pediment; but he is not distinguished by 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 industry, 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 bas-reliefs which might be ranked with some of the ablest 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 fame 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 whole finer manufactures and more delicate works have claimed universal attention, and have been admired and collected by most of the curiosities. The Chinese sculpture must be noticed; though, from the productions we have seen in Europe, and from the best 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 most 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 missionaries
millionsaries who went over in the fourteenth century, their
casts received a further improvement from the learned and
ingenious Jesuits who visited them in the beginning of the seven-
teenth century; and again in the beginning of Louis XVIth'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 hell writers who
have written on that country; by the representation of Eu-
erpean head-dresses and fashions in their works; and by
Chinese subjects drawn and engraved by Jesuits who were
resident in that country, and whose style 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 first motive for the
employment of sculpture in Greece was religion, which
induced the several states and opulent individuals to vie with
each other in employing the choicest talents of their country-
men 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 poly-
theism. 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 deducing
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 magni-
ficent 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
skilful 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 assembled of Greece at
the Olympian exercises, and by that means enabled the
philosopher to analyze, 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 congratulations of the whole state.
The victor was likewise honoured with a brazen statue on
the very ground where he had shewn himself properly quali-
fied 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 institu-
tions of Greece, will sufficiently account for the immense sums
expended in works of sculpture, and the prodigious multi-
itude 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 2000l. There were 8000l. brimming of gold in
the statue of Minerva made for the Acropolis, besides the
ivory, workmanship, and all other expenses.

We are besides told of another statue of the faze of nature,
valued at 15,200l.; and of another, the Venus of Gidors,
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 can bestow on man, were of a su-
preme 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 philospher of the highest character
also, what he says upon this subject cannot be too carefully
attended to; and indeed it applies to the progressive improve-
ment in this art from the rude representation of the
human form to the most perfect; and to the separate con-
deration 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 na-
tions 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 archetype was superior to such barbarous primeval at-
ttempts in general.

These attempts and their improvement have always suc-
cceeded best in those parts of the human figure which are
nearest to our view, or present themselves to us as most
striking and important. In such representations, the fea-
tures of the face are more accurately represented than any
other part of the figure. The body, the arms, and legs at-
tract the most general and least distinct notice; therefore the
first improvements in the earliest statues of Greece remain-
ing, approach only to something like a more tolerable propor-
tion, 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
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will conseqently be expected. Sitting, lying, running, or striking, will nearly comprehend the whole extent of the artist's variety in a single statue or bas relief. In this state of improvement it is in vain for us to expect any discrimination between the characters of gods and men; they were all represented by the same forms: and Jupiter, Hercules, Mercury, and Neptune, were only known from each other by the thunderbolt, the bow, the caduceus, or the trident.

According to the general improvement of science, as the observation of the course of the heavenly bodies, the divisions of land, and marking out the plans for building on the ground, had introduced some practical application of geometrical lines and figures, which must precede observations on the balance and motion of bodies; and as something more like anatomical knowledge was obtained from the sacrifice of animals, or observations on the dead left on the field of battle, or a human skeleton casually found; these affinities afforded light on the structure and movements of man; so the artist, applying principles as he became master of them, copied his example with more accuracy, and represented 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 eye-lids 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 brow a little more prominent; some indication of the muscles of the abdomen by cross parallel lines; the hollow in the loins 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 improvement may be seen on the Greek painted vases, particularly those which have black figures on them. There are also many small bronzes, which are demonstrations of the same progress of improvement.

In the age of Phidias, when geometry had made considerable advances, as we find by the writings of Plato, when anatomical researches had been prosecuted with care 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 agriculture 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 distinction 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 Theseus 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 careless 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 dawning of beauty in Grecian sculpture, this will be the place for some enquiry 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 practically learn, that a particular make was favourable to a particular exertion, as long legs were favourable to walking and running; broad shoulders and a full chest were accompanied by strength. The observations of physicians would assist in ascertaining the more convenient form of all other parts of the body and limbs for strength and exertion; then inquiries into the animal economy of the body would assist their determinations relating to health or sickliness, in the whole or the parts, according to outward appearances. All this would assist the artist in the determination of what he should choose and what he should reject in his imitations. The bloom of youth, the prime 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 the more readily to distinguish the various characters of tender infancy, the venerable solemnity of advanced age, and the graceful forms of female elegance.

But other distinctions and other characters still remain for the artist to become acquainted with, to qualify him for the extensive representation of gods, demigods, and heroes, human creatures and internal beings; and this could not be done by the simple representation of common forms and common expressions, such as continually presented themselves, but by a selection from nature of whatever was most excellent in form, accommodated to the highest qualities of mind, to represent the higher orders of beings, and their opposites in those which are below humanity, and partaking ofnoxious and infernal nature.

Mere form, however harmonious in its proportions, or beautiful in the smoothness and perfection of its finisheued surface, without the expression of sentiment and action, is but dead, and no other than a corpse which has been quitted by its immortal spirit; therefore the artist's great and most important interest, after he had obtained the geometrical forms of body, was to watch the strongest mood of the soul to find a correspondent in form, to accommodate to the highest qualities of mind, in order to give animation to his works. It was his concern to investigate and represent decidedly the strongest affections, conjugal, parental, social, and sordid; the sentiments of piety and religion; the inclinations of passion in their different degrees, whether of love or hatred; for, by these means only his works fallen on the kindred affections of the spectator, and obtained his effect.

The Greek artists who gave their first mental improvements to their works, sought for nobility of sentiment and distinct characters 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 omnipotence and extent, and the limited powers of humanity, derived and finite.

From these they learned that all bodily perfections 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 extend; so the expressions of the most perfect mental qualities added the most perfect animation of beauty to those forms, and gave the most perfect characters of magnanimity, justice, 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 that virtue 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, beauteous 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 consistent with the greatest dignity the human head is capable of; and the bonelike
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 corporal employment; his mental energy regulates the universe by his rod; 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 petasus, 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 dressed 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 staring 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 less 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 peplos, or large veil: her countenance is lovely; 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 mystic drum; the other by ears of corn.

Diana has her hair collected on the top of her head; like her brother Apollo her tunic is incassê, not reaching lower than her knees, its length being shortened by the tyding of her zone; she wears bulkins, 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 Archilus 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 is known to every one, by his numerous representations in sculpture and painting. It is well remarked by Winckelman, 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 bulls 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 ministers of Bacchus; in this class we shall mention the Sileni, the fother-fathers or nurses of Bacchus, one of which is a dwarfish figure, with a round belly, fat limbs, a Socratic 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, with a head and beard bearing some distasteful 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 tenuidous, like those of wild animals, and suited to the elaticity of their actions; they have short goats' tails.

The Satyrs have goats' legs, their bodily conformation like the fawns, they have pricked ears, sometimes long goath 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, swollen and terrible; 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 diatophins, have hair, faces, bodies, and arms like the fawns, but with slimy hair and gills, their lower halves ending in the tails of fishes, horns, bulls, &c.

The genii 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 dispositions. 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
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beautiful virgins, in the flower of youth, embracing each other.

The nymphs of Diana are habited like their patronesses.

The Furies are handsome, but with a terrific expression of countenance; their hair dishevelled, winged, and with two small serpents rising from the tops of their heads. Their dresses are a succinea tunic, like Diana's, 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 deified personification in Grecian mythology; but those who have occasion for a more intimate knowledge of their system of theology, and its different relations, as well as its innumerable allegorical forms and monsters, must be referred to their poetical and mythological writers, and the various publications of ancient painting and sculpture, with their illustrations by the learned.

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 square 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 sole of the foot; which general observation leads to the determination, not only in the position of the body and limbs, but to the balance of 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 gullet between the two ankles.

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

If the figure is in equipoise, the centre of gravity falls from the gullet 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; Copper on the Muscles; 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 palled perpendicularly downwards. The head is thrown forward over the neck and the breast, to serve as a counterbalance with the breast against the projection of the shoulders; and the projection of the nates 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, after wards forms a bold curve outwards between the shoulders for the next twelve joints downward to the loins, 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 counteracted by the length of the foot, and its fulness for support.

The general form of the head, viewed from the top, is circular, being larger at the back of the head and narrower at the forehead. The general view of the head in front is egg-formed. The simplest 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 most of the ancient ideal heads are formed. Force and passion are deviations from this principle by the application of curves in the outline; or else bold, and the face of infancy is described by one portion of a circle forming the forehead, and another the cheeks, with a small nose 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 channel from the pit of the stomach to the navel. The lower muscles of the abdomen to the os pubes are a little swelled and nearly plain. The sides of the ribs under the arms are marked with gentle divi tions 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 loins is a curve outwards, as has been already described; and the spine, or back-bone, which is the pillar of support to the upper part of the body, the arms, and the head, shews behind as an indentation between the two rounded portions of the 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 bold 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 limb. 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 first joint of the first finger; the middle finger is the largest; the next finger outwardly 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 breadth; the knuckles are more square and decided even in youth. The female hand is more rounded and fleshy; the fingers are more perfectly cylindrical and tapered, the knuckles less decided, having little more distinction than gentle hollows in the more constricted positions 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 loins 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 iliac bone, which is marked immediately before the projecting muscles, which terminate the line of
the trunk, and immediately above the setting on of the thigh, and is marked with a strong line obliquely descending to a point at the greatest projection of the os ilium in front, and forming from thence a nearly inverted semicircle to the top of the os pubis.

The thighs are fullest and roundest immediately at their separation about half way downwards: they gradually diminish toward the knee.

In the upright figure the knee-pan above, with the ilium and fat immediately below it, form what is altogether generally called the knee-pan, of an oval figure, and is the great distention of the knee in front, between the thigh and the leg. The inner line of the principal bone of the leg, or tibia, is a long curved outward in a hollow of about 30 degrees. The inner ankle is higher than the outward. The calf of the leg is most projecting, near one-third of the way from the joint to the bottom of the heel, and behind in a flatish forked division, sends a strong muscle united with the tendon of the heel, making together the backward profile of the leg. The outside of the leg has its principal curvature rather lower than the inside. The toes are shorter than the fingers; the longest toe is next to the great toe; the great toe is the broadest; and in those not used to wear shoes, divided from the second toe by a considerable separation. The three toes on the outside of the foot are shortened in a diagonal line. The characteristics of the male and female in this extremity are nearly the same as in the hand.

In stronger figures the joints are marked with more strength and complication, the muscles are more decided, more of the tendons are seen, and occasionally the veins, particularly towards the lower parts of the extremities. The flealthy projecting parts of the figure in old age are more flattened, which indicates the diminution of elasticity as well as muscular power.

The female figure is generally about one-tenth shorter than the male; its bones are more straight, and legs more rugged towards the joints, as the attachment of its muscles are stronger; the forms of the body and the limbs are more rounded; the differences of the male and female bosoms are well known. The shoulders of the female are narrower in proportion than those of the male; the loins are narrower and the hips are broader.

In infancy, although the proportions are very different from the adult male or female, yet the roundness of the limbs and body, little distinguished by the marking of bone at the joints or projecting muscle between the joints, approaches nearer to the smooth and generally rounded surface of the female figure.

Vitruvius informs us, from the writings of the most eminent Greek painters and sculptors, that they made their figures eight heads or ten faces high, and he imitates different parts of the figure measured according to that rule. The great M. Angelo adopted this rule, as we see by a print from a drawing of his. We shall adopt this method in giving the most general proportions of nature and the Greek statues.

Proportions.—Divisions of the human figure in length.
From the os pubis to the top of the head, one-half of the figure; from the same point to the sole of the foot, the other half.
There are three equal divisions from the acromion of the scapula to the bottom of the inner ankle. 1st. From the acromion to the point in the spine of the ilium, from which the rectus and tautorus muscles begin. 2dly. From thence to the top of the patella. 3dly. From the top of the patella to the bottom of the inner ankle.

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 nose 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.

Breadth of the upper arm, one nose and a half; side view, two noses: lower arm, thickest part, one nose and a half; wrists, one nose.

Breadth of the shoulders, two heads; of the loins, one head and one nose; across the hips or trochanteres, one head and two noses. Depth of the cleft, one head and one-third of a nose; of the loins, three noses and one-third of the glutei, one head. Breadth of the thigh, three noses; of the calf of the leg, two noses; of the ankle, one nose. The foot is one head and one nose in length.

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 Herculeus Farnese 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 person. There are examples of the Silenus, and Hercules also, when he partook of the same 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.

Drapery.—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 squarish 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 muffs 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 peplos. The figures of Jupiter and Eclipsus are sometimes seen wrapped in the peplos, 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 tassels, or knots.

The chitone seems to have been a finer and lighter woollen garment than the peplos, 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 Horfmen in the Parthenon at Athens.

The tunica, or kiltan, 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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leg; but when collected by the girdle, did not reach lower than the knees. This seems to have been made in general of the same material with the chlamys. The chlamys is a military and hunting cloak, fastened with a button on the right shoulder, as that worn by the Apollo Belvidere.

Female Drapery.—The kiton, or tunic, was worn by the Greek women in very early times, but was generally made to pass over each shoulder, excepting Amazons, or female warriors, who sometimes had the right shoulder left bare; but the female kiton, or tunic, reached to the feet, and was lower than the ankles, even when girded by the zone. This was made of a finer material than that worn by men: it is called bombyx, and appears to have been produced from a thread woven by wafirs, or infants of that kind, and to have formed a delicate and fine texture, capable of producing long and varied folds, without lessening the distinct appearance of the figure underneath.

The peplos, or long veil, is described as a dignified garment by Homer; it was worn nearly in the same manner by women as by men, and is a characteristic of dignity, as Juno, Minerva, Vesta, and Ceres are seldom or never seen without it in a placid state.

Besides the kiton, the dignified female Greeks had another garment, which answered the name of toga, called the peplon, which appears to have been one piece of cloth doubled over at the top, folded round the left side, the left arm having passed through the top; open on the right side, which presented two cascades of folds: these are continually seen on the Greek vases.

Many other garments were worn by women, which frequently occur in statues, baso relevos, and painted vases, which answer to our shifts, petticoats, handkerchiefs, and bodices, and are easily distinguished in the works of ancient painting and sculpture; but as a more intimate acquaintance with these concerns the antiquary rather than the artist, we shall refer those who are curious on the subject to lexicons and scholiasts for further information.

The Roman toga appears to have been originally Italian, and was so entirely appropriated to the Romans, that they are thence called gens toga. Collected in its folds, it appears to have been of an oval figure, through the opening of which the head, the right arm, and half the body on the right side passed, the garment rolling on the left shoulder, being supported by the left hand, falling below the middle of the right leg, and presenting almost innumerable continued curvilinear folds, which encircle the figure before and behind from the left shoulder downwards. A lap of this garment was brought from behind over the left shoulder, tucked into the upper part in front under the right sleeve, which fold was called the cinctus Gabinus, and was laid to be a fashion brought from the city of Gabii. It was worn by emperors, consuls, noblemen, and Roman citizens: in general it was made of a fine woollen cloth, as most of the Roman garments were.

In reflecting on the beauty of drapery, we must always refer to the beauty of the human figure which it covers; and as garments are worn for a defence against the weather, or from motives of modesty, they should never be such an incumbrance as to impede action or overload the figure, either by their quantity or mode of wearing; which rule being observed, the general idea of form and action will always be intelligible underneath; and thus, however the figure may be covered, the plainer parts of the garment will give a breadth of light and shadow to the mass, and its folds a beautiful variety of form, either in harmony with, or in opposition to, the forms of the limbs and body.

The cascade, or zigzag fold of a long full garment hangs from the shoulder towards the feet, by the irregular geometrical effects of its light and shadow, shades the undulation of living forms on the opposite side of the figure, whether covered with drapery or not, with an advantageous variety.

The fine and web-like draperies, such as that of the Flora Farnef, shew all the forms of the body and limbs with nearly the same distinctness as if they had remained uncovered, at the same time that the gentle radiated curvilinear folds, upon a near examination, contral the beautiful forms of the body by a variation of lines tenderly afiliated with the flesh, in such a manner as induces the spectator to believe that the least motion of the body will produce a different, and equally pleasing new arrangement in the folds of the drapery.

What has been said concerning drapery comprehends the principles of the subject; for it was the intention on the fine statues of antiquity to produce a noble breadth by their draperies, conformable with the dignity of their most illustrious characters. In their more delicate characters they contrasted the beautiful form beneath by the graceful display of lines in the drapery; and in all their clothed figures, they adorned the forms of the naked figure by perpendicular, curvilinear, pendant, or zigzag folds, contrasting the forms and adding quantity, but leaving the figure and its position perfectly intelligible.

In the figure of Bacchus in violent action, the flying drapery becomes peculiarly ornamental; verging from the figure in undulating rays, which at its edges and extremities play upon the air in bolder 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 executes a small model, generally in clay, to try the effect of his lines, forms, 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 lay figure, or maminikin.

The clay model, if large, must be supported by a framework of iron; and the mailes of clay may be kept together by a number of small wooden crosiers attached to the iron framework, by wires of different lengths differed 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, or 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 practicable 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 ruff 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,
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 baulement of stone, or a strong wooden bench, called a banker; in the front of which is a long flip of marble, divided into feet and inches. A slip 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 slip of marble or scale under the model, to the slip 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 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 his chisel went before, 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 leffer parts at his pleasure.

This method of cutting the stone 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, 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, crisp, or plain; and this may be done by the hand of the practised 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 fulness of muscle; the apparent pliability of the fatter parts, the greater or leffer durabiliy of tendon 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 purpoze of imitative art.

The last finish of marble, in the modern practice of sculpture, is performed by the use of raps, and afterwards of files. The belt raps for sculpture are those made in Italy; the teeth of these raps being cut more sharply than those made in England, at the same time that the ends of these raps 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 punice-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 uses large square four-footed strong tools, with tops which turn round upon little balls of brass or iron, on which he places the marble statue he works on. His tools are steel chisels of different sizes 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 of the work. The first tools used in working away his marble are strong steel tools, sharpened nearly to a point; which, being struck with a heavy hammer obliquely, knock off the waffe marble in much larger pieces than a broader pointed tool would do.

The practice of the sculptor also requires the frequent use of the square 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, Egin, 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 imperfect, indirect, and ragged; the surface it passed 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 undermined, and the hollows are few and shallow; a natural conformation of the workman’s want of power over his material; and therefore, of his desire to produce his idea in the groves, because he knew his incapacity to render a distinct 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
tempering of tools; and, secondly, the first high finished specimens of remaining sculpture seem to be imitations of bronze statuettes, from the hardnecteds of execution resembling that of metal, and the rectilinear wavy forms of hair and drapery. Whether this manner of finishing marbles was first introduced by Diphæus and Scyllis, according to our former supposition, or whether it was practiced nearer the most diluting epoch of art, it is certain that the working of marble with the greatest possible dexterity, such as diluting small folds from one another, by cutting the marble to a great depth between them, was practiced 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 most perfectly tempered; of which we are assured, by tracing the forms of the several instruments in their execution, which is as free and characteristic of the parts imitated as could have been produced by the pencil of the painter.

The Laocoon, the Apollo Belvidere, and the Venus de M è d i c i s, appear to have been executed by the chiselled only, without the assistance of the rasps or file, though there is, in the body and limbs of the Apollo, some appearance of a smoother surface being obtained by rubbing with pumice-stone or wet grit-stone. Many others of the finest works of antiquity, statues, groups, and busts, appear to have been finished with the chiselled 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 depended from perfection in the same steps by which it rose to it. In the age of Adrian and the Antones, extreme high finishing was again in fashion; 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 Borghèse.

But the extreme attention to a polished surface, and extreme perfection of inferior pursuits, having withdrawn the artist's mind from noble conceptions and sublime sentiment, he soon deserted from the sculptor to the stone-cutter, and left his distillation even as a mechanic, by adopting such a poverty of workmanship as was suited to his debased pursuits; and the age of Constanține exhibits the sculptor as incapable of following the noble conceptions of earlier times, as ofewing 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, porphyry all 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 Winckelman's History of Art: he says that a mason was employed to hollow out a vase in the Villa Albanè, 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 in England, as masons are paid at this time, would cost sixty-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 talke 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 sarcophagus of Constanține, daughter of Constanține; the other of Helena, his mother; which last is of enormous dimensions, and covered with alto relievo of soldiers on horseback, and the heads of the emperor and his mother, angels fitting, with festoons on the top, &c. Many parts of the alto relievo on this sarcophagus were broken when it was removed into the pope's museum, which were repaired by the following procefs. The pieces of porphyry intended for the relievation were first rudely shaped with a picking hammer, that is, one end of the hammer being pointed, the workman knocked the stone with repeated blows of this hammer, until it broke off little pieces, when it was reduced to the general form required: in this manner another instrument was used, called a matting 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, file twice 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 stone from flying in his eyes, which otherwise would blind him in the course of a few minutes labour. The tools for this work are tempered to the hardnests of a razor, and seldom bear 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-stone 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 procefs somewhat similar to the manner of working porphyry.

Of Wæx-Modelling. — Wæx-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, no wax model of the Greek or Roman times has come down to us, they must have been almost innumerable during the hell ages of Greece and Rome, judging only from their small figures of divinities in bronze, of which, perhaps, upon an average, every perfon, rich and poor, might have half a dozen, so that the amount of these small images, from patterns of wax, would be nearly fixed times in number of the population of the civilized world at any one period. Wæx-modelling besides is required for the patterns of all goldsmiths' and chafers' 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 bell 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 low fire till the wax is melted, stir the composition together, and it is the bell 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 practised 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 beat hollow on the one side, to produce the relief, out of which the chaser 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, somewhat like those used in the marble of 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.

SCULTENA, or Scultena, the Panaro, in Ancient Geography, a river which commenced on the south of the Apennine, and purifying a northerly course, discharged itself into the Padus or Po.

SCULTETUS, or Schultz, 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 Stuttgard, 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 first 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 trephine, and for empysema. His principal work is entitled "Armamentarium Chirurgicum, 43 Tabulis auncis Ornatum;" 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 Dié. Hilt. de la Médecine.

SCUM, or Scupa, Scuma, a light excrement arising from liquors, when briskly stirred; 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 scoria.

Scum of Lead, is a kind of recrement, of various colors, procured from melted lead.

Scum of Nitre. See Nitre.

Scum of Salt. See Salt.

Scum of Silver, is what we commonly call litarge 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 squama, the scales of any metal, and particularly applied to the flakes flying off from hot iron under the hammer. SCUOE, Skoë, or Skoe, in Geography, one of the Faroe or Feroe islands; 5 miles S. of Sandoe. See Feroe.

SCUPI, in Ancient Geography, a town of Upper Maffa, 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 leathern pipe, called the scupper-hose, which hangs downward from the mouth or opening of the feeper. The intent of this is to prevent the water from entering, when the ship inclines under a weight of sail. Falconer.

Scupper Nails. See Nails.

SCUR, in Agriculture, a precipice faced with rock.

SCURCOLLA, in Geography, a town of Naples, in Abruzzo Ultra, 16 miles S. of Aquila.

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

SCURF, in Medicine, Furfur, small branny or powdery exfoliations of the cuticle, which occur after slow 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 scurblamina, takes place in the form of large flakes, or of smaller scales; but in the minor degrees of inflammation, such as of the formation of pimples, or in flinch erythematics affections, a mere fleckings ensues. In some cases of scurf, indeed, as in the sandriffle of infants, and in other forms of pityriasid, 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 frequent itching. The scurf itself, indeed, 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 slight farinaceous decoction, as of bran, is to be preferred to soaps and other irritants. This clearance of the surface having been effected, some gently refringent lotion, such as lime-water, with or without a little of the liquor ammonize acetate, or a weak solution of the salts of zinc, may be employed with advantage; or if the irritability of the parts be considerable, the scurfine substances may be preferable. See PITYRIASIS.

SCURFF, in Ichthyology, an English name for a species of salmon, called also in some places the bull-troach. 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.

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

SCURGUM, 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 melanotus, or common jackdaw. See Corvus.

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

SCURVOGEL, in Ornithology, the name of an American bird, called by some the nnder-apoa, and by the Brasilians jabiruzuaca. See MYSTERIA.

SCURVY,
SCURVY.

SCURVY, in Medicine, Scorbuta, a formidable and often fatal disease, arising from imperfect nutrition, and other causes, and characterized principally by extreme desolation of the vital powers, together with spongy rents of the gums, ecchymoses, or purple bleats, on the skin, and spontaneous hemorrhages. From its frequent occurrence in long voyages, it is sometimes called emphatically the febrif; but it is by no means peculiar to seamen, and was described as an endemic of the land by the earliest writers.

After having stated this brief character of the disease, it can scarcely be necessary to remark, that the term febrif is most erroneously and absurdly used in popular language; being applied, in fact, to all ulcers of the skin, of a flow and chronic nature, however various in their essential character, and polliching nothing in common with the true febrif. The skin, in febrif, indeed, is not the seat of the disease, but is only changed, like other organs of the body, in the progress of the malady; and that derangement is totally different from the inflammatory, pimply, cutaneous, or febrif conditions of the skin, which occur in leprous, tertiers, and other cutaneous disorders, usually miscalled febrif.

This niflake requires correction, not merely as a matter of nomenclature, but because a great practical error results from it; namely, the administration of antifebrif 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 Ulcerations.

The febrif, properly so called, was first accurately described, and received its name, in modern times; and it is the subject of dispute, as in the case of some other diseases, whether it was known to the ancient physicians, or is a malady of more recent origin. The irj specific accounts of the disease 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 noticed by the early voyagers in the preceding century; for considerably more than half the crew, who accompanied Velco 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 at considerable length, and states that it was known to the inhabitants of Saxony by the name of fæbrus, or febrif; whence the Latin term febrifus, and our appellation febrif. The term signified foremouth, and was probably applied to the disease in consequence of the puffy ulcerations of the gums, with hemorrhages, and looseness of the teeth, which are among the more severe symptoms of the complaint. Dr. Lind, however, fugghets, with still more probability, that the name was derived from a Scavonian word, febrif, signifying disease; the febrif 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 febrif, as a single distinct disease, there 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 unpracticed in long voyages, probably never witnessed the febrif, 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 feasons of great dearth were not uncommon in those times, and gave rise at least to the ignis facer, which appears to have been nearly allied to febrif; and the following observations relate to no other known disease.

Hippocrates, when describing the ulcers of the spleen, mentions some symptoms which accompany the enlargement of that organ. "The colour of the body," he says, "is changed, and becomes black and pallid, like the rod of a pomegranate; the breath is fetid, and the gums also emit a fetid smell, and fall away from the teeth; ulcerations break out in the legs, resembling cutaneous parts: the limbs are emaciated, and the bowels do not discharge their contents." (Lib. de internis Affeq.) And again, in his second book of prognostics, Hippocrates observes, "In those who have tender spleens, the gums are diseased, and the mouth emits a fetid odour; but those whose spleens are enlarged, without any concomitant hemorrhages, such persons are attacked with ill-conditioned ulcers in the legs, and black etcars." Here we have an additional symptom of febrif mentioned, viz. the hemorrhages, which were omitted in the former description. Thoie, however, who expect to find only the utmost accuracy in the works of Hippocrates, will perhaps be surprised to find that he has again described, still more distinctly, the symptoms of febrif, under another appellation. For in the same book (refpefting internal diseafes) in which he has noticed the enlarged spleens, he mentions the symptoms of the "lesus hematorum (-like objecit)," or bloody febrif. We have the same disease begins in the autumn, and exhibits the following symptoms. The mouth and teeth emit a fetid smell, and the gums separate from the latter, and blood flows from the nose; sometimes also ulcers break out in the legs, and while some of the head, others break out afire; and the skin about them is of a black colour, thin, and tender." This may be deemed a good brief description of febrif; and if the commentators are right in their correction, the concluding symptom is equally characteristic: "the patient is indisposed to walk, or to use any exertion." The suffage, as it flounds in Hippocrates, however, affists the affirmative, that the patient is disposed to exertion; a circumstance inconsistent with ulcerations of the legs, hemorrhages, and the other symptoms, that the commentators agree that the negative particle must have been omitted. Van Swieten remarks, that the epithet of thin or tender-skinned (scorbos), which Hippocrates applies to these patients, is particularly characteristic of the febriful state; since "we observe in the febrif, that the slightest injuries break into the skin, and leave rubbiul ulcerations in it; and this more remarkably happens in the legs, where only scratching them with the finger-nails will often raise an excoriation, that is followed by an ulcer of long continuance." (Comment. in Boerl. Aph. 1448.)

Cellus, when treating of the affections of the spleen, mentions this indisposition of ulcers to heal; "Ut hic in omnino non saneta, aut certe electricum virf receptum." And we may add, that the opinion of the commentators, respecting the sentence above mentioned, is confirmed by the statement of Cellus, who distinctly afferts, that exertion is painful and difficult. (De Medicinâ, lib. vi. cap. 9.) Paul of Jégina (lib. ii. cap. 99), and Avicenna (lib. iv. tom. 17, tract. 2), as well as other Greek and Arabian physicians, describe the same febriful symptoms as connected with tender spleen. Modern observation has occasionally detected enlargement of the spleen in febriful cases, as in an instance related by Dr. Mead (Manuscrit Precico. Med. 1. book 4). Such an enlargement is not always present, and it is probably that Hippocrates and the ancients, who saw the disease but seldom, had generalized too hastily from a
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 frowncaces, (quasi stomatik xanos, aris vitium) and the latter fcelerybe. (Phin. Nat. Hist. lib. xxv. cap. 3.) Similar affections, to which the same appellations are given by Strabo, are said to have prevailed in the army of Aælius Gallus, when in Arabia. (Geograph. lib. xvi.) Some authors, however, have denied that this fcelerybe could be a scurvy-like symptom; because Galen has stated fcelerybe 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 scurvy 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 or in the great South sea, in besieged towns, in frozen countries, and in ships, when fresh food is not to be obtained. Poupart has very correctly remarked, that the malignant scurvy 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, described by Thucydides, considers as deserving no serious confusion. 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 scurvy, the result of dearth, the καινομ μετο λιμον, of which we hear so much in ancient history; it had feverish symptoms in common with scurvy, but was a febrile disease; and has been ascribed in modern times to diseases of corn, instead of the scarcity and deficiency of that nutriment.

See Ergot; Ignis Sacer; Krisbel 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 scurvy is an aversion to any sort of muscular exertion; a lassiness, or strong inclination to lie still or to lie in bed; which is accompanied with a spontaneous latitude, or a fenfe of heaviness in every part of the body, and especially in the muscles of the limbs and loins, like that which arises from great fatigue, which soon becomes actual feebleness, 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 a very early a change of the complexion, which becomes pale and bloated, or fallow, especially about the lips and corners of the eyes, where there is a greenish tinge. These two symptoms, indeed, the disinclination to exertion, and the fallow countenance, often portend the approach of scurvy, 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 distemper throughout its course.

As the disease advances, other symptoms appear. Among these the flomaaces, or morbid condition of the mouth, is one of the first that presents itself. The gums become hot and painful, and soon swell, growing soft and spongy, and of a livid hue, and afterwards extremely putrid and fungous, constituting one of the most distinguishing features of the disease. This occasions great fever in the breast, and the looening of the teeth, which become moveable in their sockets, and may be taken out without force or pain, and even fall out spontaneously. Hemorrhages also take place from the slightest pressure on the gums, or even without any apparent cause, as well as from the nose; 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 solids, and especially in the vascular system.

From this cause the skin also exhibits some of the most striking characteristics of scurvy. It becomes dry, and spotted over with discoloursations of a red, blueish, purple, and black hue, of various sizes, from the petchie, or spots like flea-bites, to the most extensive ecchymoses, of the size of a hand-breadth, or larger, such as are produced by the seveelt 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 consist, 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 solids becomes still more manifest, by the frequent and profuse bleedings which are liable to occur from different parts of the body; especially from the nose, gums, mouth, bowels, lungs, kidneys, and bladder, and from the ulcers and fungous excrescences which arise on the surface. In some patients, the hemorrhages 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 anaemia, and retain longer the impression of the finger. They appear remarkably also, in the great facility with which the slightest 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 diffusion of old fractures in bones. "Whatever former complaints," Dr. Lind observes, "the patient has had, especially bruises, wounds, &c.; or whatever present disorders he labours under, upon being afflicted with the scurvy, his old complaints are renewed, and his present rendered worse." Indeed the scurvy often first shews itself by the changes in diseased parts. "Thus, when a person has had a preceding fever, or a tedious sickness, 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 exercise by having a fractured bone, or from a bruise or hurt, these weak and debilitated parts become almost always first scurvylike. 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 seamen, in this case likewise the legs are always first affected, and these ulcers put on a scurvy-like appearance, although the patient seems otherwise perfectly healthy, and preserves a frech good colour in his face." (Lind.) The effect of the disease upon former maladies is strongly depicted by the elegant writer of lord Anlon'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 virulent diftempor. Of this there was a remarkable instance in one of the invalids on board the Centurion, who had been wounded above fifty years before at the battle of the Boyne; for 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 thereby disjoined, and the fracture seemed as if it had never been consolidated." (A Voyage round the World in 1740-4, by Lord Anson, compiled by the Rev. R. Walter, chaplain to the Centurion, p. 101.) 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 excrescences, which are not inaptly called by the sailors, *bullock’s liver;* since to this substance, when boiled, Dr. Lind says, they bear a near resemblance, both in consistence 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 last 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 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 swelled joint." (Lind, loc. cit.) We have given this description in the words of Dr. Lind, in order to shew how distinctly it answers to the account of the *feolyerbe,* occurring in the Roman armies, in conjunction with the *flomacare.*

In the progress of the scurvy, the patients commonly complain of pains, which are often moving from part to part. Some complain 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 breath, is very common. The head is fickle or never affected, unless the patient is feverish, which is uncommon; 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 fever symptoms above described, with painful spreading ulcer of the surface, with contracted limbs, hemorrhages, spogy, putrid, itching 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 patient, even in this stage, have a good appetite, with their lefves entire, and, though easily dejected and made low-spirited, yet, when in bed, they make no complaint of pain or sickness, and appear to be in tolerable health. This singular character of the disease is well depicted by the reverend author before quoted. "Indeed, the effects of this disease," he says, "were in almost every instance wonderful; for many of our people, though confined to their hammocks, appeared to have no inconsiderable share of health; for they eat and drank heartily, were cheerful, and talked with much firmness, 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 confided in their seeming strength, and have resolved to get out of their hammocks, have died before they could well reach the deck. And it was no 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 utmost 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 diffe-asions 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 extraction of blood, and of the dissolution and separation of parts naturally united. Thus the bodies of the muscles were often swelled and hard, from the blood fixed among their fibres, so that the limbs remained bent or contracted; and the epitypalsy of the bones were found separated, the cartilages of the ilium were loosen from their union with the bony part of the ribs, and the ligaments of the joints were corroded and loose. He adds, that the menseenteric glands were generally obliterated 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 existing causes exist: and inactivity 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 marines on ship-board, who have left 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 defiency 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 behiged 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 difficult of digestion, or from containing but little nutriment, 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
especially with the nature of the remedies. As the disease is most frequently occasioned in modern times by a fea diet, it has been ascribed to the use of falted 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 falted 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 flesh, cheese, &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 Athos, in 1736, and subsequently in their march to Oczakow, the scurvy prevailed to a great extent, although their diet did not consist of falt-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 sicknesses, and ultimately the scurvy. (See Dr. Nitzch's account of this disease in the Russian armies, quoted by Dr. Lind.) The famine 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 groat and viefold 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. epistolaica de Scorbuto; which contains the case 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 severer 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 excite 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 cases 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 1693 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, provision, and utensils, thought necessary or useful in such a situation. The journals of both companies are preferred. The men at Greenland began to make a constant 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 disabled, except one person. This poor wretch continues 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 for 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 side of Spitzbergen, and in nearly the same latitude, a boat's crew, consisting of eight Englishmen, who had been sent ashore 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 cooperings belonging to the fisheries, 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 caffes and boats, which they broke up, and, before the cold weather set in, they laid in a considerable stock of provision, having killed a good number of deer, the greater part of which they roasted, and flowed in barrels, reserving some raw, which became frozen. This provision, with a few beavers 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 froggs 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 sun from the horizon, from October fourteenth to February third, of which period twenty 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 fasting 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, unaffected by scurvy or any other disease: at the return of the hours 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 Literary and Philos. Society of Manchester, vol. i. p. 80. et seq.) Another still more striking illustration is related by Dr. Aikin, in the paper just referred to, in the case of four Russians, who were left at Spitzbergen, and also found a hut in which they resided above six 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 fifth year. This person, it is remarked, was of an indolent disposition, and could not conquer his aversion 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 at a distance the scurvy, which is endemic in Lapland, Norway, Sweden, Russia, and in latitudes much less northerly than Greenland."
SCURVY.

Other circumstances, both on ship-board and on land, by impairing the general vigour of the constitution, conspire to produce the scurvy. Thus it was observed to be endemic at particular places in Holland, while others, where the same diet was used, remained entirely free from it. Bonnefous, a very able and accurate writer on the subject, remarks, that it was much more frequent in his time at Amsterdam and Alkmaar, than at Gouda and Rotterdam; and at Dort it was hardly ever to be seen. He observed, indeed, that universally in all parts of the country, where the soil was fertile and damp, it raged with the greatest violence; and that the weather had great influence upon it, southerly winds, if long continued, multiplying the disease, and rainy seasons rendering it quite epidemic and malignant. The changes that have taken place in the condition of the land, and in the mode of living, since the wealth of Holland has increased, have rendered the disease much less frequent, and have confined it almost exclusively to the poor, who inhabit the low damp parts of the provinces, and continue to live upon dried meat and coarse bread, and to drink unwholesome flagrant water.

The effect of certain depriving palliatives, not only in predisposing to the scurvy, but in exciting and aggravating it, has been strongly manifested. Vander Mye exhibits a curious and diversified picture of the operations of the pallsions of the mind during the famous siege of Breda, when the scurvy committed great havoc in that town. Upon the report of bad news, it always spread affrightingly: but it was in a manner altogether checked by the arrival of agreeable intelligence. And the writer of Lord Anson's voyage observes, "it was most remarkable in all our reiterated experience of this malady, that whatever discouraged our people, or at any time dampened their hopes, never failed to add new vigour to the dilimeter; for it usuallly killed those who were in the last stages of it, and confined those to their hammocks, who were before capable of some kind of duty; so that it seemed as if the acuteness of mind and fanguine thoughts were no contemptible preservatives from 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 point out the essential nature, or proximate cause, as it is technically termed, of the malady, before treating of the method of cure, which should generally be deduced from the consideration of the whole of those circumstances taken together. In this case, however, we can scarcely difcuss the nature of the proximate cause, without a previous knowledge of the means by which the malady is prevented or removed; 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 removing or counteracting the predisposing and exciting causes, which have already been enumerated. Much is done, therefore, by preserving a due degree of general health in the individuals exposed to the exciting causes; especially by avoiding cold and moisture, by means of proper clothing, warm cabins, &c.; and by avoiding indolence and inactivity on the one hand, and over-fatigue, watching, &c. on the other. The effects of the former are exemplified in the comparative exemption of even the petty officers in a ship of war, while the crew suffer severely. "The Channel fleet," says Dr. Milman, "has often buried a hundred men in a cruise, and landed a thousand more afflicted with scurvy, and yet 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 one as well as the other is obliged to live on the ship's provisions. The only difference is, that the petty officers sleep in close births, as they are called, with canvas hing round, by which they are sheltered from the inclemencies of the weather. Besides the advantage of warm cabins, they are more warmly clad, and having a greater plenty of clothes to shift, they are less liable to continue wet, or to be too unclean as the common men." (Milman on Scurvy, p. 31.) But the security from scurvy, obtained by attention to these points of general health, was most strikingly manifested in the judicious management of Captain Cook, by which he was enabled to repeat the voyage, in which the scurvy had proved so fatal to lord Anson's crew, without losing any man by that disease. The great navigator studied and enforced the rules of general health with great affability, and his success was complete. 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 four of duty, and did not get the broken sleep, which men in their situations have generally obtained. They had thus time to re-ecruit their strength before they were summoned to return to their labour, and they were likewise less exposed to the weather, than if they had been at watch and watch. If the men get 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 unlathed, and fo 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 floe, kindled, and carried successively to every part below deck; which not only contributed to dry the ship, but by heating the impure air below, and rendering it specifically lighter than the common air, to make it rife and pass through the hatchways into the atmosphere. In the torrid zone, he shaded his people from the scorching sun, by an awning over his deck; while in his course under the antarctic circle, he had a coat provided of a substantial woollen stuff, with the addition of a hood to cover their heads. The Ruffian bour, Dr. Milman remarks, seems to be greatly indebted to similar 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, clothing himself in warm flannels, covering himself at night with warm sheep-skins, providing for his cleanliness with the regular 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 require afflachment in their solution 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 deprives it of its saline parts, and may be made more palatable by impregnation with carbonic acid gas, or with robs 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 salt beef and pork, to be given to his men, as is customary. It did not escape that sagacious officer's notice, that such gross indigible matters had a great tendency to excite scurvy. Thus,
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 feamen lived with impunity on their fat provisions. And a familiar 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 preserved in a climate reputed to be unwholesome; and that too, when exposed to the hardships which follow a flate of frequent or constant preparation for action." (Trotter on the Scurvy.) 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 feamen from scurvy by the use of four krount 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 acetic 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. McBride, viz. the essence or extract of mait. It was recommended upon the hypothetical notion, that it contained much of the cementing principle, as he called it, or that principle which, when present in animal and vegetable substances, prevents the process of putrefaction; and that by retorting this principle to the blood, the disaease, which arises, 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 mait as a part of naval victualing, are to be ascribed rather to its being a wholesome, nutritious, and digestible substance, consisting principally of vegetable mucilage with some sugar, than to the 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 possefs 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 flate. These substances, we believe, are now considered as among the necessaries for a long voyage, and are probably much more efficient than the four krount, essence of mait, &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 unchangeable. 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 use of fresh vegetables, almost of any sort, commonly proves effectual. The instinctive feelings of the sick, indeed, direct them strongly to the use of the chief remedy; for there is perhaps no desire so intense, as that which the scorbutic patient feels for the use of green vegetables, fruits, and acids; infomuch that the sailors of lord Anton's ships greedily devoured the grafs, 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 sea-scurvy; whence forrel and such like plants, but above all limbs, lemons, oranges, apples, currants, &c. act in a manner as specific in relieving the disease. All succulent vegetables, and thse especially, which are of an aromatic nature, are useful, particularly when combined with the acid ones; whence scorury-grafs, horbe-radifh, cawees, purflam, and the tetradynamic, are ranked among the antiscorbutics, and numerous plants have been specified by different writers as polesfied of special virtues. On the whole, however, the acid juices appear to be most speedy and effectual remedies for scurvy, especially thse which approach to the nature of the citric acid.

The testimonies in favour of the specific curative powers of these acids in scurvy are so numerous as to leave no doubt of the fact. Even Dr. Lind, with whose hypothesis respecting the nature of the disease the fact was not quite compatible, admits, in his postscript, their striking efficacy. "To what has been already said," he observes, "of the virtues of oranges and lemons in this disease, I have now to add, that in feemingly the most desperate cases, the most quick and feeible relief was obtained from lemon-juice; by which I have relieved many hundred patients, labouring under almost intolerable pain and afflication from this disease, when no other remedy seemed to avail." As the acid is apt to operate violently upon the stomuch and bowels of thse who are much weakened, Dr. Lind recommends the addition of wine and fugar, as confounding the belt antiscorbutic, and was in the practice of ordering about four ounces and a half of lime or lemon-juice, and two ounces of fugar, 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 use of these acids, even though at the same time they produce a very lax or purging flate of the bowels, and a some degree of emaciation; while, on the other hand, the use of fresh animal food, strong broths, 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 stimulent applications will not alter the condition of these fores: yet in less than twenty-four hours after the use of lemon-juice, the livid complexion of the fores, 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 inverterate stage of the disease seems to gather strength even from the
fight of the fruit; the spirits are exhilarated by the taille 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 eye and bloated looks in a few days put on the clear healthy 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 bespeaks a degree of irritation 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. Loc. cit. 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, steel, Peruvian bark, and the various vegetable bitters, which have also been considered as antifeptics, or antidotes of pinterfaétion, are incapable of affording any effectual relief. And wine, which has been found a valuable remedy in some low fevers, gives but a momentary lassitude; 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 stage of the scurvy.

In speaking of the predisposing causes of scurvy, we have mentioned the effect of the deprevying pains in inducing and aggravating the disease, and we have now to mention, on the other hand, the remarkable effects of hope, and the exciting pains, 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 dearth 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, fail'd to he of great price, but of still greater efficacy: many more were yet to be lent. 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, that three or four drops were sufficient to impart a healing virtue to a gallon of liquor. We now displayed our wonder-working balms. Nor were even the commanders let into the secret of the chest put upon the soldiers. They flocked in crowds about us, every one soliciting that part might be referred for their use. Cheerfulness again appears on every countenance; and an universal change proceeds in the foreign virtues of the remedy. The herbs now began to spring up above the ground, we of th'se made decoctions, to which wormwood and camphor were added, that by their prevalent flavor the medicines might appear of no mean efficacy. The flint contrasted limbs were anointed with wax melted in rape-seed or linseed oil. The invention of new and untried phyllic is boasted; and amidst a defect of every necessary and useful medicine, a strange medley of drugs was compounded. The effect, however, of the delusion was really astonishing: for many were quickly and perfectly recovered. Such as had not moved their limbs for a month before, were seen walking the streets found, upright, and in perfect health. They boasted of their cure by the prince's remedy: the motion of their joints being restored by a simple friction with oil, nature now of itself well performing its office, or at least with a small assistance from medicine. Many who declared that they had been rendered worse by all former remedies which had been administered, recovered in a few days, to their inexpressible joy, and the no less general surprise, by the taking (almost by their having brought to them) what we affirmed to be their gracious prince's cure." This account of the curative influence of the phials is fully sanctioned by the statement 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 haemorrhages, pensive gums, ulcerations, diarrhea, swellings 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-baths, &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 of 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 febrile sufferer. We have heard much of feverishness and 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. 251.

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 properties of the living solids. 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 astringency 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 astringency from salt and putrid provisions and foul water,
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 false, 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 putrefacions of fish, from that notion, which it is the chief cause of the disease. (See his Obs. on Dif. 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 feator of the breath, and of the ulcers; from the black colour and loose consistence of the blood; from the putridity of the urine; from the purple blotsches 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, for ascertaining that blood, drawn from scabrous persons, even in a dying state, discovers no fungible tell of either acrimony or putridity, by the tache or the smell; that the serum of such blood is as taftelefs 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 slices of mutton, immersed 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-veffels, it is followed by speedy death. (See a Diff. by Dr. Scybert, on the Putrefaftion of the Blood, Philadelphia, 1793.) The ordinary fcrotions from the blood are not putrefcent, as has been ascertained. Dr. Lind affirms, "the urine in this diseafe was not found to be more offensive to the smell, nor to corrupt sooner, than that of a person in health; and their sweat is not fetid, or more disagreeable than when they are in health: the fame may be laid of their flocks." (Poll. Script. p. 515.) The fame experienced physician judiciously observes, "the offensive smell from the mouth of scabrous persons, when alive, seems to me to proceed solely from the corrupt ftate of the gums. For in their dead bodies I never perceived any unusual marks of putrefaftion; they were neither more offensive, nor liable to corrupt sooner, than any other corpe." In a word, the notion of a putridity of the circulating blood is but only unsupported by actual evidence, but is refuted by all know facts and observation; and these experiments of Dr. Lind prove that there is not even a proneness to putridity existing in either foids or fluids.

Carefully account, then, for the phenomena of scurvy upon the other hypotheses, which affcribes the malady to certain morbid conditions of the living foid? This view of the subject was ably advocated by doctor, now sir Francis Milman, in one of the most elegant medical effays 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 affords 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 preftent, 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 fystem, and of the muscular irritability. This has been accomplished at great length by Dr. Milman, taking this ample enumeration of Boerhaave, in his 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-disposing 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 Lucrctius, which appears to have been commonly the refult of famine, and often called pestilence, (whence M. Poupart was correct in comparing the epidemic scurvy of Paris with some of the ancient plagues) seems to support the fame doctrine. (See Ignis Facer.) And all the pre-disposing causes, on the one hand, which are principally debilitating causes, fatigue, indolence, want of fufficient sleep, cold and moifure, and the means of prevention, on the other, which are fuch as support the general vigour of the constitution, moderate exercise, fufficient sleep, fresh air, warmth, &c. concur in evincing the flate of the moving fibre to be the source of the morbid symptoms. The fame 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 fystem, is manifest both in health and disease, to a degree that unlearned fersons will scarcely credit. (See Imagination, Influence of, and Imitation.) The fcharcs of blood from the relaxed and enfeebled of the foids, the gangrenous and confequently putrefcent tendency of the gums, and other delicate parts, the fainting and even dying on the lightest exeretion, the droptical elfeets, the labouring breath, the opprefion about the heart, &c. &c. appear to be the refult of mini- fified strength in all the muscles, and of enfeebled action in all the foids, the confequences of a general failure of the vital or nervous powers.

Such then, appears to be the advantage, in point of argument and analogy, which the doctrine of diseased foids polleflies over that of acrimony and putrefacions in the fluids. Nevertheless this theory is by no means satisfactory: it is in some measure, indeed, incompatible with the mott striking and well acertained fact, that this scurvy is not curable by those means which appear to contribute in general to the strength and activity of the foids, fuch as fresh animal food, wine, bark, foupes, &c.; while it is fpeedily and certainly removed by the use of vegetable acids, which contain no nutritive quality, and are so far delusive 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 polleflion of a certain remedy, and our knowledge of the means of prevention, may fairly supercede all hypothefes upon the subject. In this, and in all other diseases, experience and observation are the only guides which the judicious physician will follow. The infalliible demands of theick point out the source of relief, as 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, and to have inferred, that by anticipating them it is prevented from occurring. This is the true source of all our knowledge, medical or physical; and our hypotheses respecting the obscure agencies of nature, which are incomprehensible, as the empires of old widely maintained, are at least superfluous; for they are not the cause, but the result of our practical information. "Repetis deinde medicinae remedii, homines de rationibus eorum differere capiisse; nec poss rationem medicinam esse inventam, sed potentiam medicinam, rationem esse quæsitam." Cellus, Prefat.

Before we conclude, however, we may be allowed to notice one theory, to which modern chemistry has given rise, but which appears to us to be as imperfectly developed as those to which we have already alluded. Dr. Trotter has advanced this doctrine; and we believe the late Dr. Beddoes has maintained a similar opinion. As the acidifying principle which exists, but is rather loosely combined in the vegetable acids and green vegetables (the oxygen of modern nomenclature), appears to be wanting, not only in the salted and other animal substances, but also in the lactic and unfermented vegetable food, which has given rise to scurvy, it has been suggested, that this oxygen may be the remedy for scurvy, and its absence from the fluids and fluids of the body, the proximate cause of the disease. This supposition Dr. Trotter considers as farther confirmed by the blackness of the blood discharged, and by the speedy change to a florid hue, which the fungous ulcerations assume, within a few hours after the acids have been administered. For it is well known, that such a change is always the result of the contact of oxygen with the blood, and that it takes place regularly in the lungs, during inspiration, the black blood of the veins being converted into florid arterial blood by that process. There is some plausibility in this view of the subject; but it affords no means of explaining the concurrence of the symptoms, and does not lead us to any additional expedients for the cure. In the application of the remedies all agree, and their peculiar explanations of their operation are of slight importance. For, as the sanguinary empirics of antiquity contended, "nilit itas cogitationes ad medicinam pertinere, eo quoque duci, quod, qui diversa de his fenferint, ad eadem tamen sanitatem homines perduerint." Cellus, loc. cit.

There is a singular disease, which, in many of its symptoms, resembles the scurvy, and is commonly confidered to be of the same nature; but which differs very materially in the circumstances under which it originates, and in the remedies which it requires, of which we have already treated at length under its proper head. This has been described under various denominations, such as land-scurvy, petechial, flat, florid, fine, flat, hemorrhatic, purpurea, &c. See Purpurea, and Hemorrhæa.


SCUTARI, in Geography, a town of European Turkey, in the province of Albania, anciently the residence of the kings of Illyricum, situated on a lake to which it gives name; now the residence of a beglerbeg, a Greek archbishop, and a Latin bishop; 52 miles S.W. of Ragusa. L. lat. 42° 27'. E. long. 14°. - Alfo, a town of Alpine Turkey, in the province of Natolia, on the Bosphorus, opposite to Constantinople, called by the ancients "Chryopeolis," as being the emporium where the Perians collected the tributes of their acquired dominions: this town, after having experienced many vicissitudes of prosperity and adversity, is now full of houses and mutes. It is a fashion for the Turks at Constantinople to be interset at Scutari.

SCUTARIENSE PROMONTORIUM, in Ancient Geography, a promontury of Asia Minor, in the Thracian Bosphorus, N.E. of Byzantium. SCUTARIUS, among the Romans, besides its ordinary signification of a shield-maker, was used to denote one of the emperor's life-guards, because their whole body was covered with armour.

SCUTCHEON. See Escutcheon. SCUTCHEON-Grafting. See Engrafting. SCUTE, a French gold coin of 3s. 4d. in the reign of king Henry V. And Catharina, queen of England, had an assurance made her of sundry cables, manors, lands, &c. valued at the sum of four thousand scutes, every two of which were worth a noble.

SCUTELLA, in Botany, a little dish, or saucer, is used by Dillenius, Linnaeus, and their followers, for the peculiar receptacle of the seeds in most species of Lichens, see that article; and which is nearly all that we know of their fructification. This receptacle consists of a smooth disk, almost always of a different colour from the rest of the plant, as well as from its own border. Its internal substance is of a dense spongy, corky, or waxy texture, filled with innumerable parallel vertical cells, each of which contains a row of seeds, usually eight in number, one above another. The disk itself is either flat, slightly concave, or somewhat convex, bordered by a rim, formed out of the leafy or crullaceous frond, and sometimes by an elevation of its own sub stance. The latter is the case with those Lichens denominated tuberculata, whose disk often becomes so much elevated as to overtop, or obliterate, this kind of border. The rim formed out of the frond is termed by Acharius margo accessorius; which is of the substance of the disk is his margo proprio.

Some confusion has arisen in the English denomination of the part in question, which is now universally called a festa, in preference to Dillenius's word saucer; nor will any one, surely, disapprove of the change. The source of the Latin festella is festum, a feast, and Linnaeus, in his Philosophia Botanica, appears to have intended using festella, a little shield, instead of festella, a little dish. If he had kept to the former, our English word would indeed have been more strictly correct, but it is still sufficiently to preclude any necessity of altering what is now generally adopted.


Gen. Ch. Cal. Perianth inferior, of one leaf, very short, tubular; rim almost entire, after flowering closed with a lid, permanent. Cor. of one petal, ringed. Tube very short, bent backwards; throat long, compressed. Upper lip concave, trid: the middle segment concave, emarginate; lateral ones flat, rather acute, lying under the middle one. Lower
Lower lip broader, emarginate. *Stam.* Filaments four, concealed under the upper lip, two of them longer; anthers small. *Pil.* German superior, four-cleft; style thread-shaped, resembling the filaments in situation and length; stigma simple, incurved, pointed. *Peric.* none, except the closed calyx, which is shaped like a helmet, triangular, burrowing at the lower margin. *Seeds* four, roundish.

Obf. This genus is easily and sufficiently distinguishable from all others by the fruit alone, for the closed calyx, containing the seeds, with its crest and lid, somewhat resembles a helmet.

Eff. Ch. Rim of the calyx nearly entire, closed, 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. (Califide orientalis, chamaedrys folio, folio luteo; Tour. It. v. 2. 129, with a plate.)—Leaves with deep parallel teeth; downy beneath. Spikes cylindrical, slightly quadrangular.—Native of Barbary and the Levant, flowering from May to July. *Stems* nearly a foot high, branched from the bottom, spreading on the ground, taking root at the lower joints. *Leaves* flaked, almost pectinate, more or less downy; green above, but white underneath. *Spike* rather short, composed of bright-yellow very handifome flowers, with ovate brown bracteas. The whole herb is bitter. In the *Systema Vegetabilium* the corolla is said to be purple with a white lip; confounding it perhaps with the next species.

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 flalks. *Spike* 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 last, of which indeed it may possibly be only a variety. The *spikes* are shorter, and the *corolla* is larger in proportion to the size of the bracteas, lilac-coloured, with a yellow palate. *Leaves* rounder, less downy beneath, but soft on both sides. Dr. Sims says it approaches very nearly to the variety of *S. orientalis* found in Georgia by Tournedos, and described in his travels.


4. *S. lupulina.* Tartarian Skull-cap. Linn. Sp. Pl. 835. “Schmidel. Tc. 272. t. 73.”—Leaves heart-shaped, serrated or jagged, acute, smooth. *Spike* imbricated, roundish or slightly four-fid. *Bracteas* the length of the flowers.—Native of Siberia and Tartary, flowering from June to September. *Stems* shrubby and trailing. *Leaves* jagged at the edges, smooth on both sides. *Flowers* white, or blue, sometimes yellowish-white, very large. In habit greatly resembling the last, but different in colour, and having much more *bracteas.*


The flowers of this species resemble those of the following in height and habit, but are somewhat larger. *Leaves* flaked, ovate, serrated. *Flowers* in lateral clusters, small, blue, each partial falk bearing two fideae.*bracteas.*

6. *S. nervosa.* Ribbed Skull-cap. Purif. n. 2.—*Stem* nearly simple, smooth. *Leaves* sessile, ovate, toothed, ribbed. *Clutter* terminal, lax, leafy.—On the banks of rivulets in Virginia, flowering in July and Augult. This perennial herb has blue flowers, which are larger than those of the foregoing species. *Purif.*


8. *S. haftifolia.* Hafted-leaved Skull-cap. Linn. Sp. Pl. 835. (Scutellaria folio non farrato; Rivin. Monop. Irr. t. 77.)—Leaves quite entire; lower ones haftate; 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. *Spike* generally simple. *Leaves* blunter than in the preceding, not at all notched, cared at the base. *Flowers* axillary, solitary, in pairs, blue, larger than in the last species, to which it is very closely allied, and of which both Linnæus and Scopoli hint that it may be only a variety.


10. *S. humilis.* Dwarf Skull-cap. Brown Prod. Nov. Holl. v. 1. 507.—Leaves ovate or heart-shaped, coarly 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 south 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 thinly hairs about their ribs and margins. *Flowers* solitary, opposite, spreading different ways.


14. S. carolina. Carolina Skull-cap. Lamarck DC. f. 7. 706. Illust. t. 515. f. 3. Pursh n. 6.—Branching, very smooth. Leaves ftalked, linear-lanceolate, acute, entire. Clusters lax, leafy. Calyx obtufe."—Gathered in Carolina by Mr. Frazer. Point. Root perennial. Leaves about two inches long; the upper ones much diminished, accompanying the flowers, which are the size of S. galericulata, yellowish-white, spotted at the apex with blue.

15. S. urceolata. Germander-leaved Skull-cap. (S. integrifolia; Linn. Sp. Pl. 836, excluding the reference to Alnus. S. carnea virginiana glabra, lamii, aut potissim teurci, folio, minor; Pluk. Almaggd. 338. Phyt. t. 313.f. 4. S. teurci folio marilandica; Rait Hist. v. 3. 310.)—Leaves fefile, ovate; the lower ones bluntly and diftantly ftalked; upper entire. Flowers axillary, ftolitary, on hairy ftalks. Native of North America. The fllem is above a foot high, unbranched, fender, fquarce, smooth, leafy. Leaves resembling Veronica Teurcium, about an inch long, nearly fefile, ftightly dotted beneath, smooth, except the ribs and margin, which are clothed with curved ftilhairs. Flowers turned one way, small. Calyx hairy at the ribs and margin. Corolla hairy, blue. Such is the plant Linnaeus intended as his integrifolia, which he received from Kalm, along with another fpecimen, pafted on the fame paper, which he did not perceive to be merely a smoothift variety of his own hyfypofolia, and which led him to quote Gronovius's Flora Virginica improperly in this place, as well as to choose the name of integrifolia. This appellation, however, being erroneous, and having caufed much confusion among fubfquent botanifts, is here laid aside, and we have preferred one taken from the very apt fynonym of Pluketen and Ray. The figure of the former however represents the ftoofalks too long, and the floral leaves too small. Mr. Pursh seems not to have recognized this plant. At least we can refer it to none of its fpecies.

16. S. byfypofolia. Hyfilop-leaved Skull-cap. Linn. Sp. PI. 836. Mant. 414. Wild. n. 12. (S. integrifolia; Ait. n. 10. Pursh n. 7. Michaux Boréali-Amer. v. 2. 12. S. virginiana, hyfypus angustis folis, flore caeruleo; Pluk. Almaggd. 338. t. 441. f. 6. S. folis integerrimis; Gron. Virg. ed. 1. 67, excluding the references to Pluketen and Ray.)—Leaves linear-lanceolate, obtufe, entire, withftalked, finely downy; copiously dotted beneath. Clusters compound, rather lax, leafy, downy. On dry hills, in a rich foil, from New York to Carolina, flowering from July to September. Perennial, very variable in the fize and figure of the leaves, fimple or branched flems. Flowers large, handfome, blue. Pursh. We fee no reason to transfer the name of integrifolia to this, which has already one fo greatly preferable. The whole herb, as well as the calyx and corolla, are finely downy and somewhat hoary.

17. S. ferrata. Great Serrated Skull-cap. Andr. Repoft. t. 494. Pursh n. 8.—Leaves ovate, pointed, ftalked, finely downy. Clusters compound, rather lax, densely, leafy downy. Bracteas lanceolate. In fields and meadows, from Virginia to Carolina, flowering from July to September. Pursh. The fllem is three feet high. Leaves two or three inches long, and above one broad, tapering at the base. Flowers copious, large and handfome, of a fine deep blue. This is a very ornamental perennial herb, worthy of cul-
almost as long as the leaves. *Spikes somewhat aggregate, erect, dense, many-flowered, hairy, two or three inches long. *Bractæ 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-cupped Skull-cap. *Linn. Mant. 248. *Wild. n. 2. Ait. n. 3. *Sm. Fl. Græc. *Sibth. t. 581, unpublished. (S. teucrid face; Bauh. Hist. v. 3. 291.)—Leaves heart-shaped, serrated, downy as well as the stem. Spikes elongated, unilateral. *Bractæ 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 *Linæus, in his *Syntagma Vegetabilum, 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 and entire, not lobed, undulated, or notched. The *calyx, on the contrary, bears much longer hairs than that of *peregrina.

25. *S. albilina. Tall Skull-cap. *Linn. Sp. Pl. 836. *Wild. n. 16. Ait. n. 15. (S. *Columbar; *Allion. Pedem. v. 1. 42. t. 84. f. 2. *Wild. n. 14. *Cafidra; *Columnus Ecphr. v. 1. 187. t. 189. *C. orientalis albilina, urtica folio; *Tourn. Cor. 11.)—Leaves heart-shaped, serrated, acute, nearly smooth. Spikes elongated, unilateral. *Bractæ ovate, acute, flaked, shorter than the *calyx.—Native of Italy, Mount Caucasus, and the Levant. *Miller cultivated it in 1731, and one of his own specimens, compared with those of *Allioni, have enabled us to verify the above synonymy, and to reduce two reputed species, of this difficult and confounded genus, into one. The present differs from both the last, in having leaves twice their faze, besprinkled with only a few minute scattered hairs, so as to feel nearly smooth. But its most essential character consists in the finalness of the *bractæ, whose points do not extend beyond the *calyx. The *fides therefore appear almost naked, consisting of numerous purple downy flowers, whose *calyx, like the flower-flanks and *bractæ, is rough with glandular vilous hairs. The last species in *Linæus, *Willdenow, and *Aiton, *S. cretica, require to be expunged, being the very same plant as *Teucrium Arbauti, *Linn. Mant. 81, and announced as such in *Sm. Prodr. *Fl. Græc. *Sibth. v. 1. 392. *Itself and habit accord with *Teucrium, 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. integrifolia); the *florentine skull-cap (S. peregrina); and the tall skull-cap (S. albilina).

*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 *Scutella, see that article.

*SCUTELLUM, or Esuthein, in the History of Insects, is the posterior part of the thorax; it is frequently triangular, and appears to be separated from the thorax by its intervening furrow, as in that of the coleoptera.

*SCUTHINON, in *Botany, a name given by the ancient Greeks to a yellow wood, called also *thamnium, *chrysocolon, and *Scytheicum 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 *cythinon, or *cuthinon: this is only the former word with the initial / taken away, as it was common with them to do in regard to many words; thus they called the *milax *milax, the *smaragdus *maragdus, and so of many more.

*SCUTIFORME Os, in *Anatomy, the chief bone of the knee, called also *patella, *mala, &c.

*SCUTIFORMIS, *Cartilago, one of the pieces composing the larynx. See *Larynx.

*SCUTTLE, in *Agriculture, the name of a shallow basin, 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 flable purpofes.

*SCUTTLES, 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 *foups are used, to row the vellet along in calms.

*SCUTTLE-Hatch, in a *Ship, the little hatch that covers the scuttle.

*SCUTTLING, in *Sea Language, the act of cutting large holes through the bottom or sides of a ship either when the ship is stranded or overfet, and continues to float on the surface. It is commonly designed for taking out the whole or part of the cargo, provisions, *flores, &c. with all possible expedition.

The decks are scuttled sometimes to put pumps down to assist 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 Bristol.

*SCUTTOCK POINT, a cape on the coast of Maine. *N. lat. 44° 18'. *W. long. 69° 58'.


indexed, inserted below the petals, and about equal to them in length; anthers oblong, curved. Pfl. Germen imbedded in the calyx; style thread-shaped, as long as the flamenus; stigma simple. Peric. Berry formed of the calyx, thickened, of eight cells. Seeds solitary, somewhat compressed.

E. Ch. Calyx entire, becoming pulpy. Petals five. Berry of eight cells.


The berries of this genus are said to be of an astringent, strengthening quality, vying with those of the myrtle.

Scutula reihs entirely upon Louerei's authority. Some parts of his description we have omitted, as unintelligible.

The genus may possibly be referable to Moncreyon.

SCUTUM SORIESEK, Sobieski's Shield, in Astronomy, a constellation formed by Hevelius; the stars of which in his catalogue are: four of these are enumerated in the Aquila in the Britannic catalogus. See Constellation.

SCUTUM, in Natural History, the name of a genus of the echinii marini; the characters of which are, that it is a shell of an irregular figure, which on the lower part represents, in some measure, a shield; on the superstructure it has the shape of a five-leaved flower; its mouth is in the middle of the base, and the aperture for the anus at the edge.

Of this genus of the echini there are two kinds, the angular and the oval.

Of the first of these kinds, the angular feuta, there are only two known species: the first a lower flatfish kind, and the second a more elevated one.

Of the second, or the oval feuta, there are three known species. Klein's Echinod. p. 28.

SCUTUM, in Pharmacy, a name given to a solid pomacious topic, whether made in form of a ball, with medicinal ingredients seceded in it, or of a platter. It is always fashioned into the shape of a shield. The platters, for this purpose, were used to be made of the warm pomacious gums, and the bags were filled with the warm pomacious powders; and they were worn to warm and strengthen the stomach, correct a cold in temperature, and promote digestion, and prevent vomiting.

The patella, or knee-pan, is also sometimes called by anatomists scutum.

SCYBALA, σκύβαλα, in Medicine, an appellation given to the excrement of the bowels, when it is hard, dry, and formed into small malleable, or little balls, resembling the excrement of sheep. This form is always given to the stools by their remora or delay in the intestines, and is sometimes merely the refect of ordinary constipation, and is then probably produced in the cellular surface of the colon, or great intestine; but in some cases, scybalae are lodged higher in the canal, exciting great irritation in the bowels, and even violent purging of thin flimsy stools, together with much fruitless straining, or tenesmus; which consituire, in fact, one form of the dyentery, or flux. In these cases, it is obvious that, if allrigments 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 scebyala in the

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SCYLDWIT, in our Old Writers, a mulcet or fine for any fault.

It comes from the Saxon *silede*, i.e. *delicium*, and *weop*.

SCYLITZA, John, *Europalates*, in Biography, a Greek historian, known for his abridgment of history from the death of Nicerius Logothetes in 811, to the death of Nicephorus Botaniates, in 1081. This history, from the year 1067, is the same as that of Cedrenus, which has caused a discussion among the learned, which of the two was the plagiarist. Scylitta is thought to have been a native of Leffler Afa, and a prefect of the guards before he attained the dignity of eurupalates. 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. Moreni.

SCYLLA, in *Ancient and Modern Geography*, a rock at the entrance of the Straits of Messina, about 200 feet in height, now cape *Scipio*; which bee. Scylla was famous in antiquity for the danger which it presented to navigators who approached it. The rock, perished by Homer in his Odyssee, and represented as a devouring monster, has been destroyed by a late earthquake. Concerning its situation with regard to Charybdis, and other particulars, we refer to Charybdis.

Scylla, or *Scylus*, a town of Italy, in Brutium.—Allo, a desert island in the vicinities of the Thracian Chersonesus.

SCYLLA, in *Natural History*, a genus of the Vermes Mollufca class and order, whose generic character is, body compressed, and grooved along the back; the mouth consists of 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 described 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.

* Gympophenous. 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, pellucid, yellowish, with ruddy brown dots; the back is flat, dotted with brown at the margins, with a row of blue dots down the middle; the tail is compressed, 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 which papillae down the middle of each side; the first pair of arms is the tender, the rest are contiguos, with a denticulous margin.

SCYLLA PROEMINORUM, in *Ancient Geography*, the promontory of Scylla, or of Skilos, that part of the Argolid which advances toward the southward.

SCYNNITAE, the people of Asteria, a Sarmatia, between the Sorphemas and the Amazon, according to Ptolemy.

SCYMNAS, in *Ithology*, a name used by Elian, Appian, and many other of the old Greek writers, for the fish called *sulcun* by Aristotle. This is a species of the fuguvs, called by Ares and others the fuguus with the pinnas and placed in the midit, between the anus and tail:

* Catulus vulgaris and catulus major of authors.

SCYPHOPHORUS, in Botany, from *skeuus*, a large kind of drinking cup, and *opous*, bearing, alluding to the dilated cup-shaped stalks, resembling wine-glaizes, borne by the leaves, on whose margins the fructifying tube are seated. This is the denomination of the 21st tribe, or section, of the *Lichenes*, see that article, in the *Prodromus* of Acarians, which are well known to the vulgar, as well as the learned botanist, by the name of Cup-mols, or *Lichenes pyxidiatum*. The above name is however sunk in that of *Bozomyces*, in the *Methodus* of that author; though Michaux uxes it generally in his *Flora Boreali-Americanus*, v. 2. 328.

SCYPHUS, among the Romans, a very large kind of drinking cup. The seyphus was called the cup of Hercules, as that of Bacchus, *liberi patris*, was named cantarbus.

SCYPPIUM, in *Ancient Geography*, a town of Aeg. Minor, in Ionia, on the confines of the country of the Colophonians, according to Pausanias.

SCYRA, in our Old Writers, a fine imposed on such as neglected to attend the *feyregemot court*, which all tenants were bound to do.

SCYRAS, in *Ancient Geography*, a river or stream of Laccania, which discharged itself into the gulf of Laccania. Near it was a temple of Apollo, and an altar of Jupiter. Pausanias, lib. iii. Lacc. c. 25.

SCYREGMOT, or *Scyremot*, in *Ancient Cylomons*, a county-court held twice every year by the bishop of the diocese, and the caldorman, or sheriff; in which both the ecclesiastical and temporal laws were given in charge to the county.

In the time of Canutus the *feyregemot* was held thrice every year. Edward the Confessor appointed it to be held twelve times in the year.

SCYRIS, in *Ancient Geography*, a people of Iudia, in the vicinity of Ariana.

SCYRUM MARMOR, 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 statuary, not being capable of a high polish.

SCYROS, in *Ancient Geography*, an island in the Archipelago, situated to the E. of the isle of Eubச, and very near it. The ancients pretend that Achilles spent the first years of his life here, disguised like a female, in the court of Lycomedes. It was in alliance with Troy, as appears from Agamenon'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 to 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 LACONICA, in *Antiquity*, a frigatage, or device, of the Lacedemonians, 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 person to whom the letter was directed. For the letters, a skin of very thin parchment was wrapped round the roller, and on this the letter was written; when done, it was taken off, and sent away to the party, who, upon putting it in the same manner upon his roller, found the lines and words, which were before its application to the roller consubiously disjoined, and altogether unintelligible, in the very same disposition as when they were first written. Plint. in Vit. Lyfand.

This expedient they fet a very high value on; though, in truth,
truth, artless and gross enough: the moderns have improved vastly on this method of writing. See CIPHER.

It should seem, that besides this fycyata, used for political and military purposes, private persons made use of a contrivance somewhat similar, to prevent deceits in contracts; but there were exactly like our tallies.

SCYTALIE, in Zoology, the name given by the ancients to a species of serpent, 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 anguis or snake, and the other a species of the boa; which fee.

SCYTALIA, in Botany, elegantly so named by Gart-ner, from ρυεα, a skin, or hide, and ραιλα, a thong, in allusion to the leathery subulance and colour of the skin of the dried fruit, as also to the little shield-like tubercles, 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.—Gartn. Sem. v. 1. 197. t. 42. Schreb. Gen. 262. (Dimocarpus; Loureiro. Cochin. 233. Willd. Sp. Pl. v. 2. 346. Ait. Hort. Kew. v. 2. 354. Euphoria; Jull. 247. Lamarck Illutr. t. 306.)


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. Pfl. Germens superior, two-lobed, somewhat falkated; style shorter than the flammes; frigmas two, spreading. Peric. Berries two, ovate or globose, with a coriaceous warty coat, pulpy within, each of one cell. Seed solitary, large, elliptical, polished, obliquely cut away at the base, where it is inserted into the flitely elevated bottom of the pericarp.

Obi. Gartner has described as a feedy tame of the seed, which is really only the dried pulp of the berry.


1. S. Litchi. Lee-chee, or Apetalous Scytalia. (Dimocarpus Litchi; Ait. Hort. Kew. v. 2. 354. Loureir. n. 1. Litchi chinensis; Sonnerat Ind. Or. v. 2. 230. t. 129. Sapindus edulis; Ait. ed. 1. v. 2. 36.)—Flowers with fix flammes, and no petals. Fruit with prominent warts.—Native of China, Cochinchina, and Tonquin. The celebrated governor Hallings is said to have sent this plant to England in 1786, and it is marked as flowering in the House at Kew, in May and June. The younger Linnaeus, 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, flanked, abruptly pinnate, confining of three or four pair of opposite, stalked, elliptic-lanceolate, pointed, entire, equal leaflets, quite smooth on both sides, evergreen, each furnished with a midrib, and numerous small interbranching veins, the latter scarcely visible but in a dried state. Each leaflet is three or four inches long. Panicles terminal, compound, repeatedly branched. Flowers small, greenish, with a very downy calyx, but no petals. In some we find eight flammes, but in the same panicle others have only five. The berry, usually solitary when ripe, is nearly globular, concave at the base, an inch or more in diameter, reddish, covered with very numerous, clove, prominent tubercles. It is of an agreeable flavour, and said to be one of the heil fruits of the countries where it grows. The Chinese dry it in ovens for exportation. Some which we have tasted, in England, contained a firm very acid pulp, not unlike the taste of tamarinds.

2. S. Longan. Longan, or Many-petalled Scytalia. (Dimocarpus Longan; Ait. Hort. Kew. v. 2. 354. Loureir. n. 2.)—Flowers with eight flammes and five petals. Fruit nearly smooth.—Native of China. Cultivated in that country, Cochinchina, the East Indies, the Mauritius, &c. This is also a large tree, with a sweet and grateful fruit, not half the size of the last, more precisely globular, and either quite smooth, or slightly scaly, not warty. The leaflets are rather more numerous than in the former, shorter, blunter, and more elliptical; at least in our East Indian specimens. In one from the ile de Bourbon, marked Longan, the leaflets 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 itermitis, seems to be the wild flate of the Litchi, in the woods of Cochinchina. He speaks of the wood of all the four 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 most 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.

SCYTIE, Scyth, among the Athenians, a designation sometimes given to the officers, more usually called lexarchi.

They had the name Scythe, because they were often natives of Scythia who were chosen lexarchi, as being braxy and sturdy 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 Chrysoxylon, or golden wood, from its fine yellow colour. It has been supposed that this was the name with the colinus cotiaris 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 feytherion, therefore, could not be the same with the colinus, but it certainly is the same with the thysium of the Greeks.

SCYTIE, in Agriculturc, the implement used in mowing, being a crooked blade joined at right angles to a long pole, or handle. It is sometimes written Sîthe, or Sythe. See MOWING.

Common seytheres are of several different constructions and kinds,
kinds, in different counties. In most of those more towards the northern extremity of the island, they are of a much greater length than those which are employed in the southern districts of the kingdom. Both the extremes are, however, probably disadvantageous in some respects. Those which are neither too long nor too short are unquestionably the best fitted for general use, and capable of being employed with the greatest ease and convenience by the labourer. The tool is commonly furnished and fitted up differently for different purposes, as has been noticed under the heads to which they belong. See Mowing, Raking, &c.

The fluff Flemish scythe is in use in some places for cutting bean, and other strong 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 fluch 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 sort, called the boddin-scythe, the blade of which is about twenty inches in length, but curved in a different way to the common scythe, 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 sheath, to which the blade is fixed, is about three feet six inches long, and has one scythe-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 sheath, and with the handle in the other, the crown of the rush 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 sort of husbandry; and it is advisable to carry off the rush roots, and form a compost with them; the hod-holes, or cavities made by the tool, being filled level with the surface of the ground with some earthy material, and sown with hay or grass-seeds. This tool is yet but little known, except in the above districts, where it has been used to considerable extent in many parts, with the most beneficial effects in clearing the lands from rushes; 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 strong fluff scythes are made use of in most places, for clearing away and removing all parts of shrubbery plants from grounds, such as those of the broom, briar, furze, and several other similar 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 Iler, or Danube, that is, from about the 25th to almost the 116th degree of E. longitude. It was divided into Scythia in Europe, and Scythia in Asia; including, however, the two Sarmatias, or Suevomarias, now the Circassian Tartary, which lay between and separated the two Scythias from each other. Sarmatia was also distinguish'd into 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 Rha, 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 Riphean mountains into the Palus Mazotis. For, beyond these 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 Cronian, Amalchian or Almabian, 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 Tabi, and to have been bounded by the Carpathian mountains, which parted Scythia from the kingdom of Seres, now Kaitai, Cathay, or Northern China; and even this line 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 tracts beyond it; and on the south it was bounded by the Indian sea, by mount Caucasus, and the Caspi. 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 60th degree north. The territory beyond that degree was demarcated 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 Sarmaetia, 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 Imus on the west by Asiatic Sarmaetia, by mount Imaus on the east, by the Terra incognita on the north, and on the south and south-east by the Sace, Sogdian, and Margian. The principal mountains in this part Ptolemy reckons to be the Alani to the east; the Rhymnici, from which flowed the Rhynmus into the Rha; the Norusin, from which sprang the Daix, the Apfii, the Sapuri, the Syebi, and the Anaci. The rivers were the Rhynmus, the Daix, the Jaxartes, the Jata, the Polytemus, and the Oxus. The inhabitants of this part, according to the same geographer, were, towards the north, the Alani, Sufobeni, and Agathyr; and next to these, the Sazieni, the Mafiei, and the Syebi; near the Imaus were the Thaces; near the eastern sources of the Rha, the Rhobacii, Azani, and Jordan; to the south, and near the river, was the country called Conadipfas regio; and near this, Corapsii, Orgazi, Jotza, and Aonii; next to these, the Jaxartes, a considerable nation, on the river of the same name; to the south of the Sazieni were the Molonii, and next to them the Sammite; and below the Mefieni and the Alani mountains were the Zarets and the Sazones; to the east of the Rhynmus mountains were the Tybiace; and below them the Zarets, Tabeini, Jaite, and Macgeni, near mount Norolius; above them were the Orobes and Norossi; and more to the south, the Cachass Scythia; to the west of the Apfii, the Apfii Scythe; and east of them, the Galactophagi Scythe; and east of the Syebi, the Tapurei, and the Aftatanae Scythe. The Anaci lay to the south of the Agathyr, and to the east of the Tapurei. The Aftatanae extended to mount Imaus; and near the Jaxartes, between the mouths of the two rivers, were the Ariae, the Sagarane, 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, Cafini, and Emodi. The inhabitants were, towards the northern part, the Abi; to the south, the Hippophagi Scythe, those of the Regio Auxacii, and the Regio Caia, the Chata-Scythe; and near the Emodi, the Charasini-
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Scythia. The towns were Auzacia, Ildedon Scythica, Charana, and Seta. Pomponius Mela assigns to the Scythians much the same extent and boundaries. The Scythia Pontica was called by the Greeks Maenia. The Astatic Scythia, therefore, comprehended in general Great Tartary, and Russia in Asia; and, in particular, the Scythia beyond or without Imaus contained the regions of Bogdoi, or Oftiacoi, and Tunzuri. The Scythia within or on this side of Imaus comprehended Turkistan, and Mongolia, the Ufbeck or Zagmat, Kalnuck and Nogaun Tartars, besides Siberia, the land of the Samoiedes, and Nova Zembla. The three last mentioned countries, not being so far inland as the former, were wholly unknown to the ancients; and the former were peopled by the Bactrians, Sogdians, Gandari, Sacæ, and Maffagetæ. Sarmatia contained Albina, Iberia, and Colchis, which now constitute the Circassian Tartary and the province of Georgia. (See Circassia and Georgia.) The seas of Scythia, besides the Frozen and Indian ocean, were the Caspian, the Euxine, and the Palus Meotis. The rivers, besides those already mentioned, or the Rha or Volga, and the Tanais or Don, were the Obi, 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 westward have been 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-Gallic, and by the Rhine northward. On the south it was bounded by the Ilterr or Donube, 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 precisely ascertained, they have been supposed to stretch to the spring-heads of the Borylthenes or Dnieper, and the Rha or Volga, and so to that of the Tanais. The ancients divided this country into Scythia Arimaspea, lying easterly, and joining to Asian Scythia, and European Scythia 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 Scythia, properly so called, were the Arimaspea on the north; the Getæ, or Dacians, along the Danube, on the south; and the Natri between these two. It therefore contained the European Ruffia, and the leffer Crim Tartary, easterly, and on the west, Lithuania, Poland, part of Hungary, Transylvania, Walachia, Bulgaria, and Moldavia. This Scythia had no other sea besides the Sarmatian, or Marc 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 Meotis, 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, Borylthenes or Dnieper, Bog, Tiras or Dniester, and the Ilterr or Danube, all which discharged themselves into the Euxine; and on the north-east the Great and 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 Viltula, 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 8th degree, or even beyond, and from the Alps to the promontory of Tabis, and traits of Anian; and in latitude, from Caucasian to the Arctic circle, above 28 degrees. Herodotus indeed says, that the Hyperboreans were not of Scythian race, but another kind of people, some of whom were Androphagi, or men-eaters, fierce and cruel; and others, viz. the Bald-heads, or Argrippians, a wife and peaceable people, esteemed feared by all their neighbours; but he speaks of them merely by report, and with diffluence; so that these regions were probably then unknown, if not uninhabited. The five cities of Scythia, which we have mentioned, were probably built after the time of Herodotus, who takes 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 Astatic Sarmatians. The original Scythians of Herodotus (I. iv.) were confined, by the Danube and the Palus Meotis, within a square of 4000 italids (400 Roman miles). Diodorus Siculus (vol. i. i. ii. p. 155. ed. Wolf.) 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 Scythia is about 110 degrees, which, in that parallel, are equal to more than 5000 miles. The latitude of these extensive defects cannot be so easily or so accurately ascertained; but from the 40th degree, which touches the wall of China, we may accurately advance above 1000 miles to the northward, till our progress is stopped by the excessive 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 Tartoufes and the Samoiedes. The want of horses and oxen is imperfectly supplied by the use of rein-deer, and of large dogs; and the conquerors of the earth infensibly degenerate into a race of deformed and diminutive savages, who tremble at the sound of arms. Anc. Un. Hilt. 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, Magaceta, and other of the later writers among the Greeks, with those of Dioscorides, Theophrastus, and the other old ones, that the word Scythian and Indian mean the same thing, and that what the old writers have called Indian, these have called Scythian.

The meaning of this is, that those things were called Scythian, which were brought from the country of Indian-scythia, or that part of Scythia which lay at the offis of the river Indus; but it is to be observed, that though the later Greek writers mean this by their term Scythian, yet the word is used in a very different sense by the Arabian, Aviceقن, 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 misunderstood 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 ibellium, and many other gums, the produce of only the Scythia of the Greek medical writers, to the frozen Scythia, before mentioned.

SCYTHIANS, in Ancient Geography, the inhabitants of Scythia, confounded by some geographical authors as the same people with the Tartars, or, as they are more commonly,
commonly, though erroneously, called, Tartars. (See Tar-
tars.) With regard to the etymology of the name of
Scythians we have many different conjectures. Plliny
seems to intimate, that this appellation is derived from
Sacaı, a people known by a similar name to the Greeks
and Persians. Bryant deduces it from Cuthia. Colonel
Valancey traces its origin to words denoting navigation;
or others derive it from the Greek word φῆται, which
expresses the fierceness of their countenance and natural
temper; and others again deduce it from the Teutonic
word feheno, to seat, in which art this nation is said by Her-
odotus, Lucian, and others, to be so expert, that the name
is given them on that account, the word Scythian properly
signifying a great boaster or archer. As the Tartars and
Muscovites called themselves Mogli, supposed to be an
abbreviation of Magogi, the sons of Magog; that of Scy-
thian might be either given to them by other nations, or
perhaps by the Celts, 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 consideration have ever
distinguished themselves.

The Scyths have been considered by some writers,
with regard to their antiquity and origin, as the same
people with the Goths, and as being the descendants of
Gomer, the eldest son of Japheth. To this purpose Her-
odotus, Ptolemy, and Justin have called the Scythians, who
emigrated into Asia, by some names, and attributed some
actions and places to them, which, upon closer examina-
tion, are found to have belonged to the Celts or Gome-
rians, whom they had driven out of their European terri-
tories. Strabo informs us, that the old Greek histori-
gans 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 Celts or Goths. And
he also adds, that some of those people who inhabited
beyond the Caspian sea, which should be the Scythians,
were, by the same Greek historians, called Scæc, and
others Mallagetae, though the former of these names, at
least, belonged only to the Celts. Hence many learned
men have chosen to reckon them as one people, branched
out into that variety of names and characters, under which
they are distinguished in history. See Celts.

Joscophas, who affirms the Scythians to be descended
from Magog, the next brother of Gomer, has been fol-
lowed by many of the fathers, and by many moderists,
because they could find no better authority. In the migra-
tion of the Scythian tribes into Europe, if Gomer's de-
cendants turned towards the N.W., those of Magog may
be reasonably supposed to have spread themselves towards
the N.E. into both Scythias, where we find the ancient
Muscovites or Tartarians; distinguished by the name of
Mogli, corrupted or abbreviated possibly from Magogi,
the sons of Magog. To these conjectures it may be
added, that there is scarcely a nation under heaven, that
so fully answers the fierce and dreadful character which
the Scriptures give us of Gog and Magog, as that of
the barbarous Scythians; though in fact this character
was too applicable to their neighbours in those early
ages.

Sir Isaac Newton is of opinion, that both the Celts
and Scythians had spread themselves over Lesser Asia
and Europe, before the year of the flood 1220, that is, about
the latter period of the Israelitish judges. How soon the
Scythians began to establish a regular government, and
what kind of government it was, it is impossible even to
conjecture. It appears, however, from the testimony of
Herodotus, that one or two tribes at least, that is, the royal
and free Scythians, were under a kind of monarchy, and
that these two distinguished themselves more than all the
others. Herodotus informs us, that in process of time,
when the Scythians were likely to be invaded by Darius,
their king, daring the invaders, invited all the Scythian
princes, viz. those of the Taurians, Agathyrhs, Neus-
rians, Androphagi, Melanchemians, Budeians, and Sarmat-
ians, to unite in giving him assistance. All these tribes
seem to have been branches of the same stock, but differing
much in their manners and customs. In consequence
of this application, the three last named nations joined
with the king of Scythia, but the others refused to succour
him, alleging that he was the first aggressor. Hence we may
conclude, that they had emancipated themselves from the
yoke of the royal Scythians some time before. As to what
the laws of the royal and free Scythians were, we may form
some judgment from the excellent character that is given of
them by ancient historians. 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 control their
passions, that they made no other use of victories than to
increase their fame. Theft among them was reckoned to
be a great crime, and was so severely punished, that they
could let their numerous flocks wander from place to place
without danger of losing them. Thence they esteemed their
greatest wealth, living upon their milk, and clothing
themselves with their skins. Instead of houses, they used
to convey their wives and children about in covered wagons,
drawn either by horses or oxen, and made capacious enough
to carry all their other furniture. Gold, silver, diamonds,
pearls, and other costly stones, were as much defiled by
them, as they were esteemed by other nations, so that they
could not covet that which was of no use. What is still more
wonderful, those virtues, which the Greeks in vain endeav-
oured to attain by learning and philosophy, were natural
to them, and they reaped those advantages from their igno-
rance of vice, which the others could not derive from their
knowledge of virtue. A nation of this character and way
of life could therefore want but few laws to secure their
property; some others they had with relation to religion,
customs, 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 allying at
their royal seal, till he had killed an enemy. Some other
of their laws we shall have occasion to mention in the sequel.
Upon the whole, what appears of them seems wholly cal-
culated to prevent luxury, fraud, and covetousness, and to
cherish that martial spirit, for which they are so justly famed
in history.

Some of the Scythian tribes, indeed, bear a quite dif-
ferent character, being represented of such fierce and cruel
disposition, as even to eat the flesh of their enemies. Thence,
if under the same government, were at such great distance
from the centre of it, as to be out of the reach of its laws.
As the inconstancy of the air in these remote regions might
probably incline them to cruelty; so the distance and bar-
renness of their country might make them less 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 willfully misrepresented by the Greek
historians.

If we may reason from some successions which we find men-
tioned in history, it seems their crown was hereditary, and
yet
yet their kings not so despotic as not to be deposed, or even put to death, for the violation of their laws.

When any one of their monarchs fell sick, it was their constant custom to send immediately for three of their most famous prophets, who commonly told him that some Scythian, whom they named, had perjured himself by sacrificing to the royal throne, which it seems was their most solemn oath. The accused person was therupon seized, and brought before the king. If he denied the fact, more prophets were sent for; if they confirmed the evidence, the man was immediately beheaded, and his goods were divided among the three first accusers. But if they acquitted him, a supply of goods was to be sent for; and if the majority of them absolved him, then the first accusers were tied hands and feet, and set in a cart loaded with faggots, and drawn by oxen: after they had flung the false prophet’s mouth, as he was then flayed, they set fire to the wood, which consumed the cart and man, and seldom failed burning the oxen to death. Our author adds, that the male children of those whom the king condemned to death seldom escaped the same fate.

Another instance of their great respect to their monarchs is the pompous solemnity of their funerals, which was performed as follows: the embalmers received the body covered with wax, they opened and cleansed the belly, and having filled it with bruised cypresses, incense, parsley, and aniseeds, they sewed it up again, and placed the corpse in a chariot, and conveyed it from one tribe to another throughout all the provinces of the kingdom. Every province, where they received the funeral procession, was obliged to imitate the royal Scythians in their mournful ceremonies, which consisted in cutting off one part of the ear, shaving the head, and piercing the left hand with an arrow; in this guise, they accompanied the hearse to the next province, till it reached that of the Gerrians, which was the remotest in the kingdom, situated along the part of the Borylthenes, where it begins to be navigable. Here the corpse was deposited in a large square hole made in the earth, upon a bed enveloped round with ipcars, which they covered with timber; and spread a canopy over the whole monument. In the vacant places of it they deposited one of his favourite concubines, his head cook, groom, a waiter, a meflanger, some horses, all jangled, and a number of necessary utensils, and among others some golden cups. Then they threw the earth upon it, so as to raise a high mound, or artificial mountain. As soon as the year was expired they chose fifty young men of the king’s officers, who were always to be Scythians of quality. These, with an equal number of horses, were strangled, their bowels were taken out, and their bellies stuffed with straw. The bodies of the men were set allride upon the horses, and fastened to them by an iron stake. The horses, thus mounted, were set upon semicircular boards, supported by four pieces of timber, and placed at a convenient distance from each other round the monument, the horses having a loose rein fastened to another poll set up for that purpose.

The Scythians worshipped a plurality of gods and goddesses, but that which they reckoned their principal deity was Veja, whom they called Tabit. The two next in generation were Jupiter, whom they called Papeus, and Apia, or the Earth, which they esteemed his wife. Jupiter, it seems, they challenged for their progenitor, and Veja for their queen, as appears by the answer which one of their kings sent to Darius, when he came to subdue them to his empire; besides these, they worshipped Apollo, the celestial Venus, and Neptune, under the names of Octyru, Strippafa, and Thamimafades. But their favourite deity seems to have been the god of war, to whom alone they dedicated temples, altars, and images. How his temples were built, Herodotus doth not tell us; neither is it easy for us to guess. It doth not even appear from any ancient authors, or other monuments, that ever they built any properly so called. Groves indeed they were familiar for erecting to this deity. In these they affected the see one or more oaks of a mighty size, which were accounted so sacred, that to top them as much as a branch or twig, or even to wound the bark, was accounted sacrilege, and punished with death. These oaks they never failed to sprinkle plentifully with the blood of their victims, infomuch, that the sand of some of the olden of them was covered or even encrusted with it. We are therefore inclined to believe, that Herodotus, who learned these things by report, might, for want of a good interpreter, mistake them for temples, and suppose them to be built like those of other nations.

Besides the deities above named, we are told that some of them worshipped fire as the principle of all things, and gave it the name of Vulcan; they used to swear by the wind, and the sword, the one as the author of life, and the other of death. They likewise looked upon Zamoizis as a deity, to whom they committed the spoils of the dead, and offered sacrifices on their behalf. The royal Scythians are confirmed by Herodotus to have acknowledged all the deities above named, and to have offered sacrifices to Neptune in particular; for all these various deities they had not, indeed, temples, but altars and groves, and a set of priests appropriated to each.

How sanguine those groves must have been, may be seen in the last quoted antiquarian, or be guessed at by the vain extent of the altars, which Herodotus tells us they erected in them to Mars, their favourite deity, one of which at least they were obliged to have in every district. It was made of small wood tied up into bundles, and covered three filda of land in length and breadth, though it was not proportionable in its height. The top of it, which was quadrangular, had three sides perpendicular; and the fourth had a gradual declivity, to render the top of it easy of access. One hundred and fifty loads of faggots were to be brought yearly to each altar, to supply those which had been decayed by the inclemency of the winter. On the top of each of those heaps was erected an old iron emblem, which floated there as the image, or rather emblem of the deity. To him, besides all other cattle, in common with their other gods, and in much greater number, they sacrificed horses; and what was more shocking, every hundredth man they took prisoner from their enemies. The priest having poured a libation of wine upon the captive’s head, cut his throat, and received his blood into a bowl, with which ascending to the top of the altar, he washed the deity’s sword. As to the victims, they only cut off his right arm close to the shoulder, and throwing it up into the air, left it exposed in the place where it fell, and the rest of the body in that where it was killed.

Of the victims which they sacrificed to Mars or to any other deity, the horse was esteemed the noblest, and the most acceptable. As for oxen they detested them, and would not suffer any to remain among them. The Scyths also offered to their gods the first fruits of the earth, the firstlings of their cattle, and a part of the spoils they took in war; sending a considerable part of the latter to the Delphic Apollo, by a number of their honourable virgins, under a sufficient escort.

Their alliances and contracts were ratified with the following ceremonies: they poured some wine into an earthen vessel,
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vefpel, into which the contracting parties were to mingle fome of their own blood, which they drew by a flight in-
cifion made in the finger, hand, or fome other part of the
body. They then dipped into the mixture the point of
fome warlike weapon, fuch as a feimtar, arrow, dart,
javelin, or battle-ax. The parties then uttered fome dire
imprecations on the first breaker of the covenant, and,
having each of them taken a draught of the liquor, they
defined fome of the moft confiderable among the by-
flanders to pledge them, and to be witnesses of the con-
tract, which was reckoned fo sacred, that they thought
no punishment fevere enough, either in this life or in the
next, for thofe by whom it fhould be violated.

Their warlike temper and exploits were sufficiently
known to the ancients; scarcely is there any nation to be
met with in history, fo famous for conquering wherever
they carried their arms, even as auxiliaries, and themselves
remaining ftill unconquered. Their frugal and fimple
manner of life, may indeed be fuppofed to have been a great
prefervative againft fuch invasions, as other more opulent
and luxurious nations were expofed to. But it is plain,
this was not always the cafe, fince we find they were once
invaded by the king of Perfta at the head of a moft puiffant
army, from the power of which nothing but their valour
and policy could have delivered them. Upon the whole,
fuch were their ftrength and courage, whenever they entered
into an offensive or defensive war, that, as Thucydides him-
felf tells us, no nation, either in Europe or Asia, could equal
them either for ftrength, valour, or conduct; nor could
any thing refit their power, when they were unanimous
among themfelves.

Such care they took to cultivate this martial genius,
that even their women were inured to it betimes, infomuch
that no woman could be admitted into matrimony till she
had killed at lead one enemy with her own hands. As
for their youth, they were not without confiderable en-
couragements to infpire them with martial valour, or rather
ferocity, if we may rely upon the information of Her-
odotus, who tells us that they were wont to drink the blood
of the firft prisoner they took, and to prefent the heads of
all the men they killed in fight to their monarch; there
were either returned or registered, and the warrior enjoyed
privileges in proportion to the numbers he had slain. They
ufed to take the skins of the slain, to fretch, dry, and tan
them, and then hang them at their horfes' bridles, where
they ferved both for trophies and napkins to the owner;
he being alfo moft elfeemed, who had the greateft num-
erb to display. Their pride, or rather barbarity, went fo
far, that they took off and dreffed the whole skin of the
flain, and covered both their quivers and horfes, and some-
times decked their own bodies with them; and ufed their
skulls for drinking cups.

Had they only exercifed this kind of favage pride againft
thofe who came to invade them, it might indeed admit of
fome excuse; but it doth not appear that they gave much
better quarter to thofe whole territories they invaded.

In confequence of their living free from ambition and
care, and eating plentifully of animal food, they acquired
ruddy complexities, and became fo plump and fameine,
that, to prevent their growing too unwieldy, they not only
ufed a great deal of exercife, but even cauterized their
arms, shoulders, backs, and breasts, with a view to draw
off superfluouf moifure. They were remarkable for their
fidelity and friendship, which they elfeemed and glorified
above all things. They commonly confirned their friend-
ship by fome religious ceremony or oath, as we have
lately mentioned, but a Scythian feldom diffufed his attach-
ments to more than two or three individuals, elfeeming it
very difficult, if not impossible, to keep it inviolate with a
greater number. And when fuch a friendship was once
contracted, there was no danger or death which they would
not expose themselves to for one another.

They were not more difposed to friendship, than addicted
to resentment and revenge. If a man had received an in-
jury, which he was not in a capacity to retaliate, the cupof
was for him to sacrifice a bullock, and to roaf the flefh of
it in fmall pieces. Then he defpanded the hide upon the
ground, and fat upon it, holding his hands down behind
him as if they had been tied; upon which was all that
beheld him, whether friends, relations, or strangers, came
to inform themselves about the injury and injurer, and if
they favoured his caufe, took up a piece of the meat, fet-
ing their feet upon the hide at the fame time, promifing
affifiance accordingly; one perhaps sent him five men and
horfes, another ten, more or lefs, according to their cir-
cumstances, or the nature of the injury.

How populous the Scythians were, we have not been
able to discover. If it be allowed that they made frequent
and bloody invadings one upon another, we cannot but but
fuppofe that it muft have leffened their numbers exceedingly.
On the other hand, if we confider their plain and laborious
way of living, their climate, confant exercife, and other
advantageous circumftances, which rendered them hardy
and fit for proflific and long lived, we can hardly conceive
they could be other than a populous nation: for we are
told, that very few died of ficknefs, but that in general
they lived to a good old age, infomuch, that many of them
being weary of the world, before death took them out of
it, it was usual with fuch to defeat their exit by throwing
themselves from an eminence into the sea, or into some river.
Herodotus, however, who feems in doubt whether they
were fo populous as fome, or fo thin as others reprefent
them, gives us an authentic instance and monument in
favour of the former, which is as follows: they had, it
feems, a cupof, not uncommon to other nations, at their
firft taking of the field to mutter their fighting men, and
to make every man call an arrow into a proper receptacle,
which at their return from the expedition was again taken
up. By this expedient they could easily compute not only
the number of their men, but alfo that of their fkins, or
of thofe who either deferted, or abfonced themfelves from
the war. It was at some fuch mufher as this, that one of
their kings, whom Herodotus names Ariantes, being pre-
fent, and obferving these heads of arrows to amount to an
immense bulk and weight, as he had indeed a prodigious
army under him, ordered them to be melted and caft, and
made a large capacious veftel, which our author tells us
was still extant in his time; and, though full fix inches
thick, was large enough to hold fix hundred amphorae,
that is about fifty hogheads, and remained a monument
of this prodigious army. What feems to be a stronger
argument of their being populous, is, the fuccedence of colonies
which they fent out, chiefly towards the southern parts
of the world.

The Scythians cultivated no arts or sciences, except
that of war, nor did they pay much attention to trade or
commerce, or any fpecies of agriculture except paffurage.
Their mode of living was altogether incompatible with
commerce. They do not feem to have known any thing of
writing, until they brought it with them from Asia, after
their twenty-eight years' invasion of that country.

Their language is very much unknown to us; but the
extent of their territories and their intercourse, and inter-
mixing with various other nations, muft occasion a great
number
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number of dialects, from which most probably have sprung the Muscovith, Slavonic, Polich, Danish, Swedish, Saxon, and many others; between which one can but barely discover affinity enough to evince their origin from the same mother. A great number of words and phrases that are found not only in those northern languages, but also in the Latin, Greek, Arabic, and Peric, show them to have been so many dialects of the old Celt. If those few relics of the Scythian, which we have left in the names of their kings, tribes, and districts, do not so plainly appear to be of the same extraction, we must remember they have passed through so many different hands, and have so often changed their drefs, especially among the Greeks, that they may be easily suppos'd 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 Oecenes, a Scythian tribe, so called in Herodotus, from their living upon the eggs of wild-fowl, and derived from the Greek ἑεα. The Nomades were so called from ὑπαρχ, past, Of the fame extraction were the Hyppodes, Androphagi, and some others.

Their chief manufactures feem to have consist'd mostly in building waggon's for their families and baggage, which being covered with the skins of beasts, shews that they must have had some notion of tanning and d'ressing leather. We may likewise reasonably suppos'e, that they fabricated their own weapons, which were scimitars, javelins, axes, but especially bows and arrows, at which they are said to be fo expert, that their very children were trained to shoot at a mark, even as they rode on horseback; infor'mu'm that it became a common proverb, "that the Scythians were as dextrous at their bows as the Greeks were at their lyre." Hence Cyxares, 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 fo expert in horfemanship, as to have acquired the epithet of ἑτοδυναμον by Herodotus and Lucian. Their women are affirm'd 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 neither mules nor asses; and the reason they give is, that the country was too cold for those creatures. Experience has shewn the contrary, at least with respect to the latter; but the true reason seems to be, that the horses, 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 inhabitants called themselves Olbiopolitans, and the Greeks Bothyrians, 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 pasturage for their cattle, and contenting themselves with the spontaneous products of the earth, without being at the trouble of manuring it. And this is in all likeliness the cause we read of so many deferts, forsets, and large uninhabited tracts of land between tribe and tribe, in the writings of ancient historians and geographers. How they dispof'd of the wool of their flocks we know not, but, by their clothing themselves with the skins of wild or tame beafts, we may conclude they did not manufacture it into cloth; and as those skins were of their own d'ressing, they wanted hall the help of foreign manufactures. Smiths they must have had for making their arms, waggon's, and other necessary tools. As to their arrows, darts, and javelins, if their heads were made of copper, they were probably cast in moulds. 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 entrusted the care of them to shepherds, who were a lower rank of Scythians, below the martial men, though they too had slaves and captives in their service. They used to move from pasturage to pasture, with the persons and families which were unfit to go to the wars. These chiefly lived upon honey, cheese, and milk, more especially that of their mares, from which creature, if Herodotus was rightly informed, they had a strange way of forcing plenty of it, by blowing wind into the privities; but their chief and choicest food was the venison they 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 feiz'd 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 instance or two 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 custom 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 fame liberty was allowed to private men we cannot affirm. The reason the Scythians gave for abhorring the Bacchanalian feats of the Greeks, namely, that it was abus'd to suppos'e, that a god should drive men to all the violent transports 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 Wife 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 signalized 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 occasions not worth enquiring after; but in general, they were remarkably abstemious, except in their affections for their favourite women. They talked little, but concisely and nervousl, especially about their warlike affairs. They commonly travelled on horseback, or in their domestic vehicles. When they had any rivers to cross, they laid their horse's faddle and weapons upon a skin filled with cork, and so well, 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 horses, 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 seated them in their turn, setting part of the banquet before the deceased. This ceremony was continued forty days, after which the person was buried, and his attendants
endants purified themselves, not by any ablution, but by
the smoke of some hemp-feed peculiar to the country,
which being thrown upon burning fumes, emitted a much
more agreeable perfume than the frankincense used in
Greece, and intoxicated the company, who concluded the
ceremony with hideous thicks. This served instead of
washing, which the Scythians never practiced; not even
the women, who used instead of it to anoint their bodies
and face with a paste, made of cypreces, cedar, and franki-
cence, ground upon a rough floue, and soaked in water,
which paste being taken off next day, rendered their skins
clean, firming, 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 Samiritans 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, man-flayers, in their flight from the Grecians, having
landed near the precipices of the Plaius Maotis 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 Samiritan 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 Amaz-
ons never could perfectly learn that language, but taught
it their offspring, corrupt as themselves spoke it. Here it
chiefly was, that a virgin was unqualified for marriage,
till the had dispatched an enemy in the field.

The Taurians had this inhuman 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 imprecations, and
flinging his carcasse 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 stuck on a pole.
These Taurians pretended, that the virgin daemon whom
they thus worshipped, was Iphigenia, Agamemnon's daughter.
They lived chiefly by war and rapine, and were very cruel
to those that 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 Buddians. 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 metamorphosis, they resumed 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 worst of all were the Androphagi, or men-eaters,
who observed neither laws nor justice, and had nothing in
common with the rest, but their drear and occupation of
breeding cattle. The Melanchemenas were so called for
afflicting to go always in black; they followed the Scy-
thian 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 Buddians 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 Ge-
lonus, whose houses and high walls were of timber, and
each side of the walls was three hundred feet in length;
it had temples and chapels dedicated to the Grecian gods;
and here they celebrated the Bacchanaalia triennially.
The people of the province differed from those in the city,
in that the former applied themselves to the keeping of cattle,
and to the tillage and planting gardens, living upon the
products of them, and of their corn fields: in a word, these
Gelonians were so much more civilized in their manners
than the Buddians, that they seemed quite another people.
They are suppos'd to have been of Greek extract, and to
have been in time quite blended with the Buddians, who
were of Sarmatian origin, and contiguous to them; and
Herodotus observes, that each preferred their own native
language. The Gelonians learned, among other things, the
custom of painting their bodies from the Sarmatians, whence
that verse in Virgil's Georgics, xii. v. 115.

"Eosque domos Arabum pictoque Gelonos."

This province abounded with otters and beavers, which
afforded skins for wearing, and called for medicine.

The Iatria, Grecians, having taken the country on the
north-west of the Caspian sea, and the Massagetes on
the west. For an account of the Amazonis, we refer to
that article. The Nomades differed but little from the royal
Scythians, except in this appevative, 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
removed to fresh grounds; and, when called to the wars,
left their families and flocks, with their shepherds, till
their return. Pliny places them on the left side of the
Caspian sea, and says the river Panticas parted them
from the Georgi. Strabo adds, that they lived in waggons
instead of houset. (See Nomades.) For an account of the
Massagetes, see Massagetes.

The following table exhibits the names and succession
of Scythian kings:

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Succession</th>
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<tbody>
<tr>
<td>1</td>
<td>Scythes</td>
<td>12. Panaxagoras</td>
</tr>
<tr>
<td>2</td>
<td>Naptis</td>
<td>13. Tanais</td>
</tr>
<tr>
<td>3</td>
<td>Phithra</td>
<td>14. Saulus</td>
</tr>
<tr>
<td>4</td>
<td>Sagillus, or Protevias</td>
<td>15. Spargapies</td>
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<tr>
<td>5</td>
<td>Madyes</td>
<td>16. Ariphes</td>
</tr>
<tr>
<td>6</td>
<td>Thomysios</td>
<td>17. Scyles</td>
</tr>
<tr>
<td>7</td>
<td>Jancirus</td>
<td>18. Octamafades</td>
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<tr>
<td>8</td>
<td>Indartius</td>
<td>19. Ariantes</td>
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<tr>
<td>9</td>
<td>Targitaus</td>
<td>20. Athes</td>
</tr>
<tr>
<td>10</td>
<td>Calaxias</td>
<td>21. Lambinus</td>
</tr>
<tr>
<td>11</td>
<td>Scholopethes</td>
<td></td>
</tr>
</tbody>
</table>

Madyes was a warlike prince, and it was under his con-
duct that the Scythes, having driven the Cummerians, or
northern Celts, out of Europe, and pursued them into Afa,
invaded the country of the Medes, and held the greater part
of Upper Afa in subjection for twenty-eight years. As
Scythia did not afford a sufficient supply of food for its
numerous inhabitants, they discharged the superfluous mult-
tudes towards the more fertile south; and having rapidly
passed into Afa, their victorious army was led into Egypt.
Here they made some incursions into the land of the Phi-
litines; and in this expedition they are said to have taken
the city of Bethanc from the tribe of Manafelah, on this
side of Jordan, and to have called it, after their own name,
Scytopolis,
Scythopolis, or the city of the Scythians. In their return to Syria, some of them plundered the temple of Venus at Acalon, and for their sacrilege were punished with a kind of flux of blood, common to the female sex, which descended to their posterity as a mark of infamy. Thomyris, or Tamiris, was that heroine whom, we are told by Herodotus, Cyrus the Great demanded in marriage. Indathyrus was the magnanimous prince who, having received from Darius, the Persian king, the proud challenge implied in the demand of earth and water as a token of subjection, sent him this remarkable reply; that as he acknowledged no lord but his progenitor Jupiter, and Vella, queen of the Scythians, he would shortly fend him a more suitable present, such as might, perhaps, make him repent of his arrogance. This present, confining of a bird, a mouse, a frog, and five arrows, was afterwards dispatched to him, without any application. Gobiros explained to Darius the meaning of this present, which the king had understood to be a token of submission, intimating that the Persians must not hope to avoid the effects of Scythian valour, unless they could either fly like birds, plunge under water like frogs, or bury themselves in the earth like mice. The Persian monarch invaded the Scythian territory; but the result of the expedition was that he was forced to retire with the loss of the greatest part of his numerous army, and glad to escape with his own life, though at the expense of his glory. Saulius was the king of Scythia, according to Jullian, was Laminus. For further particulars relating to the Scythians, we refer to Herodotus, Diodorus Siculus, Jullian, Mela, Anc. Univ. Hist. vol. iv.; Gibbon's Hist. of the Decl. &c. of Roman Emp. vols. i. iv. v. vi.; and Sir W. Jones's Fifth Difcourfe, apud Works, vol. iii. or Af. Refercures, vol. ii. See also Celts, Gete, Goths, Hunis, Sarmatians, Saxons, Scandians, and Vandals.

SCYTHICUM LIGNUM, in Botany, a name given by the ancients to a tree called feytharia by the later writers of the Greeks.

SCYTHOPOLIS, in Ancient Geography, a town of Syria, in a province called Decapolis.

SCYTHRANUS PORTUS, a port of Africa, in Marica, between Antipyrus and the Catanun Promontorium, according to Ptolomy.

SCYTHROPS, in Ornithology, a genus of birds of the order Pice. The generic character is, bill large, convex, sharp-edged, channelled at the fides, hooked at the point; nostrils naked, rounded at the base of the bill; the tongue is cartilaginous, 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 fleshy parts of the bill, and in having the tongue entire at the fides, and bifid at the tip.

Species.

PSITTACEUS. 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 in trees, and uttering, during flight, a loud screaming noise, not unlike the crowing of a cock; it is called by some the Australafian Channel-bird; by others, the New Holland Channel-bird; and by some, Psittaceous 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 fize of a crow, and measure in total length about seventeen inches, of which the bill measures four inches. The general proportions of the bird somewhat resemble those of the cuckoo, but with a longer and more cuneated tail. The colour of the upper parts of the body, wings, and tail, is deep blueish ash-brown, the tips of the feathers somewhat more intense than the reft; the head, neck, and under parts of the bird, are of a pale grey, or dove-colour; the two middle tail-feathers have a black bar near the tip, which is white; all the remaining tail-feathers are ash-brown externally, but on the inner webs are white, crossed by numerous black bars, and marked, like the middle ones, by a broader black bar near the end, the tips being white; the eyes and nostrils are feated in a reddish naked skin; the bill and legs are of a pale yellow, the former are marked on the upper mandible by a longitudinal dusky streak or two, and on the lower by three or four dusky bars near the base. Dr. Shaw has given a figure of this bird, but it may be doubted whether, with respect to magnitude, it is calculated to convey just ideas of the bird itself.

SCZEBRZESZIN, in Geography, a town of Austrian Poland, in Galicia; 5 miles W. of Zamoieie.

SCZEDRONHORST, a town of Lithuania; 60 miles S.E. of Brzez.

SCZUCZY, a town of Poland; 35 miles S.W. of Sandomirz.

SDUR, a town of Arabia, in the province of Hadsjas; 20 miles S.S.E. of Sucz.

SE, or Tse, a city of China, of the second rank, in Ho- nan. N. lat. 36° 25'. E. long. 114° 14'.

FE, Felo de. See Felo.

FE, Per. See Perfe.

SEA, Mare, in Geography, is frequently used for that vast tract of water encompassing the whole earth, more properly called Ocean; which lee.

For the cause of the saltiness of the sea, fee Saltiness.

Sea is more properly used for a particular part or division of the ocean, denominated from the countries it washes, or from other circumstances.

Thus we say the Indic sea, the Mediterranean sea, the Baltic sea, the Red sea, &c., which see respectively.

Till the time of the emperor Julian, the sea was common and open to all men; whence it is that the Roman laws grant an action against a person who shall prevent or molest another in the free navigation or fishing therein.

The emperor Leo, in his fifty-sixth novel, 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 commiffion to certain persons to divide the Thracian Bosporus among them.

From that time, the foreign princes have been endeavouring to appropriate the sea, and to withdraw it from the public use. The republic of Venice pretends to be far more in their gulf, that there is a formal marriage every year between that kingdom and the Adriatic.

To confirm this right, those who contend for it have alleged the example of Uladius, king of Naples, and the emperor Frederic III., and of one of the kings of Hungary, who requested the Venetians to permit them to pass through their sea. 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 incomprehensible; but he very much doubts, whether any power is at present disposed to acknowledge her sovereignty 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 seas 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 salt, 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 their state of communion sufficient to supply their wants, to undertake to render 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 equally 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 fall 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 appropriate 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 an injury, and gives a sufficient caufe 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 whole common right it violates; and all are at liberty to unite against it, in order to repel 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. These are obliged to observe their treaties, and the nation they have favoured 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 sending 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 imprejcribible; they cannot be lost for want of use; consequtently, when a nation finds that itself alone has from time immemorial been in the 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 consent, or a tacit pacif, 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 these 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, in the same manner as it may possess 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 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 suspected, 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. Bodinus 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 the 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 surround that island, even as far as the opposite coasts. (See Selden's "Mare Clauum.") Selden relates a solemn act, by which it appears that this empire, in the time of Edward I., was...
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 1667, at least so far as related to the honours of the flag. But solidly 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 incontestibly to the nation that possesses the country of which it is a part. The ports and harbours are manifestly a dependance, and even a part of the country, and consequently are the property of the nation. The same observation is applicable to the bays and islets. With regard to islets in particular, that serve for a communication between two seas, the navigation of which is common to all, or to many nations, he who possesses the islet cannot refuse others a passage through it, provided that passage be innocent, and attended with no danger to the state. Nothing but the care of his own safety can authorize the master of the islet 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-keepers, 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, of which 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 islet 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 manifestly defined 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 state, 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 foreign 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 the 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. Vattel'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. Hence a ship is said to head the sea, when her course is opposed to the setting or direction of the forges. A long sea implies an uniform and steady motion of long and extensive waves; on the contrary, a short sea is when they run irregularly, broken and interrupted, so as frequently to burst over a vessel's side or quarter.

Sea, General Motion of. Mr. Duffie 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 signs; but the contrary way, after the sun has passed the said 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 signs, the sea runs to the shore; when in the winter signs, from it. On the most southern coasts of Tonquin and China, for the fixed summer months, the diurnal tide runs from the north with the ocean; but the sun having repassed the line toward the south, the tide advances also southward. Phil. Trans. N° 135.

Sea, Baion of the, Flandes maris, 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 irregularity 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 basin of the sea is of such immense extent, and covered in many places with such an unbottomable 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 very rationally be supposed, in some degree, to influence the table 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 Saltness.

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 foundling 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 Quier
in Rouillon, and Cape Croifit 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 fixty and seventy fathom. 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 Irata 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 doublefs run on the same, and in the same order in which we see them at land; and the Irata 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 basin 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 sunk 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 arife, each having a peculiar basin of its own. We are formed by numerous infusions of subterranean currents, and as we fee 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 case, 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 arifes in the bottom of the sea, alters the form of its surface, and makes a basin for itself, in which it runs a considerable way. Many seas near the shore, and when the water is tolerably clear, shew 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 state of rest and quiet, whereas the former are in continual reach of water, which will inflate itself into every crack or crevice nature has left in them, and may be safely supposed 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 it is inferred, that the basin of the sea was at the creation, or at its second formation after the universal deluge, covered with or composed of the same substances, as the surface of the rest of the earth is, that is of rocks, clay, and sand, and other such substances. Over the sea there is an artificial bottom formed of muddy tartaronous incrustations, dead weeds, broken shells, and other bodies of the same kind, cemented together into a firm mass 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 Irata of the earth.

The bottom of the sea is covered with a variety of matters, such as could not be imagined by any but 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 foundations, where the plummet first touches on approaching the shores, give some idea of this. The bottom of the plummet is hollowed, and in that hollow there is placed a lump of salt; this being the bottom of the lead, is what first touches the ground, and the loft measure of this is placed into it forming part of those substances which it meets with at the bottom of the sea; this matter, thus brought up, is sometimes pure sand, sometimes a port of sand made of the fragment of shells, beat to a port of powder; sometimes it is made of a like powder of the several sorts of corals; and sometimes it is composed of fragments of rocks; but besides 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 point 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 snowly 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 tartarous 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 substanies, found at the bottom of the sea in these places, are also sometimes found extended over the surface of marine substanies of the harder kind, which are found in deep water. They are always, in this case, in a sort of liquid form, being lodged within, or embodied among a sort of jelly or glue of a transparent substanie, which in those cases perfectly coats over the whole. In this state it gives the naturalift, who is present at the fishing up of his treasures, a transient prospect of
of a very elegant kind, but this vanishes while he admires it. A piece of coral, or other hard substance, thus coated over, appears, as it rises to the surface of the water, of a delicate green, blue, or purple; but when taken above water it is found that this fine colour is only in the coat of glue or jelly which covers the substance; as soon as this is wiped off, the colour is carried away with it, and the coral shows its own native tinge; and it is to no purpose to attempt the preparing of it, by sucking this glue to dry upon the coral, for the colour flies away by degrees, as the moisture evaporates, 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 horrid matter. These are beauties in the sub-marine productions, 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 unfathomable recesses. It is easy to conceive, that in these places we should find great quantities of the most beautiful substances. Marigl, Hist. Phys. de la Mer.

Dr. Donati, in an Italian work, containing an essay towards a natural history of the Adriatic sea, printed at Venice in 1750, has recited many curious observations on this subject, and which confirm the above account of Marigl; having carefully examined the sea and productions of the various countries that surround the Adriatic sea, and compared 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 sea consists of different strata placed one upon another, and for the most part parallel and correspondent to those of the rocks, islands, and neighbouring continents. They contain stones of different sorts, minerals, metals, various patinated bodies, pumice-flour 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 earths 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 crust, which he discovered under the water, composed of crufltaceous and terebellate bodies, and beds of polypes of different kinds, confusedly blended with earth, sand, and gravel; the different marine bodies, which form this crust, 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 of ineradic concurs; and from this rising of the bottom of the sea, or of the level of the water naturallly results; in proof of which he writer recites a great number of facts. Philosopf. Transf. vol. xlix. p. 585, &c.

SEA. Dead. Dr. Perry made several experiments on the water of the Dead sea, in order to find what particles it contained. Upon infusing some scrapings of galls in it, it becomes of a bright purple colour, but that not till it has stood a considerable time. On adding oil of tartar per dilution to it, it becomes turbid, and looks as if globules of fat were fluctuating in it; this unctuous matter, upon its long standing in repose, comes together in form of a sediment at the bottom. On pouring spirit of vitriol into it, it deposits a milk-white greasy sediment, which, after standing twelve hours, occupies about one-fifth part of the liquor. On putting a small quantity of facecharne faturni to it, it deposits a small quantity of greyish powder; being severely and separately mixed with a solution of sublimate, with spirit of sal ammoniac, and with sugar of violets, it neither ferments nor deploys any sediment, nor changes colour, except with the sugar of violets, with which it becomes green.

It is highly satured with fust, so that it is to common water in specific gravity, as five to four; and it has so acid and typhic a taste, that on being held in the mouth, it constricts it in the manner of alum.

It appears, that this water is impregnated with a sort of an acid and alkaline nature, and a matter partly of a fulminating, partly of a bituminous nature. Philos. Trans. N° 346. p. 56. For the observations of other writers on this subject, see ASPHALTITE lake, and DEAD SEA.

SEA, luminous of the, is a phenomenon, which has been taken notice of by many nautical and philosophical writers. Mr. Boyle, after reciting several circumstances attending this appearance, ascribes it to some chemical law, or cullom of the terrestrial globes, or at least of the planetary vortex.

Father Bourzes, in his voyage to the Indies, in 1704, took particular notice of this phenomenon, and very minutely describes it, without assigning the true cause.

The abbé Nollet was long of opinion, that the light of the sea proceeded from electricity, and others have had recourse to the same hypothesis. M. Bayon, in his "Mémoires pour servir à l'Histoire de Cayenne, &c." Paris, 1757, informs us, that, having made a great number of experiments, in different places, in order to find out the true cause of this phenomenon, he always found, that the luminous points in the surface of the sea were produced merely by friction.

However, there have been two hypotheses, which have most generally been received, for the solution of this phenomenon; one of which ascribes it to the shining of luminous insects or animalcules, and the other to the light proceeding from the putrefaction of animal substances. The abbé Nollet, who at first considered the luminousness of the sea as an electrical phenomenon, having had an opportunity of ascertaining the circumstances of it, when he was at Venice in 1749, relinquished his former opinion, and concluded that it was occasioned either by the luminous aspect, or by some liquid or effluvia of an insect which he particularly describes; but does not altogether exclude other causes, and especially the spawn or fry of fish.

The same hypothesis had also occurred to M. Vianelli, professor of medicine in Chioggia near Venice; and both he and M. Grizzellini, a physician in Venice, have given drawings of insects from which they imagined this light to proceed.

A similar conjecture is proposed by a correspondent of Dr. Franklin, in a letter read at the Royal Society in 1756; the writer of which apprehends, that this appearance may be caused by a great number of little animals, floating on the surface of the sea, which, on being disturbed, might, by expanding their fins, or otherwise moving themselves, expulse such a part of their bodies as exhibits a luminous appearance, somewhat in the manner of a glow-worm, or fire-fly; that these animals may be more numerous in some places than others, and, therefore, that the appearance above-mentioned,
tioned, being fainter and rarer 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. Fothergill, 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 spars, which stuck to his finger while he was lifting his hand with his hand, was examined by the common magnifier of Mr. Ramden's improved microscope, and was found to be globular, transparent like a gelatinous substance, 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 intestinal 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 the source of the power of shining, or of withholding their light at pleasure.

M. Dagelet, a French astronomer, falling into the bay of Astongil, 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 exhaled 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 whitish and pearly kind of luster; 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 innumerable 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 fat in motion; and Mr. Rigaud affirms, that the luminous surface of the sea, from the port of Brest to the Antilles, contains an immense quantity of small, round, shining polypus.

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 spars, which would continue visible longer than those in the ocean; the same effect was produced by all the acids, and various other liquors. M. le Roi is far from allowing 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 substantia of the phosphoric kind, arising from putrefaction.

The observations of F. Boursier, above referred to, render it very probable, that the luminousness of the sea arises from slimy and other putrefactive 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 putrefying 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 those 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. lxi. p. 446, &c. which have the advantage of being easily made, and leave no room for doubt, that the luminousness 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 collar 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 fides 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 scum. The third night the light of the sea-water, while at rest, was very little, if at all, less 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 substance. 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 avoirdupois 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 dissolved.
SEA

folved. The next evening, the whole surface of the arti-

ficial sea-water was luminous without being stirred, but
gave much more light when it was disturbed, and exhib-
ited the same appearances with the real sea-water in the
preceding experiment; while the other water, which was
almost as faint as it could be made, never gave any light.
The herring which was taken out of it the seventh night,
and washed from its salt, was found firm and sweet; but the
other herring was very soft 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 arti-
ficial sea-water, instead of one, the water, Mr. Canton says,
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 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, it is probable, Mr. Canton
observes, that if the sea were less salt, it would be more
luminous. See **Putrefaction**.

Mr. Canton observed, as Mr. Ant. Martin Swed. Ab-
hand. vol. xxxiii, p. 225. had done, that several kinds of
river-fish could not be made to give light, in the same cir-
cumstances in which any sea-fish became luminous. He
says, however, that a piece of carp made the water very
luminous, though the outside, or scaly 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 Insurance**, 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 cau-
ses" 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 terrors of
weather, winds, and waves, from lightning and tempests,
from rocks and sands, &c. A loss by the perils of the sea
therefore happen, 1st, by the ship's foundering at sea, in
which case it must generally be total; or, 2dly, by strand-
ing, which is either accidental, in consequence of the
ship's being driven on shore by the winds and waves, or
voluntary, where she is run ashore either to prevent a worse
fate, or for some fraudulent purpose; this strand
ning 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 fullfled 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 rocky rock, or some-
thing 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 con-
versant in maritime affairs, has elapsed, a liberal under-
writer will pay his loss; and if there be any ground for
doubt, he may either demand security from the injured to
refund the money, in case 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 terrors 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
tempet. If flames be thrown overboard, on account of a
scarcity of water, occasioned by the captain's mistaking his
course; this is not a loss by the perils of the sea. The
cafe is the same, if the flames die 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 cafe of throwing flames overboard
in order to lighten a ship and preserve it in a storm, the
practice has been justly reproved by Rear-Admiral Marshall.
Every thing on board, however precious, as he humane and
rationally observes, should be thrown into the sea sooner
than the meanest flame. Pullendorff also maintains, that
whoever, under pretence of saving the ship, shall throw men
into the sea, whether they be freemen or slaves, and whether
it be done by or without lot, is guilty of homicide; for no
man, 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
continued, this is a loss by the perils of the sea within
the policy. Also, if animals be injured, their death, oc-
casioned by tempells, 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 otherwise if their death be
owing to dilate. The injury occasioned by one ship's run-
ing 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 rear-admiral Marshall conceives, amount to baratry,
and the insurer 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 insurer is held to be liable
even when the fire happens by the fault of the master or
mariners; but in France the insurer is not held answerable
in such case, unless, by the policy, he be liable for baratry.
For every loss occasioned by capture, whether lawful or un-
lawful, and whether by friends or enemies, the insurer is
liable. Marshall on Insurance, vol. ii. See **Recapture,
Risks, and Salvage**.

SEA-Adder, in Ichthology, an English name for a sea-fish
of the acus kind, called by Willughby the **new plumbeiformis**.
See **Acus and Syngraphes**.

It is a small fish of a cylindric shape, without scales, and
of a greenish-brown colour, with some admixture of a
reddish-yellow.

Their finot 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 thicknes of a goose-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 finot there is always
a fleshly tubercle.

The fish is common on the coast of Cornwall. Willughby.

SEA-Army. See **Naval Army**.

R
SEA-Afrole. 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 10 Geo. II. c. 32.

SEA-Bat, in Ichthyology. See Chelidon Vespertilio.

SEA-Bea, in Zoology, the Phoca Ursina of Linnaeus, called also by some writers the sea-cat, and by Pennant the Ursina seal, inhabits together with the sea-lion and manati, from June to September, the isles that are scattered in the seas between Kamtschatka and America, in order to copulate, and bring forth their young in full security. In September they quit their station in a very emaciated 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 urane seals lead, during the three months of summer, a very indolent life; they are confined for several weeks to the same spot, keep 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, confining 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 canes of their disputes are generally such as these; an attempt to seduce any of their females, the intrusion of one upon the station of another, and interference in their mutual quarrels. Their battles are fierce 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 feizze 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 fallen 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 800lbs.; the nose projects like that of a pug dog, but the head rifies suddenly; the nostrils are oval, divided by a septum; the lips thick, and in the inside red and ferrated; the whiskers long and white; the teeth, which are thirty-six in number, lock into each other when the mouth is closed; the tongue bid; 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, so 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 tint with grey. The females are cinnereous. 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 nauseous, but the flesh of the females resembles lamb, and the young ones roaled are as good as sucking-pigs. Pennant's Hist. Quadr. vol. ii. p. 526, &c. See Phoca Ursina.

SEA-Bisket. See Bisket.

SEA-Boat, in Naval Language, a vessel that bears the sea firmly, without labouring heavily, or straining her masts or rigging.

SEA-Breaches, a term used by the farmers to express the overlowing of their low lands near the sea by the sea-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 fenced to rest must be covered with a large quantity of fresh earth, to take off from the too great saltiness of the other; and the whole land should be ploughed for three or four years, to let in the rains and air to refresh it.

SEA-Bream, in Ichthyology, the English name for the fish called by the generality of authors the Pagarus and Pharus. According to the new system of Arrédi, it is a species of the Sparus; and is distinguished by the name of the red Sparus, with the skin carried into a furis 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 Linnean 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; dull, 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 swarm near the Arctic circle, and the lower parts 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 Onar, which are fresh waters, but these 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 fuddle 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 often float on the waves.

In summer they sleep on rocks or sand banks; if surprized,
they plunge into the sea, and when at a distance fling up the
fand with their hind feet, and make a piteous moaning;
as they feramble along; and if they are overtaken, vigorously
defend themselves with their feet and teeth; they are driven
by a flight blow on the nose, otherwise they will fur-
vive many wounds.

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 fable
of sea-nymphs and fyrne. They are gentle and docile; they
feed on all sorts of fish; are themselves good food,
and eat by voyagers: they are killed for the sake of the oil made
from their fat, of which a young feal will yield eight gallons;
their skins are useful in making waitcoats, covers for trunks,
and other conveniences; and they are the wealth of
Greenlanders, supplying them with every necessity of life.

We have a draught of this animal in the Philosophical
Transactions, No. 459, by Dr. Parsons, who observes, that
Aldrovandus, Johnston, Rondeletius, and Gencer, have made
several mistakes in the figures of this creature, so as to con-
vey no just idea of it.

Upon dissecting one of these animals, the stomach, intesti-
tines, bladder, kidneys, uriner, diaphragm, lungs, great
blood-vessels, and pudenda, were like those of the cow; the
hair of the whiskers very hairy and clear; the spleen
was two feet long, four inches broad, and very thin; the
liver consisted of six lobes, each hanging as long and as lank
as the spleen, with a very small gall-bladder. The heart was
long and flabby in its contexture in general, having a large
foramen ovale, and very great columna carnosea. In the
lower stomach were about four pound weight of flinty
pebbles, all sharp and angular, as if the animal chose them
of that form for cutting the food. The uterus was of
the horned kind, each of the cornua being thicker than the
body or duct leading to them: the ovarie 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 Ariftotle,
Pliny, Aldrovandus, Rondeletius, Gencer, Wolfgangius,
and Johnston.

This animal is viviparous, and suckles its young by the
mamillae, like quadrupeds; and its flesh is carnious and mu-
cular. That dissected by Dr. Parson was seven feet and
an half long, though very young, having scarcely any teeth,
and having four holes regularly placed about the navel,
in which time became papillae. (See Phoca Vitulina.) See
a description of other species of seal, with figures, by Dr.
Parsons in Phil. Trans. vol. xlvii. p. 109, &c. and Pen-

SEA-Chart. See Chart.

SEA-Clay, in Agriculture, a muddy sort of clayey matter
found on the shores and borders of the sea, which is of a blackish
or bluish appearance, and often of a very ill tenacious qulity,
not coldly mixing with earthy soils. It moistly lies under-
neath the sandy orzy matters that are collected in such situ-
tations. See SEA-Sand.

In Lancashire they make use of a fat sort of sea-clay, which
is dug out clofe to the shore on the lefts isliff forts of land, when
in the state of fallow for wheat, in the proportion of about
200 single horse cart-keys to the acre, and believe it to an-
swer better than the common fea-fand, or even sandy mud. It
may probably be of a marly nature.

SEA-Coal. See Coal.

SEA-Coap. See Compass.

SEA-Cow, in Zoology an English name of the manatus, a
species of fish fo different from all the other cetaceous tribe,
to which it properly belongs, that Artedi, in his new syslem
of ichthyology, allotted it a peculiar generic name, which is
trichecus; in the Linnean sylltem it is the Trichecus manatus,
which see. This species has thick lips, very small eyes,
two small orifices in the place of ears; neck short, and
thicker than the head; the great thickness of the body
is about the shoulders, from which it grows gradually smaller
to the tail, which lies horizontally, being broad, and thick-
ly in the middle, and growing thinner to the edges, and
quite round. The feet are placed at the shoulders; beneath
the skins are bones for five complete toes, and externally
are three or four nails flat and rounded; near the base
of each foot in the female is a test; the skin is very thick
and hard, having a few hairs scattered over it, whence the
name trichecus, formed of 9{1}/2 hoars, and i{1}/2 hoars. Those
animals of this species, that were measured by Dampier in
the Wett Indies, were ten or twelve feet long; their tail
twenty inches in length, fourteen in breadth, and four or five
thick in the middle, and two at the edges; and the largest
of them weighed twelve hundred pounds; some have
been mentioned, the length of which has been sixteen feet
and a half, and even twenty feet.

According to Dampier, those which inhabit fresh waters
are much less than the others; they inhabit the rivers of
Africa, from that of Senegal to the Cape of Good Hope,
and abound in certain parts of the eastern coasts and rivers
of South America, about the bay of Honduras, some of the
greater Antilles, the rivers of Oronoque and of the
Amazons.

They sometimes live in the sea, and often near the mouth
of some river, into which they come once or twice in twenty-
four hours, for the sake of feeding on the marine plants,
and they are fond of brackish or sweet water than of the salt;
and delight in shallow water near low land, and in places
secure from forges, and where the tides run gently. They
are laid to frolic and leap sometimes out of the water to
a great height. Their flesh and fat are white, sweet,
and palatable; and the tail of a young female is much esteemed,
and a fucking roasted highly delicious. The thicker part
of the skin, cut into lengths of two or three feet.

This animal is called by Herrera taurus manatus, or the
sea-bull, and by others the tuckas y la dona. The French
call it lamanin, or lamainin, and the Portuguese pezze muller.

It may be slame, that so ill-shaped a creature as this
should have given rise to the fancies of the fyrne and mer-
maids, the sea-men and sea-women, yet there is great reason
to believe, that all the fabulous accounts of these monsters,
are owing to the sight of this animal, and of the common
seal, when raising their head and shoulders above the water.

SEA-Mud. See SEA-Mass.

Mr. Pennant has described an animal of this species;
which he calls the whale-tailed manatus, and which the
Russians distinguish by the name of the mpalkia kerweno, or
sea-cow. This animal, whose feet are merely pectoral fins,
and serve only for swimming, brings forth in the water;
and, like the whale, suckles its young in that element; like the
whale,
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 Kamtchatka and America.

In calm weather these animals swim in great droves 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 oblige 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 carcass 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 embraces; the seminal and urine faills 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 voracious and glutinous, and feed not only on the fins 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 louse peculiar to themselves, numbers of gulls are continually perching on their backs to pick out the insects.

They continue in the Kamtchatkan 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 strive 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, strong, and horizontal, ending in a stiff 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 taints like oil of almonds. The flesh is coarser than beef, and will not soon putrefy. The young ones taste 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-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 brings forth more than one at a time. The skin is cut into flces of two or three inches wide, and exported to America for carriage-tracks, and to England for glue. The teeth afford an inferior sort of worry, which very soon turns yellow. Philos. Transl. vol. lv. part 2. p. 249, &c.

SEA-Crow, in Ornithology, a name given by the common people of many counties of England to the puffin; which see.

SEA-Crow is also a name given by Edwards to the cut-water of Cateby and Pennant, and to the black skimmer of Latham. See Rynchops Nigra.

SEA-Cyprin, in the Verme Zoophyta, a name given by Ellis to the Sertularia Cypreifla; which see.

SEA-Daffodil, in Botany. See Panchtum.

SEA-Drewit, in Ichthyology, an English name for the rana pijcatris, or Lophius pijcatarius of Linnaeus; a very remarkable species of fish, of a middle nature between the cartilaginous and bony fishes. See Lophius Pijcatarius.

The bronchial holes are three on each side, which are situated deep in the mouth, and open in the mucous and fasciculi on the side of the head, the sides of which are the branchioplae, having several long slender cartilaginous bones, running longitudinally for their support, analogous to the branchial legons of other fishes; and these lacets, Dr. Parsons conjectures, may answer two ends, first, to form the membrane branchioplae; and, secondly, to make a convenient receptacle for the young till they are able to shift for themselves. If this fish does not bring forth its young perfect, Dr. Parsons thinks there can be no use assigned for these laces; 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 underside: besides, as these fishes crawl on the bottom of shoal places, watching and alluring their prey, the young must be protected by the parent, till they are able to provide for themselves, which may probably when they grow too large to enter into these membranaceo.

This fish has either no nostril, or else they are hid within the head, and has a sort of membraneous rim running around the commissures of its sides and belly. Its flesh, when boiled, tastes like that of the frog. Willoughby’s Hist. Pisc. p. 85, Philos. Transl. vol. xvi. p. 126, &c.

SEA-Drages, or Draco marinus, a species of Trachinus; which see.

SEA-Drages, among Mariners, are such things as hang over the flup in the sea, as shirts, coats, and even the boat, &c. when towed.

SEA-Drage, or Draco marinus, in Ichtyology, a species of the raia, with a smooth body and a long ferratted spine on a finny tail. See Raia Aqulia.

SEA-Eel. See Eel and Meraza.

SEA-Egg, or Sea-apple, the name of the roundish centronia, with crooked or falcipinate spines. See Centronia and Echinus.

SEA-Fan, and Sea-feathers. See Gorgonia and Spongia.

SEA-Faring, denotes the condition of a mariner.

SEA-Fight. See Engagement and Signal.

SEA-Fin, a species of Serturaria; which see.

SEA-Fox, in Ichtyology, an English name for a fish of the fquals kind, called also the sea-ape; both names being given
given on occasion of the length of its tail in proportion to the body.

The old Greek writers have called it alopecia, and the later vulpes marina, and fimiæ marina, whence the names sea-fox, and sea-ape. See Sea-Fox and Squalus Vulpes.

SEA-Grage. See Altitude and Gage.

SEA-Gate, at Sea. When two ships are aboard one another, by means of a wave or billow, the seamen lay, they lie aboard one another in a sea-gate.

SEA-Goof, in Ornithology, the Ana leucoptera. See Duck.

SEA-Grape, in Botany. See Coccoloba.

SEA-Gudgeon, in Ichthyology, an English name given to the fish called by the generality of writers gobius niger, and the gobius marinus.

Artedi, who has made a genus of the gobii, excludes the common gudgeon, or gobio fluviatilis, from it, but he admits this fish as a genuine species of it.

Atheneus tells us of three kinds of gudgeons, the black, the yellow, and the white. This seems to have been very plainly the black gudgeon of that author. Salvin, in his figure of this fish, has given three fins on the back, but it really has only two. See Gobius Niger.

SEA-Hair, a species of Sturlaria; which fee.

SEA-Hare, in the Histories of Infestis, the name of the lcnna; a species of the Aplysia and alio of the Testis; which fee.

SEA-Hen, in Ornithology, a name given by some to the longwia, a web-footed bird, common on our coasts, and called the guillemot, or kidburn. See Columbus Troile.

SEA-Holly, in Botany. See Exyngium.

SEA-Hoarse, in Ichthyology, the English name of the hippocampus, a species of the acus, according to the older writers, and one of the syngnathi of Artedi. See Syngnathius.

The many idle tales reported of this vast amphibious creature, such as his method of bleeding himself when distempered, his vomiting fire when enraged, and the like, have made people, in almost all ages, delirious of seeing the animal. The Romans were fond of exhibiting it in their shows of wild beasts, and the description Pliny gave of it thence, was all the world knew of the creature for many ages. That author’s account, however, of its feeding on grubs on the banks of the Nile, 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 state, yet are found not unfrequently, in part at least, buried under ground, and that at great depths. The bones of the head are different from those of any other known animal, and when found in some parts of France, had always puzzled the wisps of the naturalists there, who, had in vain compared them with those of oxen, horses, &c. But at length one 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 a 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 corresponding very well with them. Mem. Acad. Par. 1724.

Sea-hoarse is also a name sometimes, but improperly, given to the river-hoarse, or hippopotamus.

Sea-hoarse 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 effluent plant, the young shoots of which are used somewhat in the manner of asparagus, and may, if it be said, 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 Crambe.

In addition to what has been offered under that term, it may be noticed that the plant grows naturally the belt in a sea sandy soil, or one which is of a loamy gravelly nature near the shores of the sea. In the cultivation of it in the garden, the improved method which has lately been advised, is to prepare the ground for it by trenching it two feet and a half deep, about the close of the year or in the beginning of it; when not that depth naturally, and of a light quality, it is to be made so by artificial means, such as the applying of a suitable proportion of fine white sand, and very rotten vegetable mould; if the ground be wet in the winter season, it should be completely drained, that no water may stagnate in it near the bottom of the cultivated mould, as the strength of the plants depends upon the dryness and richness of the bottom soil. After which the ground is to be divided into beds, four feet in width, with alleys of eighteen inches between them; then, at the distance of every two feet each way, five or fix feet are to be found, in a circle of about four inches diameter, to the depth of two inches. This business should be performed in a strictly 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 seeds which were found and perfect, they will come up and flower themselves in the fall spring or beginning summer months; which as soon as they have made three or four leaves, all but three of the strong and well 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 so as for them to have the whole of their top-root in 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 fresh earth and sand to the thickness of an inch; the compost thus used having lain some time in a heap, and been turned several times, so as to be free from weeds, and the own insects as well as grubs. Upon the sandy loam dressing, about six inches in depth of light flake litter is to be applied, which completes the work of the first year.

In the spring of the second, when the plants are beginning to push, the flake litter is to be raked off, a little of the most rotten being dug into the alleys, and another inch depth of loam and sand applied. Cutting this year is to be refrained from, notwithstanding some of the plants may rise strong, and the beds managed exactly as before during this winter season.

In the third season, a little before the plants begin to show 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 alluded to, pressing it firmly into the ground, so as to exclude all light and air, as the colour and flavour of the shoots are greatly injured by exposure to either of them. When the beds are twenty-six feet long, and four wide, they will hold twenty-four blanching-pots, with three plants under each, making twenty-two plants in a bed. They are to be examined from time to time, the young stems being cut, when about three inches above the ground, care being taken not to injure any of the remaining...
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 nutrient 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 faring is tripping, 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 season.

The blanching-pots for this use are somewhat of the same shape and size as the large bell-glasses 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 contrastly be kept as near fifty-five degrees of Fahrenheit's scale as possible, and on no account higher than sixty at any time. In this intention, in either of the two concluding months of the year, the sea-kale may be wanted more early or late, a suitable quantity of fresh stable 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 season as to mildness or severity.

It should invariably be well pressed down between the blanching-pots, heat-flicks being placed at proper intervals, by the occasional examination of which the heat below will be readily shewn. 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 unfrequently 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 sifted neither very small nor very large. Salt has also the power of destroying them in an effectual manner, without injuring the kale-keil.

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 supposed 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 Charadrius hiaticula, and Emberiza unicolor.

Sea-Laurel, in Botany. See Phyllanthus, and Xylophylla.

Sea-Law. See Laurus of Oleron, Uses and Customs of the Sea, and Marine Insurance.

Sea-Leech. See Hirudella Marina.

Sea-Letter, or Sea-brief, in Marine Insurance, one of the documents expected to be found on board of every neutral ship. This specifies the nature and quantity of the cargo, the place from which it comes, and its destination. This paper, however, is not so necessary as the passport, which is the permission from the neutral state to the captain or master of the ship to proceed on the voyage propounded, and usually contains his name and residence, the name, description, and destination of the ship, with such other matters as the practice of the place requires. This document is indispensable necessary for the safety of every neutral ship. Hubner says that this is the only paper that is rigorously insisted upon by the Barbary corsairs, by the production of which alone their friends are protected from insult. The passport in most cafes supplies the place of the sea-letter.

Sea-Lion, Phoca Leoena of Linneus, in Zoology, is a species of seal, which inhabits the seas about New Zealand, and the islands of Juan Fernandez, the Falkland Islands, and that of New Georgia. The animals of this species are seen in great numbers in June and July, the breeding season, on the island of Juan Fernandez, where they rest to give birth, and leave them in the sea, until September; they bring forth two at a time; and during this season, the female is very fertile. They arrive on the breeding islands very fat and full of blood, and their blubber has been found a foot thick; one of them has been known to yield a butt of oil, and the blood has filled two hogheads.

Lord Anson's people eat the flesh, calling it beef by way of distinction from that of the common seal, which they called lamb. The old animals, except at the breeding sea, are very timid; and to prevent surprise, each herd places a sentinel, who gives certain signals at the appearance of danger; they associate in families, like the sea-bears, and are equally jealous of their miffrels. They are of a lethargic nature, and fond of wallowing upon one another in muddy places; they grunt like logs, and snort like horses.

During the breeding sea, they abstain from food, and become very lean; at other times they feed on fish and the smaller seals. The male has a projecting snout, hanging five or six inches below the lower jaw; the upper part conveys of a loose wrinkled skin, which the animal when angry has the power of blowing up, so as to give the nose an arched appearance; the feet are short and dasy, having five toes on each, furnished with nails; the hind-feet appear like laminated fins; the eyes and the whiskers are large; the hair on the body is short and of a dun colour; that on the neck a little longer, and the skin very thick. The length of an old male is twenty feet, and the greatest circumference fifteen. The nose of the female is blunt and taworous at the top; the nostrils wide; the mouth breathing very little into the jaws; two small cutting teeth below; two small and two large above; two canine teeth, remote from the preceding, five grinders in each jaw, and all the teeth conical; the eyes oblique and small; no auricles; the fore-legs twenty inches long; the toes furnished with oblong flat nails; the hind parts, instead of legs, divided into two great bifurcated fins; no tail; and the whole covered with short ruf/coloured hair. The length from the nose to the end of the fins is four yards, and the greatest circumference two and a half. Pennant's Hist. of Quad. vol. ii. p. 531. See Phoca Leoena.
SEA-

**SEA-Loaf**, *pediculus marinus*, a name given to the *Molucca crab.*

**SEA-Lungs**, in the *History of Infusium*, the English name of a species of medusa.

**SEA-Man.** We have many accounts, even from authors of credit, of something resembling the human figure seen at sea, and fancy has carried them to such a height, that the truth of the description is lost in most of them.

The fyrens, which we have accounts of even in Bartholin, and the sea-man, or *homo marinus*, as it was called, seen and described by Barchewitz, give the greatest credit to the story; but writers are so fond of telling marvellous things, that great allowances are to be made in the reading.

The general description of the sea-man is, that from the navel downwards the whole is only a shapeless lump of flesh, without any of the limbs, either of limbs, fins, or tail. On the breast there stand two pecoral fins, which are each composed of five bones or rays, resembling the human hand, and connected together by a membrane like the toes of a duck, or some other water-fowl’s foot.

These fins are what have the appearance of something human, and when seen without the body of a white-bellied fish, may be taken for hands with short arms, and the resemblance of a head is easily fancied. These fins are not peculiar to any one kind of fish; but the manati or sea-cow, the rana pescatoris or luphostis, and many others, have them. It is probable, from most of the accounts we have, that the manati, or sea-cow, is the creature which, being seen raising its head above water at a distance, and extending these pecoral fins, which are what it swims with, has given rise to the idea of the upper parts of a human figure.

As to the description of a shapeless lump of flesh making up the lower part of the animal, it seems too contrary to the course of nature in all other sea-animals, to have any foundation in reality, and probably was only the invention of the describer, to make out what he did not see above water.

It is true, that Barchewitz takes great pains to prove that the sea-man, or *homo marinus*, he describes, was a wholly different creature from the sea-cow; but his description of it carries too little the air of any thing in nature, to meet with an easy credit.

It is wonderful, that so judicious a writer as Artedi should give any faith to the existence of so strange a fish as this, but he mentions it with a great air of doubt, and wishes a more perfect history of it, if it any where exists.

The public are often imposed upon by cheats, who shew different things under the name of sea-men, mermaids, and fyrens; but if we may judge of the generality of these creatures, thus shewn, by the latest instance among us, they are very wretched counterfeit indeed. This creature was said to be a young mermaid taken on the Acapulca shore, and maintained its credit so well in London, as to afford the proprietor a comfortable subsistence for ten months among us, though no other than a human fucus of about eight months, with a hydropophaeus head, and with the two legs growing together, and covered by one common membrane: the toes of this fucus were bent out in a resemblance of fins.

**SEA-Mark.** A point and conspicuous place distinguished at sea. See LAND-MARKS, BEACON, and BUOY.

**SEA-Mos.** See CORALLINE and CONVEXA.

**SEA-Moufe.** In the *History of Infusium*, the English name of the aphrodita.

**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 soil of the lands in such neighbourhoods. In some instances it is of a rich improving quality, but in the other cases it partsakes of a clayey unproductive nature, especially that which is of a black, tough, crude description. In some places where this material is found of use as a manure, they distinguish it into two kinds, or that which is taken from the surface, and called *green-mud* mud, or sludge, and that which is raised or taken before it is covered with green earth, denominated *red* mud. The former is by much the richest and strongest as manure, therefore the best calculated for application in this way, where it can be procured.

It is sometimes employed in preference to marle, though that substance may be more ready at hand, in the proportion of about three roods to the flat acre, being laid on the land 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 from 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 oat, barley, potato, and wheat crops, producing a large return. It is also very durable as a manure of this nature, lasting longer even than marle, and being never liable to injure grass-lands. This sort of rich sea-mud is mostly met with on the banks or shores near the mouths of large rivers which empty themselves into the sea, but in other cases its fertilizing properties are often less to be depended upon.

The muddy material 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 WEEK, and FOCUS.

**SEA-Officer.** See OFFICER.

**SEA-Union.** In Botany. See SCILLA.

**SEA-Otter.** See OTTER.

**SEA-Oufe.** 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 cases 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 possessing a highly enriching property, it should be diligently provided in all places where it can be had. It is flated, in the Norfolk Agricultural Survey, that Mr. Palgrave, at Culterhal, uses much sea-oufe mud scraped up by the bear 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 on trial that it is a calcareous oufe-mud; and that on felds or burning-places, and sand or gravel, it forms a cold bottom, and is an effectual cure. Fifty loads per acre of sea-oufe have been used on the upland loams of Warham with very great success; superior crops the consequence. And another subsistence may be considered under this head, though in the above Agricultural Survey it has been described under that of sea-weed, which it does not seem to properly belong to. It is found on the coast at Thornham, being marked in Mr. Faden’s map of the country for what is termed crabs, scalps, and oak-roots. It is flated by the write on examining it, to be obviously the ruins of a forest of large trees, the roots and roots remaining, but in such a state of decay, that with a spade he dug into the centre of many, and might have done of all, with as much facility as into a mass of butter. Where the stumps are not found on digging, a black mass of vegetable fibre, apparently consisting of decayed branches, leaves, warches, &c. is turned up; to what depth this vegetable stratum extends, has not been ascertained, but at some creeks
creeks on the very edge of the sea at low water, there is a very fine foamy sea-otique at two or three feet depth; the extent of this once sylvan region, which every common tide now covers, can scarcely be less, 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 or left after falling, but rather that of a foret cut down in halfe, the flumes cleared and hurried away, leaving the branches to rot; but this is mere conjecture. It is remarkable that, on the contrary, in the salt and brackish water, there is often a rank luxuriance, or rather a rank barbarity of vegetation, which is very remarkable and very offensive to the sense of sight and smell.

Two of the most esteemed productions of the sea, which are found to be of the most importance, are the sea-otique or sea-wrack, and the sea-mosses. The sea-otique is the common name of what is called in botany Pissum vulgare, which is a lumpy, or more properly a flumpy sea-otique. The sea-mosses are a class comprehending those that are lignonous, or of a woody hardnes, which were called lithophyta by the ancients, as if their hardnes approached to that of stones; these, Marigli says, consist of two substances, a cortical and an internal; the cortical part, while in the sea, is soft, but in drying becomes as hard as chalk, and easily crumbles between the fingers; the internal substance seems more of the nature of horn than of wood; when burnt it throws out a pumice, 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 these are very pliable, bending in the manner of whalebone, and giving the fame resistence to a knife in cutting. The third clafs comprehends those plants which are of the hardnes of flone, and which should properly be called the lithophyta; these are the several species of corall, madrepora, and the like.

Marigli endeavours to explain the differences of these several substances, and to account for the manner of receiving nourishment, agreeably to the system which prevailed in his time, and which appropriated them to the clafs of vegetables. Marigli, Hift. Phys. de la Mer. Mem de l'Acad. Par. 1710.

By later experiments and observations, it has been sufficiently demonstrated by M. Peyssonnel, Bernard de Jussieu, Donati, &c. that those marine substances which Marigli thought to be plants, are the work and habitation of animals. See on this subject the articles CORAL, AND CORALLINES.

Dr. Lifter apprehends, that those substances which, in his time were thought to be sea-plants, serve to render a great deal of the sea-water fresh, and give it in mists to the clouds, whence it again falls on the earth; this is easily proved by experiment, thus; if a quantity of sea-water be put into a long glass body, and into it there be put a large and vigorous sea-plant, such as the common seawrack, and the head placed on the glass, and a receiver fitted for it without cutting the joints, there will daily distill into the receiver, without giving any fire below, a clear and sweet water, fresh and potable, and without any disagreeable or unwholome quality. The quantity is but small that is obtained in this way, but it is evident, that in the same manner a very immense quantity of the sea-water is every hour made fresh, and raised up into the air from the infinite number of plants that grow in it. Dr. Lifter even thinks that the tropic winds, which blow constantly one way, may be owing to this fort of caufe. Philos. Trans. N° 156. See TROPIC winds.

SEA-PHALEON, in Botany. See ARENILEX.

SEA-Quadrant. See BACK-SCAFF, and QUADRANT.

SEA-ROOM, denotes a sufficient distance from the coast, as well as from any rock and shallows, by which a ship may drive or flud without danger of shipwreck.

SEA-SALT. See SALT.

SEA-SAND. See SAND, and Common SALT.

SEA-SAND, in Agriculture, that fort of fand which is thrown up in the creeks and other places on the coasts of the sea, and which is very often useful as manure. The sea-fand, which is thrown up in creeks and other places, is very rich and proper for this purpose. In the western parts of England, which lie upon the sea-coasts, very great advantage is made of it. The fragments of sea-shells, which are always in great abundance in this fand, add to its virtues; it being always the more esteemed 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 some other of the southern coasts, is of a blue-grey colour, like ashes, which is probably owing to the shells of muscles, and other

fifth
fish of that or the like colour, being broken and mixed with it in great quantity. Wellward, near the Land's-End, the sea-fand is very white; and about the isles of Scilly it is very glifhen, with small particles of tale. On the coafts of the North the sea is yellow; brown, or reddish, and contains so great a quantity of fragments of cockle-shells, that it seems to be chiefly composed of them. That for sea-fand is accounted bell, which is of a reddish colour; the next in value to this is the blueclif, and the white is the world. This kind of fand is the best when taken up from under the water, or from land-banks, which are covered by every tide. And it is remarked, that the small-grained sand is the most sullen in its operation, and it is therefore best for the tenant who is only to take three or four crops; but that the coarse, or large-grained sand, is much better for the landlord, as 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 land-banks.

In the northern parts of Lancashire, and in Cornwall, the more light farts of land in the vicinity of the sea-fhores, are in many cases much improved by the application of sea-fand upon them. The practice is to lay it on in a pretty thick manner, in order that it may be well incorporated with the foil, by the different ploughings before the wheat is sown. In this way large 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 in rendering the herbage more fine and sweet. It is a substanfice that might in many situations be much more extensively made use of than has hitherto been the cafe. See Sands, Shelly.

This fort of sand is considered as a vast treafure by the farmers in some parts of the county of Cornwall, as has been already hinted at, especially where the sea-coast is extensive. It is supposed to be a substance that feeds the corn, as well as pulfe-crops and roots, well, and which is highly useful on pafture-land; it being material to the value of farms whether they are near to or remote from it. It is, however, procured from great distances in some cafes. 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, fliny, earthy, ligneous vegetable, and animal matter, are combined, in which cafe it is denominated lig or liggan, and thought of great value for potatoe crops. The large-sized coral sand is fuppofed the moft lafting in its effects; but the smaller grained and shelly farts are extenfively used in some places.

When this fort of sand is applied alone, either on tillage or grafs-land, it is called clean fanding; but it is more usufally laid on in mixture with earth and dung in the way of a compoif. It is employed in all the proportions of from three hundred to thirty facks of sixteen gallon each, to the customary acre of that diftrift. Its utility depends much on the nature of the lands, being more beneficial on the moory and the thinner farts of foil, than on the deep loamy kinds.

It is computed that more than 54,000 cart-loads of it are taken from the harbour of Padiflow alone, and that the ex- pense of land-carriage for this article only, for the whole diftrift, is more than 300,000 l. a-year.

In some of the northern parts of the county of Lancifter, sea-fand was formerly much had recourse to on tillage and other land, as has been seen above, but it has latterly been lefs employed. They apply it from 80 to 300 or 400 finge- horfe cart-loads to the customary acre, every ten or twelve years, mostly for the wheat crop. The dry sea-fand was formerly made ufe of, but very seldom at present, as the muddy, or that dug from some depth, and intermixed with mud, is now found much better. It is of a blackish appearance, and faid to laft longer in the soil, and produce better crops than the common fand. It is sometimes, likewife, laid upon the grafs, it is laid, with good and lafting effects. In three fmall trials made with it by the Rev. Mr. Steanbank, it feemed however to be of little utility. He applied it on two ridges, on common pafture, on meadow and on ploughed land, in the quantity of 200 fingle horfe cart-loads to the customary acre of each, and found not the leafl alteration or improvement in the crops of any of them. It is, however, remarked, in the Agricultural Survey of the North Riding of York, that in many cafes in the vicinity of the sea, use has been made of sea-fand as a manure with con- fiant success, and that for the diftrifts of Cleaveland, and the coast where the wet adhesive clays want draining and breaking, and in most parts of which it might be easily procured, it would be equally ufeful. It is fuppofed to be there disregarded in confequence of its great plenty, and being capable of being provided without ex pense. See Sand.

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 con- stantly very beneficial in improving land in all situations where they are met with in sufficient quantity. But the great ufe of marine shells is more shewn in the following passage in the statitical account of the parish of Kirkmabreck, 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 fide of Wigton bay, but also in the dry land, several hundred yards from the shore. These shells are sold at five- pence per ton, 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 annualy carried (by villains constantly employed in the busines) all round the coast, and sometimes even to the Isle of Man. Thefe shells have been used with great advantage for the improvement of barren heathy land, infomuch, that many hundreds of acres in this parish, originally not worth more than 25. per acre, have been made worth from 100. to 150. 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 rate of nature, covered with heath, and almost good for nothing. A little calculation might serve to fhew landlords, that on nothing could they lay out their money to so much advantage. As for a tenant, where he has only a leafe for nineteen years, and perhaps his encouragement not great otherwife, 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 at- tended to by the cultivators of such lands, in situations where such manusres can be readily provided. It is observed, that in Loch Tarbet there is an immense number of oyster-shells, almost unmixed with any fand, when the thin litter above them is removed: the extent of this allufifying mass of shells is unknown, but it is probable it can never be exhausted. A vast tract of improvable moorifh land in the neighbourhood, may, some time or other, fhew that Providence did not place this fund of manure in vain so near it. For such moorifh heathy ground, these sea-shells are the fittest ma-
nature, 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 first, as is sometimes done to marl. The kiln might be made with one or two eyes, running into it about half way at the bottom, with some flags or stones 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 both of time and fuel. The operation would not be hindered by the tides, as these shells are found also under the surface beyond the seamark. Strata of these oyster-shells are also to be found at the head of Loch Caoles port; but there (so it 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 Well Bilney, and many other towns in the county, there is a remarkable bed of oyster-shells in sea-mud; the farmers use them at the rate of ten loads an acre for turnips, 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 seeds, 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 fired. All sea materials of this nature should constantly 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 sort of 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-Sorrel, is said to be prevented by drinking sea-water mixed with wine.

SEA-Shell-Grapes, in Botany. See COCCOLORA.

SEA-Splinters, or POLYPOD, a name given by Ellis to the Seriularia lehennstrum.

SEA-Sun-Crown, American. See AMERICAN, &c.

SEA-Sea-Crow, in Ornithology, the name of the Sterna hi-
runda, common on our coasts. See STERNA.

SEA-Tamarisk, a name given by Ellis to the Seriularia ta-
mariska.

SEA-Tangle, in Agriculture. This is another name by which the same 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 compot with some sort of earthy sub-

SEA-Turtle Dove. 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, flones, shells, strong gravel, and many other matters, so 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 material 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 endeavoured to give a new direction to a shifting bank of shells, as a guard to a sea-wall, which had been newly re-

See SEA-Water, 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 pur-

SEA-Water, that briny bitter fluid which constitutes the sea. See WATER.

SEA-Water, in Agriculture, that which is brought by the sea, and much impregnated by saline matters. It is fugg-

SEA-Weed, in Botany, the Submerged Algae of some scientific writers, are such cryptogenic plants as grow under water, in the sea, fixed by their base, originally, to some rock, flone, 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 fa-

SEA-Weed, in Agriculture, the wreck or weed thrown up by the water on the sea-coasts, and sometimes cut from their

SEA
sides. It is the plant known by the name of quercus marina. And it is a material much used as a manure in some districts, as those of Kent, and the northern counties, as well as in the islands of Jersey and Guernsey. It is found to become tender and easily reduced by remaining some time in heaps, and taking on the processes of fermentation. It is strongly impregnated with saline matters, and of course proves a beneficial application for land.

It is said to have been found, in the practice of Mr. Rudd in Yorkshire, to answer well in composition with kelp, ashes, slamm from the alum-works, and lime, the whole being mixed up with earth. But in many places it is used made of its simple state, after having undergone a degree of fermentation, or after being incorporated with yard-dung. In the Agricultural Survey of Argyllshire 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 to fail 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 salts. What comes afloat during summer after the ground is frozen, the more careful farmers gather into heaps, and spread on lay-downs. 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, ashes, fern, weeds, &c. in a compost, it would produce a quick and strong fermentation, and all its juices would be preserved. This is the way to make the moss of this great gift of Providence, and the farmer andcottager 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 pature grounds, nursery lands, and those sown with barley. It is used in the proportion of two cart-loads, weighing two thousand pounds each, with six cart-loads 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 clay 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 laid to have a great effect in giving a full ear to the grain, and to prevent its being laid.

But it has 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 sort, however, which are made use of as manure on the sea-coasts of this country and Ireland, consist of many distinct species of fucus, algae, and confervæ, 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 gaseous matter was small, and chiefly carbonic acid, gaseous oxyl of carbon, and a little hydro-carbonate.

This manure is said to be transient in its effects on land, not lasting more than a tingle 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, seeming to melt down as it were, and dissolve away. A large heap has been known to be wholly reduced to a little black fibrous matter in less than two years. The firm part of the fucus being let remain in a jar with atmospheric air for a fortnight, became much shrivelled, and the sides of the jar covered with dew, the air being found to have lost oxygen, and to contain carbonic acid gas.

The fermenting this sort of weed to ferment before it is used, is thought wholly unnecessary, as there is no fibrous matter rendered soluble in the process, and a portion of the manure is lost. The practice of the best farmers in the western parts of this country, is to be that of using it as fresh as it can be had, and that the results of this method are exactly in conformity to the theory of its operation. "The carbonic acid formed by its incipient fermentation must be partly dissolved by the water set 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 chiefly depend upon this carbonic acid, and the soluble mucilage it contains; and it has been found that some fucus which had fermented so 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 loss sustained in this and perhaps other ways, where earthy matters are not used with it.

Sea-Willow. A name given by Ellis to the Gorgonia acuta.

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 insurer 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 sea-worthiness, and it still relied with the insurers to shew the contrary. A ship should be presumed not to have been sea-worthy, 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 Jerceant Marshall, that the insured shall be held to pretty strict and cogent proof of the ship's being sea-worthy, 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 the failure, 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 his case. If, on the other hand, it appears from the facts of the case, that the loss may be fairly 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 injured, neither the innocence nor ignorance of the insurers, nor any precautions he may have taken to make her sea-worthy, will avail him against the breach of his implied warranty. If the ship be not sea-worthy, the policy will be void, though both the injured and the captain believed her to be sea-worthy; and though the insurers knew the state she was in as well as the owners. Where the goods injured have sustained a damage in the voyage, from the insufficiency of the ship, the question, whether the owner or master of the ship be 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 stirs of weather and the perils of the sea. But it is sufficient if the ship be sea-worthy 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 occurred afterwards. But if a ship, within a day or two after her departure, become leaky and founder 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 sea-worthy when she failed; and it will then be incumbent on the insured to shew the state 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 must be made of matters relating to the risk which are covered by a warranty.

But a ship, to be sea-worthy, 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 Ship and Warranty.

**SEA-Wreck**, 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 falt or flate, 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 Yoke.

**SEA, Head.** See Head Sea.

**SEA, High.** See High.

**SEA, Lie under the.** See Lying.

**SEA, Pacific.** See Pacific.
the structure of the germen, and situation of the embryo.

SEAGAN, in Geography, a town of Persia, in the province of Iarak; 50 miles E.N.E. of Hirabad.

SEAGRIM, the common name sometimes given to a troublesome field weed. See Ragwort.

SEAH, in Jewish Antiquity, a measure of capacity containing six cabs. See Cae and Measures.

SEA-HORSE ISLAND, in Geography, an island in Hudson's bay. N. lat. 62°. W. long. 92° 50'.

SEA-HORSE POINT, a cape on the east of a peninsula in Hudson's bay. N. lat. 54°. W. long. 82° 10'.

SEAGONNET Rocks, rocks on the coast of Rhode island, in the entrance of Narragansett bay.

SEAL, Sigillum, a pincushion, or 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 effigies of the king impaled 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 pleaded sub pede sigillii.

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 5 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. vi. 17. But seals are still older than this; for Jezebel, in 1 Kings, chap. xxii. seals the orders she sent for Naboth's death with the king's ring. See also Jerem. xxxii. 10, &c.

In effect, as the ancient seals were all engraved on the collets, stones, &c. of rings, and as the original use of rings, it is asserted, was only to be used in readiness for the sealing of acts, instruments, &c. seals should seem to be as ancient as rings themselves.

These sealing rings, called annuli signatorii, sigillares, cirgraphi or ceroaphi, it is said by ancient authors, were first invented by the Lacedemonians, who, not content to flut their chuds, armories, &c. with keys, added seals to them; and to this end, at first they made use of worm-caten wood, the impressions of which they took on wax, or soft earth; but at that 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. inclusions of which we have in the first book of Kings, xxi. 8. Elsewhere, viiio. Xenophon, Hellen. lib. i. Quint. Curt. lib. vi. Juft. lib. xliii. cap. iii. where we learn, the keeping of the emperor's seal became a particular office. Lucian adds, that Alexander gave his seal to Perdiccas, thereby appointing him his successor.

Pliny observes, that in his time there were no seals used any where but in the Roman empire. At Rome, he tells us, they were become of absolute necessity, insomuch that a testament was null without the testator's seal, and the seals of seven witnesses; but it does not appear that the Romans had any such things as public seals; nor that their edicts and contracts were sealed, not even in the times of the emperors.

In France the custom anciently was, instead of sealing their instruments, &c. only to seal them; as appears from an infinity of ancient charters, which are not sealed at all; the reason of which was, that in those days very few people were able to write; fearfully any body, indeed, could read and write but clerks; and the custom continued when learning made its way among them, though the reason for doing it had ceased.

In England, the first sealed charter we find extant is that of Edward the Confessor, upon his founding of Westminster Abbey; yet we read of seals in the MS. history of king Offa.

And Sir Edward Coke relies on an instance of king Edwvyn's making use of a seal about an 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 on the parchment, and sometimes an impression on a piece of lead, which hung to the grant with a filken string, and was deemed an abundant authorizing of the grant itself, without either signing or witnesses.

This practice of affixing the sign 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: "propria manu pro ignoranria literarum signum faciete crucis expressi et subscripti."

The fame circumstance is related concerning the emperor Justin in the East, and Theodoric, 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 cardinal Otto, who was legate here in 1237, were to bear in their seals their title, office, dignity, and even their proper names.

Dr. Cheene observes, that none below the dignity of a knight had any right to a pendant seal, called Authenticum.

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 letters, and private letters, &c. called the Sigiliter's ring. This is a very large ring, on which is represented St. Peter drawing his net full of fishes.

The other is used in bulls, representing St. Peter's head on the right, that of St. Paul on the left, with a croz 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. Hopink, 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 title,
title, "de Sigillorum prisco & novo Jure, Traditatus Practicus," &c. We have another work of the like kind by Humeccius, in folio, printed at Frankfort and Leipsic in 1709, under the title, "de Veteribus Germanorum alarumque Nationum Sigillis, eorumque Ufu & Praelectione, Syntagma Historicum." 

SEAL 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 silken 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, Heretical. See Heretical.

SEAL, Lady's, in Botany, a species of Bryony.

SEAL, Solomon's, or lily of the valley. See Convalla-

Nia.

SEAL, in Zoology. See Phoca, and also Sea-Bear, and Sea-Calf.

SEAL, Hair of the, 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 Arrowmith's map Glahedich; it is near the entrance of Strabagh 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°—Alfo, an island in the Atlantic, near the coast of Maine. N. lat. 48° 50'. W. long. 68° 40'.—Alfo, 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° 40'.—Alfo, a cluster of small islands near the east coast of Labrador. N. lat. 53° 15'. W. long. 55° 30'.

SEAL KEY, a small island in the Spanish Main, near the Mouth of the Orinoco. N. lat. 12° 54'. W. long. 82° 40'.—See also Lobo.

SEAL, River, a river of North America, which runs into Hudson's bay.

SEALCOTE, a town of Hindostan, in the country of Lahore; 50 miles N.N.E. of Lahore. N. lat. 31° 44'. E. long. 73° 56'.

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 Seme, 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 seam of sand weighs two hundred weight. The seam also differs very much in the weight of different articles of other kinds. It likewise varies in different districts of the kingdom.
cover the cavities within; and after their distances are marked on the outside with chalk, they make use of another search that has only one point, about which a mixture of wax and tallow is put, to take the impression of the holes; and if there are any a quarter of an inch deep, or of any considerable length, the gun is rejected as unserviceable to the government. The gun is thus proved and searched twice.

SEARCHER, in Rural Economy, an implement used for boring in searching 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 may contain. For the detection of marbles, coals, or other similar substances, the use of the borer may be sufficient. But where difficulties arise 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 Marle.

SEARCHING of Neutral Ships, in Political Economy, a practice authorized by the law of nations, in order to prevent the commerce of contraband goods, or such commodities as are particularly used 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 at present a neutral ship refusing to be searched, would from that proceeding alone be condemned as lawful prize. But to avoid inconveniences, violence, 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 certificates and bills of lading, produced by the master of the ship, unless any fraud appear in them, or there be very good reasons for suspecting their validity.

SEARCHING for the Stone, called also sounding, 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 curved as that of a catheter, in order that it may more easily touch any thing 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 soon as the point has arrived in the perineum, it is to be kept stationary, while the handle is made to describe a semicircular movement downward, so as to turn the concavity of the instrument towards the pubes, previous to its passage through the membranous and prostate portion of the urethra. This is the plan which the French surgeons have called "le tour de maitre."

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 is most commonly the case where one is present. If the extraneous body should not be felt in this manner, the blow 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 hit the stone, 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 earnestly cautioning surgeons never to perform lithotomy, unless they can distinctly feel the stone with the found, or its position immediately before the operation.

SEAR-CLOTH, or Cere-Cloth. The word fear-cloth is supposed to be a corruption of cere-cloth, and to be derived originally from the Greek σκια, wax.

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 fear-cloth is always supposed to have wax in its composition, which distinguishes, and even denominates it. In effect, when mixed with an unguent, has enough wax in it, it does not differ from a fear-cloth.

Sear-cloths are a kind of habiliments to friction, and are sometimes used for other purposes; the bold are compounded of resolvent drugs, as aloes, myrrh, and aloes, incorporated with wax and gums, as galbanum, gum ammoniac, and sapanum; the whole tempered with wine.

SEARSBURG, in Geography, a township of America, in Bennington county, Vermont; 12 miles E. of Bennington.

SEASE, Seasion, or Seasing, in a Ship. See Seize.

SEASONING, in Ship-Building, a term applied to a ship kept lying a certain time after she is completely timbered and dubbed out for planking, which should never be less than six months.

Seafamed timber or plank is such as has been cut down and converted, or sawn out 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 aquilious delimer, which foreigners are much subject to at their first coming.

SEASONS, in Cosmography, 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 saeason, whence the Italians have formed stagione; Nicod derives it from saeason, tempus saeason, sowing 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 verses:

“Dat Clemens hyemem; dat Petrus ver cathedratus; 
Æsitubus autem; autumnat Bartholomaeus.”

SEAT, in AGRICULTURE. See SHEAT.

Seat, in the MANGE, is the posture or situation of a horseman upon the saddle.

To seat a horse upon his branches or hip, see PWT.

Seat, in Ship-Building, the planks or part trimmed out for a stack, &c. to lay to.

Seat-Transom, that transom which is fayed and bolted to the stem-timbers, next above the deck-transom, at the height of the port-fills.

Seating, that part of a floor which lays on the deadwood; and of a transom which fays against the post.

SEATNESS, in Geography, a cape on the S.W. coast of Shetland. N. lat. 55° 46′. W. long. 1° 36′.

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. from London. This place is called Suetetone in Domesday book, and was undoubtedly the Moridunum of the Iter of Antoninus. Rifdon says 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 solemnly named Collyton haven, and procured a collection under the great seal of England for the levying of money to effect the fame, of which work there remaineth no monument, only a remembrance of such a place among strangers that know not where it stands.” At present Seaton is chiefly noted as a well frequented sea-bathing village. The church is an ancient building of freeclone, dedicated to St. Gregory, and contains a very elegant monument in memory of W. Walrout, esq. and his lady. According to the parliamentary returns of 1811, the parish of Seaton comprised 523 houses, and 1524 inhabitants. The History of Devonshire, by the Rev. Richard Polwhele, three vols. folio, 1797. The Chronographical Description or Survey of the County of Devon, by Trillam Rifdon, 3 vol. 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 Nest, 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 Sluice, a sluice which opens into the German sea, on the coast of the county of Northumberland.—Also, 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 rises near Leekward, 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 soft rufhe.

Seavy Ground, such ground as is covered or overrun with rufhes.

SeauM, in Geography, a town of Hindoostan, in Lahore; 18 miles W. of Kahoon.

SEAWOLVES 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 Naturae Curiosorum. 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 Ephemeris. Nat. Curios.

SEBACA, in Geography. See MARIOUT.

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 axes 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 sebacic acid. From the experiments of Therard it has since been proved not to be a peculiar acid, but the acetic acid disguised with some other product of the decomposition. During the experiments, however, he found that by the distillation of tallow, he obtained an acid having peculiar properties, which he still called the septic acid. The following is the process he recommends. Dittill hog’s-lard from a retort, by a heat which will decompose the fat; carbonic acid and carburetted hydrogen first come over, and a yellowish fluid containing acetic acid, but still no septic acid. This receiver must now be removed, and a new one adapted; the heat being continued, an oily matter comes over of the consistence of butter. It is in this substance that the septic acid is found. It is sepurted by first boiling it in water; and evaporating the liquid till the septic acid falls down in crystals. This deposition is increased as the liquid cools.

He also recommends, instead of getting the crystals by evaporation, to add acetate of lead to the water in which the oily matter has been boiled; a flaky precipitate is formed, which is the febat of lead, and which is to be well washed and dried. When to this substance sulphuric acid is added, and heat applied, a fatty liquid floats on the top, which is to be collected; this being dissolved in hot water, forms crystals of pure septic acid, which are depoited on cooling.

The lard affords but a very small proportion of the acid. Rose informs us that it requires a pound of lard to produce forty grains of acid.

Sebacic acid, thus obtained, is in the form of a crystalline mass, of a white colour. It has no smell, but its taste is agreeably acid and slightly bitter; like most other acids it changes some vegetable blues to a red colour.

When heated, it melts like fat into a transparent fluid, but on cooling it re-attains its white consistence and crystalline form. It is said to be volatile by heat, still retaining its properties, but a strong heat decomposes it.

It is sparingly soluble in cold water, and boiling water diffuses about one-fourth its weight; it affords the crystals on cooling, which are in the form of prisms. Alcohol diffuses it in considerable quantity. It is also soluble in oils. From the lait, and some other properties, it bears a strong resemblance to the benzoic acid. This last analogy has been pointed out by Berzelius. He found also that the fats formed by this acid have a strong resemblance to the benzene. These facts go far to shew so strong an analogy between the two
two acids, as almost to establish their identity. See Ben-
zoic Acid.

SEBACOOK, or SEBAGO, in Geography, a pond or
lake of America, in the state of Maine, equal in extent
to two large townships, and connected with Long Pond
on the N. by Sungo or Songo river; these waters reach
nearly 30 miles from N.W. to S.E.; 18 miles N.W. of
Portland.

SEB.AEA, in Botany, a name adopted by Mr. Brown,
from Dr. Solander's manuscript, in memory of Albert
Seba, an apothecary of Amsterdam, who prepared a
splendid description, with plates, of his own museum,
in four large folio volumes, which came out between the
years 1734 and 1765. The author indeed died in 1756,
so that his three latter volumes were posthumous publica-
tions. Many Cape plants are here engraved, and amongst
them one of the present genus. Yet Seba does not
deleve to rank as a scientific botanist, nor did Linnæus,
who knew him, and by whose recommendation he
employed Artedi to arrange his filæs, ever think him
worthy to be commemorated in a genus. If, however,
we compare him with numbers who have been so
commemo-rated, he will not appear to so much disad-
vantage; for as a collector he stands rather high. Brown
Prodr. Nov. Holl. v. 1. 451.—Claws and order, Tetra-
andra Monogynia. Nat. Ord. Rosales, Linn. Gentiana, pul-
divided into four ovate, acute, keeled, slightly spreading,
permanent segments, folding over each other at the base.
Cor. of one petal, petioled, filar-shaped; tube swelling,
the length of the calyx, contracted at the upper part; limb
in four deep, elliptical, spreading segments. Stam. Flä-
ments four, thread-shaped, inserted into the tube, pro-
jecting out of its mouth; anthers erect, shorter than the,
lobe, blending longitudinally, subfinely recurved and
callous at the tip. Pila. Germen superior, roundish,
filling the tube; style thread-shaped, erect, the width of
the flaments; stigmas two, oblong. Peric. Capsule round-
dish, with a furrow at each side, compressed, of two cells
and two valves, the length of the calyx; partitions from
the inflexed margins of the valves, invested into the edges
of the large central receptacle, from which they finnally separate. Seeds
numerous, minute.

Obi. The flowers in some species are five-cleft.
Eff. Ch. Calyx deeply four-cleft, keeled. Corolla falc-
shaped, with an inflated tube. Anthers burbling longitu-
dinally; finally recurved and callous at the point. Cap-
sule with two furrows, two cells and many seeds; the
partition from the inflexed margins of the valves. Stigmas two.

Mr. Brown has separated the present genus from Exacum,
whose genuine species, according to him, are E. fessel and
pedunculatum of Linn. Sp. Pl. with which the albicans
and bordonatum of the Supplementum are, in the latest-mentioned
work, confounded. (See EXACUM.) Perhaps also, as
Mr. Brown conceives, E. pontifilium of the flax work may
make a third, and a non-descript East Indian one in his pol-
iction, a fourth, species. It confiders with as essential to Exacum
a leaf-deeply divided calyx; anthers without a callous tip,
burling by a bore, or short slit, and continuing straight
after the flowers fade; style declining; an undivided stig-
ma; and receptacle of the seeds connected with a partition
originating from the middle of each valve.

1. S. albens. White Seb. (Exacum albens; Linn.
Suppl. 125. Wild. Sp. Pl. v. 1. 673, but not E. pedan-
culatum; Sp. Pl. 1. 163. Centaurium hybridoides foliis,
florus comitis; Burm. Afr. 207. t. 74. f. 4; excluding
the reference to Plukkenet.)—Flowers in the upper forks of
the stem filæs.—Gathered by Thunberg, Sprarrmann, and
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others at the Cape of Good Hope. The root is annual,
fibrous. Stem erect, four or five inches high, much branched,
reciprocated forked, leafy, smooth, with four sharp angles,
level-topped, many-flowered. Leaves small, scarcely at all
decurrent, ovate, entire, smooth, felty, somewhat glaucous.
Flowers four-cleft, though Sprarrmann describes them
otherwise; the lowest more or less stalked, as well as those
which crown the ultimate lateral branches; but those situ-
ated in the upper forks of the stem are quite sessile. Segments
of the calyx slightly keeled, their points a little recurved.
Corolla apparently whitish, or pale pink. Thunberg's spe-
cimen agrees best with Sprarrmann's figure; that of Sprar-
mann has broader leaves and larger flowers; yet we cannot
trace out a satisfactory diffinition. One of them may pos-
ibly be the unpublished Cape species, announced by Mr.
Brown, without any definition or description, but we can-
not guess which, and, all things considered, we do not feel
authorized in separating them.

2. S. aurea. Yellow Sebæa. (Exacum aureum; Linn.
albens, flocculos numeros, eithiocipicum; Pluk. Alm. 94.
t. 275. f. 53.—All the flowers reduced.—Gathered by Sprar-
mann, at the Cape of Good Hope. About half the size
of the last in every part. Flowers yellow, four-cleft, each
on a slender quadrangular stalk, even from the uppermost,
as well as the lower, forks of the stem. Linnæus justly com-
ments Plukkenet's figure, though he had originally, in Sp.
Pl. cited that synonymy doubtfully under his Exacum fessel,
a widely different plant. It is remarkable that he de-
scribes the calyx in the Supplement as of five leaves, whereas it
has only four; as it ought, the corolla being four-cleft.

3. S. cordata. Heart-shaped Sebæa. (Exacum cor-
But not E. fessel, Sp. Pl. 163. Gentiana exacoides;
Linn. Sp. Pl. 332. Centaurium perflosum, florum calycis
membranaceous ventricofum; Burm. Afr. 208. t. 74. f. 5.
C. perflosum eithiocipicum, flocculos eignus flavocentius,
ex caleyculis magnis quadruprimatis erumpentibus; Pluk.
Alm. 94. t. 275. f. 4. "C. calparis minus, cepidul
quaratio alis donata; Seb. Misc. v. 1. 122. f. 7.)—
Flowers five-cleft. Segments of the calyx with a dilated,
half-heart-shaped, veiny keel. Leaves heart-shaped.—Na-
ture of the Cape of Good Hope. The size and habit agree
with the first species, but the flowers are larger, appar-
ently yellow, with a longer tube, and five-cleft limb. Calyx dif-
tinguished by the dilated veiny keel of its segments, which
are five, not (as Plukkenet and Seba say), four only. All
the flowers have partial stigmas, though shorter in the upper
ones than the lower. The whole history of these three
species, in the Supplement, was written by Linnæus him-
self, not by his son, who only described the fourth, Exacum
pontifilium.

ovatum; Linn. Labill. Nov. Holl. v. 1. 38. f. 52.)—Flowers
five-cleft. Segments of the calyx simply keeled. Leaves
oval.—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 sessile, like those of S. albens.
Segments of the calyx lanceolate, with a simple, not dilated,
keel. Corolla with a small, short, five-cleft limb; nothing
is recorded of its colour.

SEBAGENIA, in Ancient Geography, a town of Cape-
docia, in the prefecture of Cilicia. Ptolomy.

SEBAIA, in Geography, a town of Arabia, in the pro-
vince of Hidijas; 33 miles S. of Medina.

SEBAKT
SEBAKET, 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 SABAMA, in Ancient Geography, a town of Palestine, on the other side of the Jordan, in the tribe of Reuben, according to the book of Joshua.  
SEBANZARRO, in Geography, a town of Abyssinia; 80 miles E.N.E. of Axum.  
SEBAR, or CEVAR, in the Materia Medica, a name by which the Arabians call the lignum aloes, or aloe-wood, a perfumed aromatic drug.  
SEBARIMA, in Geography, one of the mouths of the river Oroonoko.  
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 Taconet Falls, 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.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.—Allo, a town of Asia Minor, in Phrygia.—Allo, a town of Asia Minor, in Galatia.  
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 1557. By his education he acquired an extravagant admiration for valourous exploits, 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 Molech, he resolved to renew the attempt against the Moorish monarch with all the force he could bring together.  
In vain was he diffused from the enterprise: he was insensible to all admonitions. Having stripped his country of its military strength, and the flower of the nobility, he left behind, in the summer of 1578, and proceeded to Arzila. There he was met by a much more numerous army, with Muley Molech in person, who was so 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 he 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 flayed, 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 impostors availed themselves, who assumed his character, and obtained a portion of respect due to their favourite sovereigns; 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 Guiptisca, situated on the coast of ancient Cantabria, now Baquio, 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 Menesium 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 spiral road. St. Sebastian has a small harbour inclosed by two mole's, 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 flones. 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 manufactory of anchors for the royal navy in the faubourg of Sta. Catalina, and rope-walks, where cables are made.  
St. 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 serviceable, 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 piastras, which it sustained at the commencement of the war between England and America, this company sank and was supphed. 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 abilitado. 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 to
to it through the gate of France, following a kind of promenade, which leads to a wooden bridge, where persons who are fond of it amuse themselves in filling for falmon, in a river which bathes the fortifications of the town; this filth is found there in such abundance, that it is sold for three farthings a pound. As we proceed, we perceive on the left a convent of Franciscans, the whole appearance of which inspires veneration, seeming deftuous of concealing itself under masses of foliage, formed by groups of trees. On that side, however, they have begun to form a public promenade parallel to the little road which leads to Paffage Port. We travel along a loose foil, which is covered by the high tides; we afterwards ascend and descend, proceeding along a steep coast; the path is fladed by a high wood, and embellished with fragrant jellamines; after crossing another wooden bridge, we enter the valley of Layola. Bounded on one of its sides by hills covered with trees, it here has a gloomy aspect; but on the opposite side we behold the richest productions, displaying a scene of various colours; highly embellished by the rays of the setting-fun. A river bounds this valley in a semicircular form, and waters a great number of fruit-trees planted on its banks.

The sky at St. Sebastian is not very ferene, but it is often cloudy; the air is generally damp, and sometimes loaded with fogs. The proportions are cheaper than in most of the other parts of Spain; and here are two tolerably good inns. In 1719 the French made themselves masters of this town; and in 1794, August 3d, it was invested by the republican troops of France, and capitulated the next morning: the garrison, confining 2000 men, surrendering themselves prisoners of war, and more than 180 pieces of brass cannon were taken, with considerable magazines and stores. On August the 13th, 1813, it was taken by storm by the British troops; 22 miles W.S.W. of Bayonne. N. lat. 43° 10'. W. long. 2° 4'.—Alfo, a port of Africa, in the kingdom of Anta, on the Gold Coast, belonging to the Dutch.

SEBASTIAN, St., or St. Sebastian, a town of the island of Tercera, situated between mountains, about half a mile distant from the sea.

SEBASTIAN del Pastor, St. See La Plata.

SEBASTIAN, St., or SEBASTIÁN, a town of Portugal, in Algarve; 6 miles N.W. of Loule.

SEBASTIAN, St., a town of Mexico, in the province of Chiainetan, on the Mazatlan; 45 miles N.W. of Chiainetan. N. lat. 23° 35'. W. long. 106° 30'.—Alfo, a small island in the Atlantic ocean, near the coast of Brazil. S. lat. 23° 45'.—Alfo, a town of South America, in the province of St. Martha; 10 miles W. of Los Reyes. —Alfo, a bay of the Indian sea, on the coast of Africa. S. lat. 32° 22'.

—Alfo, an island of Mexico, in Nicaragua lake, with a town near the E. coast. N. lat. 11° 48'. W. long. 85° 6'.—Alfo, a river of Mexico, which runs into the Pacific ocean, N. lat. 25° 20'.—Alfo, a town on the E. coast of Gomera, one of the Canary islands. N. lat. 28° 5'. E. long. 17° 12'.

—Alfo, 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 Spanish Main, 10 leagues from the western point of Cape Triburun. The city which formerly existed here has been abandoned, on account of its unhealthy situation.—Alfo, a cape on the coast of California. N. lat. 45°. W. long. 116°.—Alfo, a cape on the N. coast of Madagascar. S. lat. 11° 20'. E. long. 54° 44'.

—Alfo, a cape on the E. coast of Africa. S. lat. 22°. E. long. 33° 20'.—Alfo, a cape of Spain, on the E. coast of Catalonia. N. lat. 51° 52'. E. long. 5° 6'.

SEBASTIAN'S Bay, St., a bay on the S. coast of Africa. S. lat. 34° 40'. E. long. 21°. It is also called St. Catherine's bay.

SEBASTIAN River, St., or Spanjih Admiral's creek, a river on the E. coast of Ealt Florida, which communicates with Indian river. The admiral of the Plate fleet perished in 1715, opposite to this river, and the rest of the fleet, fourteen in number, were lost between this and the Beach yard.

SEBASTIAN'S Sound, St., an inlet in the straits of Magellan, on the coast of Terra del Fuego; 48 miles S. of Sweepstakes foreland.

SEBASTIAN de Buenavista, St., a town of South America, in the province of Caracas, at the entrance of the gulf of Darien; 140 miles S.S.W. of Caracas. N. lat. 8° 19'. W. long. 76° 20'.

SEBASTIAN de los Reyes, St., a town of South America, in the government of Caracas; 60 miles S. of Leon de Caracas. N. lat. 9° 35'. W. long. 66° 56'.

SEBASTIÁN, St. See St. Sebastian.

SEBASTIEN, St. See St. Sebastian.

SEBASTOCRATOR, in Antiquity, a title of honour given to some distinguished person of the imperial family. It was introduced by Alexius Comnenus, in order to reward the piety of his brother Isaac, without giving himself an equal. The happy flexibility of the Greek tongue allowed him to compound the names of Augustus and emperor (Seballes and Autocrat), and the union produced the honourable title of Sebastianator. He was exalted above the Cefar on the first step of the throne; the public acclama tions repeated his name; and he was only distinguished from the favours given to some peculiar ornaments of the head and feet. The emperor alone could assume the purple or red clubs, and the chas dian, or tiara, which imitated the fashion of the Persian kings; instead of red, the buffalo's of the Sebastianator and Cefar were green, and on their open coronets or crowns the precious gems were more sparingly distributed. The five titles of Defpot, Sebastianator, Ce far, Panhyperchaitoitos, and Protopofoebetes, were usually confined to the princes of the emperor's blood; they were the emoluments of his majesty; but as they exercised no regular functions, their existence was useless, and their authority precarious.

SEBASTOPOLIS, of Dioscurias, 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.—Alfo, a town of Alfa Minor, in the Cappadocian Pontus, on the road from Tavia to Sebastia.

SEBASTOPOLIS, in Geography. See SYVANTOPOL.

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.

SEBATIS, in Chemistry, a genus of plants, formed by the union of the fuculent acid with the different fuculent bases. For an account of these, see the different fuculent bases; for instance, for fuculent of lime, see Lime; and fo on for any other.

SEBABA, or Seven Capes, in Geography, a cape or headland on the coast of Algiers, the vicinity of which is occupied by perons of a brutal and ferocious disposition, who live in caves, expelled out of the rocks. These people, called "Kabyle," run on board to the coast when any vessel is disabled, or in the course of failing, approaches it, and vicerate their horrid wilds, that God would deliver it into their hands; and probably the name of "Bonjarone," or "Catalanis," was first given by the Italian geographers to these capes, on account of the savage disposition of their inhabitants. N. lat. 37° 8'. E. long. 6° 32'.

SEBBAH, 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 city, 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 sufficiency of man. Dates, barley, Indian corn, pumkins, cucumbers, fig-trees, pomegranates, and apricots, and for meaneer 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 Sebba is "Godoua," a town of similar produce; and in two days more the traveller arrives at Mourzouk.

SEBEDA, in Ancient Geography, a port of Lycia, according to the Periplus of Arrian.

SEBEL, an Arabian name for the disorder of the eye usually called a pannus.

SEBEN, in Geography, a town of the bishopric of Brixen, on the site of an ancient town named "Sabiona," destroyed by Attilla; eight miles S.W. of Brixen.

SEBENDUNUM, in Ancient Geography, a town of Spain, in the Tarragonensis, the country of the Castellani. Ptolemys.

SEBENICO, in Geography, a sea-port town of Dalmatia, situated on the Kerkia, near the Adriatic; one of the strongest towns on the coast, with a large harbour, defended by four citadels; erected into a bishopric in 1298. It is said to have been 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 process of time they built some colleges, and inclosed them with a kind of palisades called "fibue," whence was formed Sebenico. The city was enlarged by an increase of robbers; and afterwards, when the ancient city of Scardona was destroyed, its inhabitants retired to Sebenico. The inhabitants, appalled 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 Sammicheli, whose gate resembles that of Verona, by the same celebrated architect. Among the buildings of Sebenico, the dome or cathedral deserves particular notice, 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° 20'. E. long. 16° 15'.

SEBENYTES Neum, in Ancient Geography, a nome of Egypt, between the branches of the Nile, called the Pharaonic and Aethiopic, and near their mouth. Ptolemys divides this nome into the Upper and Lower.

SEBENYTTICUM Ostrum, the name of one of the seven mouths of the Nile, E. of that called the Ballititium. Ptolemys.

SEBENYTUS, a town of Egypt, in the Delta, and capital of the Sebennytic nome.

SEBENSTAIN, in Geography, a town of Austria, 10 miles S. of Ebenfurth.

SEBER, WOLFGANG, in Biography, a German philosopher and divine, was born at Sula, in the district of Hennepburg, in 1573. He left his father in early life, and had to struggle with all the difficulties incident to poverty. He completed his studies at Leipsic, and became rector of the school of Schlefeningen, afterwards superintendent and pastor at Wafungen, and finally inspector of the gymnasium, and azeffor of the confistory at the former place. In old age he was afflicted with blindness, and died in January 1634. He bequeathed his library to the gymnasium of the place of which he had been the rector, and left a fund for the yearly maintenance of fix students in theology. His " Index omnium in Homero Verborum," has frequently been reprinted. An edition of it was published at Oxford in 1780. He edited several learned works, and was author of various poems, epistles, and orations.

SEBER, in Geography, a river of Naples, which rises about six miles from Mount Veluvius, and runs into the sea near Naples, supplying the fountains and aqueducts of that city.

SEBESE, or Paulo Bices, a small island in the lrounds of Sunda. N. lat. 5° 50'. E. long. 105° 27'.

SEBESTEN, SEBESTENA, Myka, in Pharmacy, &c. the fruit of a species of corda, resembling a little plum or prune, which, when ripe, is of a deep red colour, bordering on black; very sweet, and the flesh, or pulp, glutinous or sticky.

The Syrians make a kind of glue, or birdlime, of the febbles, called "birdlime of Alexandria." The fruit has been esteemed pectoral, cooling, and emollient; though it is now disdained by the colleges both of London and Edinburgh.

The flone within it is triangular; it brought its name from Arabia, whence Pliny observes it came in his time into Italy.

SEBESTENA, in Botany, a flight alteration of its Arabic name Sekbisen, is retained by Gartner, instead of the Limnan appellation of the genus Cordia; which latter, preserving the memory of one, if not two, highly meritorious botanists, surely ought not to be set aside. See Cordi, p. 1.

SEBESVAR, in Geography, a town of Transylvania; 22 miles W.S.W. of Colofar.

SEBETUS, or SEBETHIS, in Ancient Geography, a river of Italy, in Campania, which watered the town of Neapolis.

SEBIEZ, in Geography, a town of Ruffia, in the government of Polotk; 40 miles N. of Polotk. N. lat. 56° 10'. E. long. 28° 14'.

SEBIFERA, in Botany, a genus of Loureiro's, named from fubnum, tallow, because it produces a similar substance, used for making candles.—Loureiro, Cochinch. 637.—Clav. and order, Diospyro Polyadephos. Nat. Ord. Tiliaceae, foli. 7th. Gen. Ch. Male, Coll. Perianthium of four roundish, convex, hairy, spreading leaves. Cor. none. Stam. Filaments about one hundred, capillary, longer than the calyx, distributed into ten fets; anthers ovate, of two cells.


The wood is light, pale, easily wrought, used for poles and beams in houses. The branches and leaves exude a glutinous fluid; and being bruised and macerated in water, they make a sort of gum, used for mixing with plaster or stucco, in order to render it more tenacious and durable. A great quantity of thick, white, fatty oil is extracted from the berries, of which the vulgar make candles, resembling those of tallow or wax, but of a disagreeable smell.

We cannot satisfactorily refer this account to any plant described in botanical works; and yet the tree should seem to be well known in its native country.

SEBINIKVAR, in Geography, a town of Transilvania; 6 miles S. of Weilienberg.

SEBIUS, or SEBISCH, in Biography, the name of a family which distinguished itself at Strasburg by the celebrity of the physicians whom it produced, and who successively adorned the professorial 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 counsellor of the duke of Ohmitz. Melchior was born in 1539, at Falken-borg, in Silicia, and was at first intended for the profession of the law; but in 1563 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 he went to Italy; and subsequently visited France, where he took the degree of doctor at Valence, in Dauphiné, in August 1571. On his return to Germany, he practised his profession first at Hagenaus: but having gone to Strasburg in 1574, he determined to settle there. His talents soon raised him to the rank of professor, and he practise with great celebrity until his death, which took place in June 1625; in the eighty-fifth year of his age.

SEBIZIUS, Melchior, the son of the preceding, was born at Strasburg 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 professorial 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 1630. 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 a professor of the faculty at Strasburg, he examined one hundred and sixty-three candidates, and imposed the doctoral cap on fifty-five physicians. Enjoying uninterrupted health until his last illness, never using spectacles, and suffering no infirmity except a very slight deafness, he lived to the age of ninety-five, and died in January 1674. He was the author of numerous works, especially academical dissertations, in which there is more learning than originality or discovery; whence Haller pronounced him "eruditus vir, parum usus propriis experimentis." Eloy occupies a page in the detail of the titles of his works.

SEBIZIUS, John Albert, succeeded the former, his father, in the professorial chair. He was born at Strasburg in 1615, and graduated in 1639, after having studied in the universities of Bâle, Montpellier, and Paris. In 1642 he was appointed to the professorship of anatomy. He succeeded his father as physician to the city, and was elected above twenty times dean of the faculty. He died in February 1665, in the seventieth year of his age. He was the author of some academical essays, and of a volume of "Exercitatioe pathologicae," relating to the diseases of the head and chest.

SEBIZIUS, Melchior, the son of John Albert, was born in 1664. After studying medicine at Paris, he returned to Strasburg, and took the degree of doctor in 1688; and in 1701 was elected professor of medicine. He held this office, however, but three years, and died in 1704, being at that time rector of the university. See Eloy Diet. Hist. de la Médecine.

SEBNITZ, in Geography, a town of Saxony, in the margravate of Meißen; 20 miles E.S.E. of Dresden. N. lat. 50° 59'. E. long. 14° 35'.—Allo, a river of Saxony, which runs into the Rollenitz; two miles N. of Schandau.

SEBOIM, in Ancient Geography, the name of one of the four towns of the Pentapolis, which were conformed by fire from heaven, with Sodom, Gomorrah, and Adama. Euebisto 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 itself therefore have been rebuilt.

SEBOLA, in Geography, a town of Portugal, in the province of Beira; 21 miles N.N.W. of Caffel Branco.

SEBO, or SEBE, a river of Africa, which passes by the city of Fez, and runs into the Atlantic a little below the Marmora.

SEBOZ, a town of Bohemia, in the circle of Bohemia; 3 miles S.E. of Mchnik.

SEBOU, a small island near the N.E. coast of Cape Breton.

SEBRAJEPOUR, a town of Bengal; 13 miles W.N.W. of Dacca.—Allo, a town of Bengal; 13 miles S.E. of Koyou.

SEBRIPA, in Ancient Geography, a town of the African Sarmatia, on the banks of the river Tardanus. Potamia.

SEBRITHITES, a name of Egypt, from which king Pyathres sent to Solomon 1000 men for building the temple, according to Eusebius.

SEBRUD, in Geography, a river of Paphia, in the province of Khurasan, which runs into the Tisus, 6 miles S.E. of Zaweh.

SEBU. See SIBU.

SEBUAEI, a sect among the ancient Samaritans, whom St. Ephphains accuses of changing the time expressed 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 passover on the seventh month, called in the Hebrew, fetha, seventh. Durlius rather takes them to have been denominated from Sibai, the leader of a sect among the Samaritans. Scaliger derives the name from the Hebrew, fetha, weeb, because of the celebrating every second day of the seven weeks between Leiter and Whitsuntide.
SEBUE, in Geography, a town of Abyssinia; 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 such of their rabbins or doctors, as lived and taught some time after the finishing of the Talmud.

The word is derived from יושב, sebar, I think: whence נזר, sebora, opinion; and thence נזר, sebor, opinionation.

The reason of this appellative, say the rabbins, is, that the Talmud being finished, published and received in all the schools and synagogues, these doctors had nothing to do but to dispute for, and against, the Talmud, and its decisions. Others say, it was because their sentiments were not received as laws or decisions, as those of the Mifchnim and Gemarim were; but were held as mere opinions. Others, as the author of Schalkeheleth Hakabala, or chain of tradition, tell us, that the perfection the Jews underwent in those times, not allowing them to teach quietly in their academies, they only proposed their opinion in the composition of the Mifchnim. The first and chief of the Seburai was R. Judah, who began to teach in the year 79 of the era of contracts; which, according to R. David Gault, 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 Seleucid, the 787th year of which falls on the year of Chr. 176, which, of consequence, is the era of the origin of the Seburai, whose reigns did not hold long: Bustorff says, not above fifty years; R. Abraham, and others, say not fifty. The half of them was R. Simoena. They were succeeded by the Gaons or Geonim.

SEBURG, in Geography, a town of France, in the department of the North; 5 miles E. of Valenciennes.

SEBZ. See KENF.

SEBZVAR, a town of Persia, in the province of Khordad; it was taken, in 1381, by Timur Bace, but upon its revolt and being again reduced, he caused 2000 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. 56° 12'.

SECA, LA, a town of Spain, in the province of Leon; 24 miles S.W. of Valladolid.

SECALCUL, 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 irignes, and hence some have supposed that our eryngium, or eryngo, was the root meant by it: but this does not appear to be the cafe on a strict enquiry, and there is some reason to believe that the famous root, at this time called gaiinca, was what they meant.

SECALE, in Botany, a name in Pliny, which some etymologists, among whom is De Theis, derive from the Celtic fegat. This, he says, comes from fega, a fickle in the language, and thence fegat, 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 fega, to cut or mow, have come to the same conclusion. Rye.—Linn. Gen. 39. Schreb. 53. Willd. Sp. Pl. v. t. 471. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. t. 178. Juss. 32. Lamarck Illus. fr. 49. Gen. t. 81.—Clavis and order, Triandra Digynia. Nat. Ord. Gramina.

Gen. Ch. Cal. Common receptacle toothed, elongated into a spike. Glume containing two flowers, and consisting of two opposite, dilata, erect, oblong, pointed valves, smaller than the corolla. Floris. A testifer. Cor. of two valves; the outermost harddest, tumid, pointed, cleft, fringed at the keel, and ending in a long awn; the inner flat, lan-

The nation of this district, so generally cultivated, grain is hardly to be guessed. Mr. Pursh 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. Herbaceous, somewhat glabrous. Stem jointed, slightly branched at the bottom, smooth, leaves linear, rough towards the point. Spike terminal, solitary, erect, three or four inches long. Stem erect, straight, rough, four or five times the length of the glumes.

2. Silvestrum. Tufted Rye. Linn. Sp. Pl. 124. Willd. n. 1. Sm. Fl. Grec. Sib. v. 4. 77. v. 97. (Graeen phytolacca febrilis, glumis villosis et aris longiflumina definitibus; Tourn. Laur. 518. G. phytolacca maximum; Park. Theatr. 142. G. phytolacca fytolacca, glumis ciliaribus; Tourn. Cor. 39. Buxb. Cent. 5. 21. t. 44.)—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 Cretan and Zante. The root is fibrous and annual. Stems numerous, erect, twelve or eighteen inches high, leafy, smooth; their lower joints bent. Leaves spreading, flat, hairy on both sides, with tumid smooth sheaths. 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. Willd. n. 3. (Graeen orientalis febrilis, spicis brevi et lati; Tourn. Cor. 39.)—Glumes of the calyx ovato-lanceolate, strongly ribbed, tapered-pointed, hairy all over.—Native of the Archipelago, in a fuddy soil. Root annual, with white downy hirs. Stems about six inches high, slender, smooth, often zigzag. Leaves linear, narrow; the upper one short, with a long, smooth, inflated sheath. Spike hardly an inch long, thick and broad, composed of closely imbricated, two-ranked piskalets, 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. creticum. Tall Cretan Rye. Linn. Sp. Pl. 125. Willd. n. 4; excluding the synonym of Tournelort, which belongs to Hordeum bulbosum. (See Hordeum.)—"Glumes of the calyx externally fringed."—Native of Crete. We have never seen a specimen. Desfontaines affirms that this is distinct from Hordeum bulbosum of Linnaeus, his strictum, which
S E C

which is Gramen creticum picipatum scCalnum aitilimum, tuberoso radice; Tourn. Cor. 39; and that he himself was 
pfolished of specimens of both. Both were also collected 

SECAMONE, an Egyptian name, apparently corrupted 
by the modern inhabitants of Egypt from the Greek 
σκαμόν; for Proper Alpinus tells us that the plant which bears 
this name, Periploca Secamone of Linnaeus, is esteemed, by 
that people, a fort of Scammony, and its yellow burning 
juice is, when dry, reckoned by them a powerful purg, for 
expelling thin humours. Yet he adds that he knew nothing 
of their making use of the plant in medicine. Since being 
the origin of this name, we are obliged to protest against it, 
as unclassified.—Brown Transf. of the Wernserian Society, 
v. 2. 75.—Clafs and order, Pentandria Digynia. Nat. Ord. 

of five leaves. Filaments combined, with external append-
egages. Malies of pollen erect, attached in four rows 
to the unfurrowed summit of the stigma. Follicles with comose 
feeds.

A genus of upright or twining, nearly smooth shrubs. 
Leaves opposite. Cymes forked, between the footstalks. 
Flowers minute.—Mr. Brown declares this genus to be per-
fectly natural and distinct, though, from the extreme minute-
ness of the parts, very difficult to determine. It is the con-
necting link between the true Ajcephalae and his Periploca.
Five species have been aecertained by the learned author of 
the genus.

1. S. egyptica. Egyptian Secamone. Ait. n. i. (Seca-
mon; Alpin. Egypt. 113. t. 134. Periploca Secamone; 
Linn. Mant. 216. Willd. Sp. Pl. v. i. 1249. Thumb-
Prodr. 47.)—Stem twining. Leaves elliptic-oblong, smooth. 
Corolla hairy.—Native of Egypt, and the Cape of Good 
Hope. A green-hose shrub, cultivated by Miller before 
the year 1752, and flowering in July. A Cape specimen 
from Thumberg is in the Linnaean barbierum. The stem 
is woody, twining, with smooth, round, leafy branches. Leaves 
about an inch and a half long, on shortish stalks, bluntish, 
entire, coriaceous, smooth, with one rib and many parallel 
transverse veins; pale, and somewhat glaucous, beneath. 
Cymes shorter than the leaves, repeatedly forked, many-
flowered; their filaments clothed with silky hairs, of a dusky 
blue in the dried plant. Flowers hardly a line in diameter, 
white. Corolla smooth at the back, its upper surface co-
overed with short dense hairs.

2. S. emetica. Emetic Secamone. (Periploca emetica; 
f. 2. Sp. Pl. v. i. 1250.)—Stem diffuse. Leaves lanceo-
late, smooth. Corolla smooth.—Native of the Eait Indies. 
The Rev. Dr. Rottler sent it from Madras. The roots are 
fried to be used instead of Ipecacuanha. This is a spreading, 
scarcely twining, shrub, of a more slender habit than the 
former, with much narrower leaves. Corollas axillary, small, 
not a quarter as long as the leaves, of few flowers, with 
downy silky filaments. Our specimen is in too early a state 
to display the corolla, but Retzius and Willdenow say it is 
smooth.

3. S. campestis. Hoary Secamone.—Stem twining, with 
downy branches. Leaves ovato-lanceolate; downy beneath. 
Corolla downy at the back.—Sent from the Eait Indies, by 
the late Dr. Roxburgh, in 1789. We presume this is what 
Mr. Brown mentions as his third species. Our plant has 
long, twining, round, pale-green branches, finely downy and 
hoary, in a young state, like all the flasks, the calyx, outside 
of the corolla, and backs of the leaves; which last are two 
or three inches long, rounded at the base, tapering gradu-
ally to a bluntish point. Flowers numerous, somewhat 
umbrellate; their common filaments about equal to the foot-
stalks.

1. 1.—"Stem erect. Leaves elliptical, pointed, smooth. 
General and partial flower-stalks downy. Corolla naked."

2. 1.—"Stem divaricated. Leaves ovate, acute, smooth. 
General and partial flower-stalks nearly smooth. Corolla 
cluded.«—Found by Mr. Brown, in the tame country as the 
fall.

SECANT, in Geometry, a line that cuts another, or 
divides it into two parts. See Line, &c.

Thus the line A M (Plate XIII. Geometry, fig. 4.) is a 
secant of the circle A E D, &c, as it cuts the circle in B. 
It is demonstrated by geometors: 1. That if several secants, 
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 so much the less, as they are more remote 
from the centre. On the contrary, the portions of them 
without the circle M D, M O, M B, are so much 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 secants, M A and M E, be drawn from 
the fame point M, the secant M A will be to M E as M D 
and M B: or M E X M D = M A X M B = the square of 
a tangent to the circle drawn from the point of concurrence 
M.

SECANT, in Trigonometry, denotes a right line drawn 
from the centre of a circle, which, cutting the circumference, 
proceeds till it meets with the tangent to the same circle. 
Thus the line F C (Plate Trigonometry, fig. 4.) drawn from 
the centre C, till it meets the tangent E F, is called a se-
cant; and particularly, the secant of the arc A E, to which 
E F is tangent.

The secant of the arc A H, which is the complement of 
the former are to a quadrant, is called the co-secant, or se-
cant of the complement.

The line of an arc, A D, being given, to find the secant 
of it, F C, the rule is, as the co-fine D C is to the whole 
line, so is the whole fine, or radius, A C, to the secant C F: 
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 line 
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 fine complement; the remainder 
is the logarithm of the secant. The reason of which opera-
tion is obvious; because E C = C F; and, therefore, 
from the nature of logarithms, twice the log. of E C = 
the log. of D C = the log. of C F.

SECANTS, Line of. See SECTOR.

SECAS, in Geography, a chiller of small islands in the 
Pacific ocean, near the coast of Veragua. N. lat. 8° 20'. 
W. long. 83° 16'.

SECATABBAS, a town of Asiatic Turkey, in the 
province of Diarbekir; 75 miles S.W. of Moful.

SECCA, a small island near the coast of Ilitra. N. lat. 
4° 5'. E. long. 14° 5'.

SECHE, a small island near the coast of Ilitra. N. lat. 
45° 14'. E. long. 13° 30'.

SECHHIA, a river of Italy, which runs into the Po, 
3 miles N. of Quilltello, in the duchy of Mantua.

SECEDERS,
SECEDES, 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 Glas, 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, first by a provincial synod, and afterwards, viz. in 1730, by the general assembly of the Scots church. Perceiving, 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. Glas 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, enfranchised, 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 deplored or refuted, 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, but suffered its doctrines to be corrupted. For the freedom of their animadversions on these points, four ministers were suspended from their parochial functions in 1731; and though they were reinstated 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 ascendency of strength, more particularly after they had published a second "Testimony 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 austere 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 burgess, in support of the true religion established by law. We cannot, said one party, call "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 still the true faith, though many of its offerable vassals had departed from its principles, or loosely 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 classes, the Antiburghers are said to be the more 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 malcontents renounced all connection with the "revolution 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 disapprove the high authority assumed by the rate 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 murrms of dissatisfaction. Their public worship is conducted much in the same manner with that of the dissenters in South Britain.

Another considerable fact departed, in the year 1732, from the Scotch establishment. A minister named Gillies, 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 to be elected by the people; and they formed a congregation in Dunfermline. The "Presbytery of Relief," in alliance to the defied 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 polled above sixty 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. Adam's Religious World displayed, vol. iii. Cooke's edition of Moehl's Ecc. Hist. vol. vi.

SECCRETE, in Ancient Geography, a town of Spain, in the Tarragonensis, upon the route from the Pyrenees to Castrum, between Aquae Voconiae or Voconia and Praetorium, according to the Itinerary of Antonine.

SECESPITA, among the Romans, a knife with a round ivory handle, adorned with gold and silver, which the flamen and priest used at sacrifice.

SCEELLES, 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 Fretter, 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 balloon, we were reminded of the two Bezzozzis at Turin; for as their instruments, so their genius and abilities seemed made for each other, there was a like correspondence in both.

SECHEN, in Geography, a town of Persia, in the province of Kerman, on the north coast of the Persian gulf; 141 miles S. of Sirjan.

SECHIUM,
SECHIUM, in Botany, a name given by Dr. Patrick Brown to this genus, and most probably derived from σχιζειν, to fatten, the fruit being used in Jamaica to fatten hogs. In this case, however, favs professor Martyn, it should have been called Secium.—Brown, J. A. 355. Sc. 664. Willd. Sp. Pl. v. 4. 627. Mart. Mill. Dict. v. 4. Juss. 391. Lamarck Dict. v. 7. 50.—Clas. and Order. Monacria Monadelphia. Nat. Ord. Euphorbieae. Jull.

Gen. Ch. Male. Cal. Perianth inferior, of one leaf, tubular, clavate half way down; tube bell-shaped, spreading; segments of the limb lanceolate, flat, pointed, widely spreading. Cor. of one petal; tube the size and figure of the calyx, and adhering to it; limb clavate into five, ovate, flat, acute 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. Stem. Filaments five, formed into an erect cylinder, five-cleft at the top, spreading; another on the top of each filament, all the five together forming a continued, undulating, polliniferous line. Female on the same plant. Cal. as in the male, but placed on the germin, deciduous. Cor. as in the male, but with larger cavities in the nectary. Petals German superior, obturate, downy, five-furrowed; style cylindrical, erect, the length of the calyx; stigma very large, peltate, reflexed, five-cleft at the margin. Peric. Apple very large, ovate, turbinate, five-furrowed, fleshy, unequally gibbous at the top, furnished with harmless prickles, one-celled above. Seed solitary, nearly ovate, flat or compressed, fleshy, obtuse at each end.


1. S. edu. Chocho Vine. Willd. n. 1. Swartz. Ind. Oec. 1150. (Sicyos edulis; Jacqu. Amer. 258. t. 163.)—Native of the West Indies, where it flowers and fruits in September. Root annual. Stem herbaceous, climbing or procumbent, greatly divaricated, roundish, fimbriated, smooth, thick. Leaves alternate, stalked, angularly heart-shaped, eight or ten-lobed, toothed at the margin, rough on the upper side, rugose beneath, often a fpan long. Tendril opposite to the leaves, horizontal, very long. Flowers monococcous, axillary, yellow, ficient.

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 bishropic 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, constructed of cane, and a handsome brick church. The inhabitants, who are all Indians, compose nearly 400 families, and are employed chiefly either in fishing or driving of mules. The defect of Sechura is a waste of land, extending 30 leagues, of difficult and dangerous passage; 180 miles N. N. W. of Truxillo.

SECIUM, among the Romans, a term used to signify ever thing the priest cut with the knife fexipia, as the libum, plateui, &c.

SECK, RENT. Sec Rent Sec.

SECK, in Geography, a town of Germany, in the principality of Nassau-Dillenburg; 4 miles W. of Mengers-Kirchen.

SECKACH, a river of Germany, which runs into the Jax, at Meckmuhl.

SECKAU, a town of Stiria, the fee of a bishop, suffra-

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and to this must 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 Ernelt 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 illuminated, 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 1688; but it was not till 1692 that the whole of it was given to the public, under the following title, "Commentarius Historici et Apologeticus de Lutheranismo, libri de Reformazione Religionis D. M. Lutheri in magna Germania, latalique Regionibus et speciis in Saxonia recepta et stabilita," &c. 2 vols. fol. This work was received with great applause by the learned of all parties. Bayle, in speaking of it, says, "Whose is deharrus of being thoroughly acquainted with the history of that great man (Luther), needs only to read the extensive work of Seckendorf. It is, of its kind, one of the best books that have appeared for a long time." Among the other works of Seckendorf, those most deserving of notice are, "The State of the Princes of Germany;" "A Defence of the Relation concerning Annette de Bourignon, or a Refutation of that false Fanatici;" "Historical and Apologetic Difficulties on the Doctrine of Luther in regard to Mans, published by Caplar Sagittarius;" "The State of the Christians, in which Christianity is examined in itself, and defended against Atheists." Gen. Biog.

SECKENHEIM, or SOHERNHEIM, in Geography, a town of the duchy of Baden; 4 miles E. of Mainz.

SECKER, Thomas, in Biography, a celebrated archbishop of the church of England, was born in 1603, at Sibthorp, in Nottinghamshire. His father was a Protestant divine, 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 Chelford, whence he was removed to an academy at Attercliffe, near Sheffield, intended for the education of young men designed for the ministry among dissenters: after this, he was sent to a similar institution in the neighbourhood of Tewksbury. 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 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 Tewksbury. His friend had already confirmed, 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 allumed 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 preamble now took him into his family as chaplain, in which office he had Dr. Rundel 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 daughter of Mr. Denon, 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 affectionate 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 1735, 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 denominated 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. Benison, 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 compendious view of the principles of the Christian religion as professed 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 sufficiency and earliness 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 deanery 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.
poraries in endeavouring to extend the authority of the church of England, and advocated the measure of establishing bishops in the American colonies. On this subject he was attacked by Dr. Mayhew of Bolton, to whom he replied with much temper. The argument in favour of American bishops turned upon the incompleteness of an episcopal church without them, and the great inconveniences experienced by the clergy of that remote country in the necessary communication with the mother establishment. The archbishop knew that he was quite sincere in his wishes for the establishment of episcopacy in America, by bequeathing 1000£ towards effecting the purpose. The subsequent separation of the colonies from the British government, however, put an end to this project further than concerned Canada.

During the time that archbishop Secker held his high pre-ferment, 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 kindnefs 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 gout, which latterly brought on severe local pains. These 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 bequeathed in his life-time, 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 Instructions 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 useful and 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 busines 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 banners of no ilate party; but his chief parliamentary connexions were with the duke of Newcastle and Lord Hardwicke. 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°.

SECKEL, a town of the State of Utrecht; 13 miles W. of Utrecht.

SEELIA, a name by which some authors have called wormwood.

SECLIN, in Geography, a town of France, in the department 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 8,679 inhabitants, on a territory of 102.5 square miles, in 16 communes.

SECO, a town of Africa, in Kaarta; 65 miles E. of Kemmou.—Allo, a river of Peru, which runs into the Pacific ocean, S. lat. 7° 6'.

SECOANI, in Ancient Geography, a town of Asia, in Syria, situated in the mountains, E. of the Mediterranean sea, and W. of the river Orontes, in the territory of Apanae.

SECOMUS, in Natural History, the name of a genus of fossils, of the class of the septaria; the characters of which are, that they are bodies of a dark hue, divided by septa, or partitions of a sparry matter, into several more or less regular portions, of a moderately firm texture, not giving fire with red, but fermenting with acid menstrua, and easily calcining.

The septaria of this genus are, of all others, the most common, and are what have been known by the little expressive, or mistaken names of the waxen vein, or huls Helmontii. We have many species of these bodies common 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 Secundi generis.

SECOND, in Geometry, Astronomy, &c. the sixtieth part of a prime, or minute; either in the division of circles, or in the measure of time.

A degree, and an hour, are 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.

A pendulum, three feet three inches and two-tenths of an inch long, vibrates seconds, according to Sir Jonas Moore's reduction of Huygens, three feet eight lines and a half of Paris measure to English measure. See Pendulum.

SECOND, in Myth, 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 sensibly different founds, which form these twelve intervals called comas, one might in strictness say there are eight kinds of founds.

There are three kinds of founds occurring in practice, the less, the greater, and the superfluous found; to which, if the enharmonic genus were restored, we might add the diminished found. The less found is the semitone, which being either major or minor, there must be two great seconds; one nearly equal to 85 comas, and the other to 93 comas; but practitioners usually confound these two. The superfluous found is a tone major, and semitone major; the other superfluous found, arising from the tone minor, and semitone minor, is not in use. Lastly, the diminished found is a semitone minor less than the less found; that is, equal to the diatonic enharmonics. Thus, between E and F, or between A and B, would be a diminished found, as also between G sharp and A. This last has been practised by Mr. Handel, in the oratorio of Sampson, in the second part of the song, "Return, return, O God of Hosts." See Interval.

Some authors, as Ozanam, call the semitone minor by the name of diminished found; but this is contrary to the analogy in like cases, where diminished is usually applied to intervals a semitone 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 Vieussens and others to a muscle of the ear, called by Cowper and others *flaplicaudus* and *flaplicauda*; and by Albiniu *flapividium*. Winlock calls it *le muscle de l'oreille*.

SECOND Captain. See Captain.

SECOND Coast. See CAUSE and EFFICIENT.

SECOND Deliverance, Seconda deliberatione, in Law, a judicial writ that lies after consent of the plaintiff in replevin, and a *retrou nolet* of the cause replevied, and adjudge him to that discharged from the command of the same cattle, upon security given by the plaintiff in the replevin for the re-delivery of them, if the defendants be justified. It is a second writ of replevin, &c. F. N. B. 68.

SECOND Flush, Notice, Order of Courses, 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 those islands, and a member of the Royal Society); and, notwithstanding the strangeness of it, many have fdlately 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, will appear distinctly in its natural shape, in a mirror, with other funeral apparatus, to a second-sighted person, who, perhaps, never saw his face before; immediately after which, the person feen certainly dies.

The quality of second-sightedness, 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 exercises itself on him arbitrarily; and often, especially in the younger second-sight, 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-sightedness is held a difdiferent in the country; so that none, they fay, 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 second, or next to the chief officer.

Such are the secondaries of the courts of king’s bench and common pleas; the secondaries of the compters, who are next the sheriffs of London in each of the two compters; two secondaries of the pipe; secondaries to the remembrancers, &c.

Secondary is more frequently used in an adjective sense, by way of opposition to primary, or principal.

SECONDARY After. See Actor.

SECONDARY Affections. See AVERSION.

SECONDARY Circles of the Eclipc, 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 planet, star, or other phenomenon, is under-footed to be in that point of the ecliptic, which is cut by the secondary semicircles, which pass through each star, or phenomenon.

If two arcs be then 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 quadrat aspect; if the points differ a sixth part of the ecliptic, they are said to be in! a sextile aspect.

In the general, all circles which intersect one of the five 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 Collateral Points. See COLLATERAL.

SECONDARY Consequences, in Law. See DERIVATIVE.

SECONDARY Dials. See DIAL.

SECONDARY Fever is that which arises after a crisis, or the discharge of some morbid matter; as after the declension of the small-pox, or measles. 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-Seine; and chief place of a canton, in the district of Parthenay; 6 miles W.S.W. of Parthenay. The place contains 1,425, and the canton 6140 inhabitants, on a territory of 172,500 square kilometres, in seven communes.

SECONDINE. See SECONDINE.

SECORA, in Geography, one of the branches of the river Darah, which joins the main stream at Timelik.

SECOAT, a town of Candahar; 150 miles S.E. of Candahar.

SECOURSSE, DENYS-FRANCOIS, 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 Ordoneances, from the second to the twelfth volume inclusive; “Mémoire sur 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’Acad. des Inscriptions.”

SECOZANO, in Geography, a town of the county of Tyrol; 13 miles N.N.E. of Trent.

SECRETARIUM, among the Romans, a reclusse room, where
where the judges considered the causes that had been litigated before them, and came to a resolution what sentence they were to pass from the tribunal. It was most usually separated from the tribunal by a veil.

SECRETARY, an officer, who, by order of his master, writes letters, dispatches, and other instruments, which he renders authentic by his signature.

Of these there are several kinds, as secretary of state, secretary of war, secretary of the treasury, secretary of the admiralty, secretary of the lord chancellor, &c.

SECRETARIES of State, are officers attending the king, for the receipt and dispatch of letters, grants, petitions, and many of the most important affairs of the kingdom, both foreign and domestic.

The king's secretaries were anciently called the king's clerks and notaries, regis a commentariis. As for the name secretary, it was first applied to such as, being always near the king's person, received his commands, and were called clerks of the secret; whence was afterwards formed the word secretary, regis a secretis; and as the great lords began to give their clerks also the quality of secretary, those who attended the king were called, by way of distinction, secretaries of the commands, regis a mandatis. This continued till the reign of our Henry VIII. 1559; when, at a treaty of peace between the French and Spaniards, the former observed, that the Spanish ministers, who treated for Philip II. called themselves secretaries of state; upon which, the French secrétaires de commandements, out of emulation, assumed the same title; which thence paffed into England.

Till the reign of king Henry VIII. there was only one secretary of state; but then, business increasing, that prince appointed a second secretary; both were of equal power and authority, and both styled principal secretaries of state. Before queen Elizabeth's time, the secretaries did not sit at the council board; but that princes admitted them to the place of privy counsellors, which honour they have held ever since; and a council is never, or at least very seldom, held without one of them. On the union of England and Scotland, queen Anne added a third secretary, on account of the great increase of business, which, as to Britain, was equally and distinctly managed by all the three, although the last was frequently styled secretary of state for North Britain. We have had also a secretary of state for the American department. But both these offices are now abolished, and there still remain three principal secretaries, viz. one of the home department, another of foreign affairs, and the third of the colony and war department, who have under their management and direction the most considerable affairs of the nation, and are obliged to a constant attendance on the king; they receive and dispatch whatever comes to their hands, be it for the crown, the church, the army, private grants, pardons, dispensations, &c. as likewise petitions to the sovereign; which, when read, are returned to the secretaries for answer; all which they dispatch according to the king's command and direction.

Ireland is under the direction of the chief secretary to the lord lieutenant, who has under him a resident under-secretary.

Each of the three principal secretaries has two under secretaries and one or more chief clerks, besides a number of other clerks and officers, wholly depending upon them.

Our secretaries of state are allowed power to commit persons for treason, and other offences against the state, in order to bring them to their trial. Some have said that this power is incident to their office; and others, that they derive it in virtue of their being named in the commissions of the peace for every county in England and Wales.

The secretaries of state have the custody of that seal, properly called the signet, and the direction of the signet office; in which there are four chief clerks and three deputies employed, who prepare such things as are to pass the signet, in order to the privy or great seal. All grants, signed by the king, are returned hither, which, transcribed, are carried to one of the principal secretaries of state, and sealed, and then called signets; 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 writings, papers, matters of state, &c. are preferred.

All the under secretaries and clerks are in the choice of the secretary of state, without referre 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 domestic, or ministerial of the ambassador's; the first a servant, or minister of the prince.

SECRETION, in Physiology, is that vital process, 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, SECTA, a collective term, 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, Peripatetics, 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 sects, now extinct; as Machiavel, Gnostics, Montanists, &c.

The principal now on foot are the Lutherans, Calvinists, Anabaptists, Arians, Socinians, Armenians, and Unitarians.

The religious sects and faiths, with the distinguishing characters and opinions of each, see under LUTHERAN, CALVINIST, &c.

Sect, Ionic. See Ionic.

Sect, Italic. See ICAITAL.

SECTS OF HINDUS. It has been long known that the Hindoos are divided and subdivided into a number of sects, tribes, or calls. Under our articles BRAHMA, CAST, and GENTOO, we have given the substance of what has been communicated
Sects of Hindoos.

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 caste, or caste, 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 Sanscrit origin, and in truth it sounds very like it; but we have never met with the word in earlier 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 numerically subdivided, as we shall presently see, as are the many sects who essentially or trivially differ from both, and are probably numerically equal to both, under the generic denomination of Buddhás or Bandis, and its various specific varieties. The civil grand divisions are four, viz. Brahman, Kshetriya, Vaifya, and Sudra. As the two former theological grand divisions comprise the whole race of Hindoos (leaving for the present the sects or philosophies of the question), so do likewise these four civil tribes or grand divisions of 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 grand 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 Hindoo priests are therefore Brahman, but all Brahman are not priests. Ministers and public officers of state are very commonly Brahman, even in Mahomedan governments; and they are occasionally merchants, and even soldiers. In both the British and native armies of India, are many Brahman. The two Maharrattas generals whose names are well known in England, Purseran Bhon and Hurry Punter, were both Brahman. 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 Mahabharat.) The word Brahman means a theologian or divine; derived from Brahman, the divinity. Pandit, corruptly Punt, means a learned Brahman, or philosopher; hence panditya, philosophy. Among the Maharrattas, where Brahman are very numerous, the title of Punt is assumed by many individuals: seldom, if ever, by those in low stations. In very low or base occupations Brahman are, indeed, never seen. The names of individuals often indicate their sect. Purseran Bhon, above-mentioned, we should infer to have been of the grand division Vaishnava, and of the sect of Ramanuj. (See Paradu Ramla, which is the classical mode of writing and pronouncing his name, and Ramanul.) Hurry Punt, is from his name known to have been a Brahman (Pandit) of the grand division Saiva; Hari (corruptly Hurry) being a name of Siva. See Siva.

2. Kshetriya, usually pronounced Ketri, or Kshetri, 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 Kshetri 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 Akbary states, (vol. ii. p. 87. Calcutta ed.) that of the tribe of Kshetri, there are upwards of five hundred subdivisions, fifty-two of whom are in edem, 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 prettily numerously spread in the southern and other provinces, wherever good pay invites their services.

3. Vaifya, vulgarly called Vais, or Bhyse, is the tribe next in rank to the military. This is a very numerous tribe, comprising merchants, traders, and cultivators. In this, that is, practicing its avocations, are found many individuals of the three others: The natural duty of the Vaifya is, according to the Gita, "to cultivate the land, tend the cattle, and buy and sell." (Ibid.) This tribe is numerically subdivided like the others. It contains a great proportion of wealthy individuals. The subdivision of Vania, or Bania, called by the English Banyan, belongs to this class, and is said to comprehend eighty-four different sects; it being only itself a tribe of this third grand division, or of Vaifya.

It is understood, that all the individuals of the three first tribes or sects above named, are incapable of regeneration, by a mysterious initiation in the Gayatri, and the investiture of a holy thread called zennaar. Such individuals are called twice-born. See our articles O'ra and Zennaar for further notice of these particulars.

4. Sudra. In this is comprised mechanics, artisans, and labourers of every description. In the profession of the Sudras' avocations, individuals of the second 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 remotest 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) caused the Brahman, the Kshetriya, the Vaifya, and the Sudra, (so named from the scripture, protection, 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 or separations were kept up and observed with considerable strictness, both in respect to intermarriages and avocations. Those times were, however, anterior to the Institutes of Menu, who gives names to the spurious offspring of fictitious 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 abomination from the sin thus incurred is doubtless one, and
and no trifling, source of the revenue and power of the priesthood.

We shall notice a few of the chief religious sects into which the race of Hindoos comprised in the above four grand civil classes are subdivided. To enumerate them all would be fearlessly possible, even with the aid of learned native; and to place them in their relative rank, altogether impracticable: for it is a point involving great differences of opinion; as may be imagined when the religious feelings and pride of many individuals clash, and where great scope is afforded for their display in a field bounded by no precise authority.

Five principal sects are recognized who worship exclusively a single deity. These are 1. The Siva, who worship Siva. 2. The Vishnu, who worship Vishnu. 3. The Sauras, who worship Surya, or the sun. 4. The Ganapatyas, who worship Ganesa. 5. The Saktas, who worship Parvati. 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, the adorers of Siva under his phallic emblem called Linga. (See Linga and Ling.) 2. Lingi, the adorers of Siva under his phallic emblem called Linga. (See Linga and Ling.) 3. Saktas, the adorers of Parvati, under her symbol the Yoni. (See Saktas and Yoni.) 4. The Ganapatyas, worshipers of Ganesa, one of the Vedic deities, from Varavara and Siva. (See Pollear.) These four sects, and many divisions and subdivisions of them, may be deemed as comprehended in the first named, Siva, or Siva-bhakti. The worshipers of Baghees, or Siva, are sometimes called Siva Siddhanta.

The first great sect of Vaihnavas is also variously divided and subdivided. Two principal divisions or branches are the Gokulgas and Ramanuj. or worshipers of Vishnu, in two of his grand incarnations of Krishna (one of whom names is Gokul), and of Siva. These two principal sects of Vaihnavas are each divisible into three. The Gokulgas are 1. Those who exclusively worship Vishnu as Vishnu himself; and this sect is extensively considered as the true and orthodox Vaihnavas. (See Krishna and Vaishnavas.) 2. Those who exclusively worship Radha, as the female of Krishna. (See Radha, Saktas, Sakti.) This sect is sometimes called Radha-bhakti. 3. The worshipers of Krishna and Radha conjointly. The three divisions of Ramanuj are 1. Those who worship Rama only. (See Rama and Ramanuja.) 2. Those who worship Sita only. 3. Those who worship both Rama and Sita conjointly. See Sita.

The sect of Ganapatyas we have considered as a division of that of Siva; and the sect of Saura, worshipers of Surya, or the sun, are divided to clafs under that of Vaihnavas; for although Siva be the sun as Vishnu, yet the latter, and more particularly in his incarnation of Krishna, is more generally reckoned the archetype of the solar deity; or, what amounts to the same thing, the sun, a symbol of the sun, or Virun. Individuals of several sects of Saivas do not doubt mix their adorations with the solar worship; as do also many sects of the Vaihnavas. See Saura.

Under our article Sakti we have observed that the Hindoo mythology has personified the abstract and attractive powers of the divinity, and ascribed to these mythological personages. The Sakti, or energy of an attribute of God, is female, and is fabled as the comfort of that personified attribute. Hence has arisen such a series of fictitious comprehending all natural and moral phenomena, obscured by mythological and sexual allegories, as it is fearfully possible to explain. (See Lakshmi, Parvati, and Saraswati.) Respecting the Saktas, that is, those who worship exclusively or chiefly the Sakti or female power, this distinction has been noticed; some of them, adopting what is called a left-handed path, accompany their devotions by divers obscene and indecent acts: others do not. The sect of Radha-ballabhi, who are supposed to worship the female energy in Lakshmi, under her form of Radha, are accused of these indecencies. (See Radha.) Among the Saktas of the Saiva tribes there is also a left-handed or indecent, as well as a right-handed or decent mode of worship; and those who adopt the former are said to go the length of extreme profligacy. (See Saktas.) We should be disposed to class all the individuals who thus, either in the right or left-handed path, adore the female power, under the denomination of Tonijar, or worshippers of the Yoni; the symbol more especially of Parvati: but for this, though a reasonable classification, we cannot quote any immediate authority. (See Yoni.) None of the sect of Ramanuj are accused of the left-handed enormities. In most parts of India they are, when known, held in reserved detestation; and the decent Saktas forbid making any censure of proficion of their tenets, or wearing on their foreheads the mark of their sect, lest they should be suspected of belonging to the other branch of it.

There is another very numerous sect of Vaihnavas, called Bhagavatas, of more modern origin than the other. Their tenets and practices are grounded on the eighteenth Purana, which is chiefly a history of the life, adventures, and doctrines of Krishna, and is entitled Sri Bhagavata, which fee. The work is ascribed to Vasudeva, who endeavored to reconcile and unite all sects, by recognizing the deities of each, but as subordinate to the Supreme Being, as 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-eminence for Krishna; and although the sect of Bhagavata is very numerous, and includes individuals of or from many other sects, is a purity of doctrine is far distant from all, while a mythological paraphrase continues clothed in the attributes of the Almighty. For all the other sects, or at least a portion of the most enlightened and liberal 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 Krishna, Saraswati, 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 occasion 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 Gentleness and Idolatry.) If the doctrines of the Veda, and even those of the Puranas, be closely examined, the Hindoo theology will be found consistendent monothism, though it contains the seeds of polytheism and idolatry. See Purana and Veda.

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 Vishnu, Siva, the Sun, &c. Their theologics have entered into vain disputes on the question of which, among the attributes of God, shall be deemed characteristic and pre-eminent?

Sinkara-charya (see the article under his name) the celebrated commentator on the Veda, contended for the attributes of Siva, and founded or confirmed the sect of Saiva, who worship Siva as the supreme being, and deny the coequal or independent existence of Vishnu and other deities. Madhava and Vallabha, both also famed Acharyas, denoting literary dignity, have in like manner established by their comments the sect of Vaisnava, who adore Vishnu 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 facts, 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.

Molt of the sects, however, approach or melt into each other on close inspection; as may in all such cases be supposed, when they must all have originated in one common source. This union is with the Hindoos marked with their usual extravagant sensual mythology. Siva 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, contested the point. To appease this physiological difference between the god and his comfort, Vishnu interpolated, and his navel, or rather as time, came at length to be considered as the fame with the Yoni; confounding the Vaihnavas with the Yojias: but we must refer to our article Yoni, and the other articles and the works therein mentioned, for farther particulars on this point.

In the early part of this article, we have adverted to the numerous schismatics, under the generic term of Baudhas, followers of the doctrines of Buddha or Boodh. (See Boodh.) Thence, under various designations, we are disposed to class as heretical Vaihnavas, worshipping Vishnu under one of his avatars or incarnations, that of Buddha; as the Gokalathas and Ramanjus do under others; those of Gokal, or Krihitna and Rama. “In respect to the number of followers,” the author of the Hindo 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 trivialed on the continent of Hindostan, 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 Bootan, (see those several articles,) many of the Tartar tribes, and generally all parts eastward of the Ganges; including those vast and numerous islands in the seas eastward and southward of the farther Indian promontory, who inhabitants have not been converted to Islamism. In these great and distant parts of the globe the tenets of Buddha, distinguished by various appellations, 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.” P. 240.

Budhism, like other distinctions of faith among Hindoos, is divided into sects. If it be reckoned the grand generic fehism, we may deem the sect of Jaina and Mahiman, specific varieties; and there appears no good reason why they should not all be classed with the other sects, who adhere exclusively one of the avatars or incarnations of Vishnu, under the comprehensive denomination of Vaihnavas. Of these avatars see under the article Vishnu; and for some account of the hereof of Budha and its subdivisions, see Boodh, Jaina, Saka, and the other articles thence referred to.

Molt oriental people seem to have prided themselves on distinguishing their deities by a great many names. These names are, however, mostly, perhaps almost, significant and characteristic; of which early enquirers were of course ignorant. The prevalence of this pride will be seen in our articles Parvati, Siva, and others. In the instance of Budha, another proof might be exhibited of the fame feeling. He is distinguished by different names in the same and in different parts. Boodh, Budha. Bapta, and others of nearly similar sound, 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 Siam; Pott, or Poti, in Tibet; and Bot in Cochinchina, are the same; the Chinee having, it is said, no B or D in their alphabet, and their language being monosyllabic, softened his name into Fo, or Fo-e. (See Fo.) They call him also Xa-ka; a variation, perhaps, of the Sanscrit Saka. (See Saka.) 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 derided by others: some, indeed, will not recognize him in the Fo of China. A Buddha, whether the ninth incarnation of Vishnu 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. Buddhva is, very extensively in India, whether among Baudhas, Vaisvas, Vaihnavas, or Mahomedans, the name with Dios 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 perishability of the soul. But we ought to receive accounts of the tenets of a holy sect with caution; and of the Baudhas and Jaines we have yet but little else. Like the Jaines, their worship is confined to deified saints; and the name for the chief of them is, as stated in another place, derived from the Sanscrit word budh, to know; hence Buddha is philosophy: and hence has been derived the Saxon and English verbs budian, to bode, forebode, &c.

The Jaina, or votaries of Jaina, 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 extinctions of animal life. (See of this under our article Jaina.) In the Vedas the slaughter of animals is not only allowed, but on some occasions enjoined. (See Veda.) The adoration of the Jaines is exclusively offered to deified mortals, or rather, as they affirm, through them to the deity: and in the clas 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 Jaines; how extensively it is not ascertained; the belief of a future state of rewards and punishments, and an extensive
Portion of the Puranic history, is common to them with the orthodox Hindoos. Formerly powerful and widely diffeminated, this sect is supposed to have suffered great diminution from the extension of the modern heresy of Buddha. And at present its more opulent members are said to find it convenient to assume the orthodox persuasion, which may be done without much difficulty, and must greatly tend to a diminution of its members and respectability.

Several of the facts 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 eye-brows, it is understood to denote a Saiva, while a Vaishnava 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 sectarial bias of the individual so decorated. When convenient, and no especial 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 sacrifices, ablations, &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 sectarial decoration. The second plate of the Hindoo Pantheon contains some scores of these mystic symbols, and a full explanation of their sectarial application.

Another sect, who worship fire, or its personification in Agni its regent, is noticed under the article SAGNIKA, (which see). This is referrible to the grand division Saiva, Agni being of that line of parentage. See PAKAYA.

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. Colebrooke's Ellay 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 select 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 consilience and conformity with the ritual. He may thus, without offence, beyond incurring some displeasure, perhaps, from his hankerish family, and Guru, or pator, change from a Linti to a Youja, or associate one with the other; or from a Saura to a Ganapatya; or he may combine all, and more; and, seeing all in Krishn, become a Bhagavata; he may, without incurring sin, or, as the idea is better understood in Europe, without losing caste, turn from a Saiva to a Vaishnava. All these are venal, and admit of easy expiation. He is still under the spiritual dominion of the same priesthood, and while he observes the ordained feasts and festivals, performs pilgrimages, is liberal in alms, and conforms to the externals that serve to rivet the mental chains forged for him by the Brahmans, 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 an oration display of the doctrines of a free-thinking founder, whole tenets border on a denial of the existence of the mythological beings, reverence to whom is the base on which rests the spiritual sanctity of his own tribe. But there are still many individuals among the Brahman who think deeply; and who, in reasoning on the grossness and absurdity of their mythological legends, cannot but reject them. See VEDANTA.

It is in the civil distinctions that the Hindoo law is fo 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 result. Rich delinquents can arrest immediate ecclesiastical censure; and the lapse is soon forgotten. With the poor such things are of less moment; excising perhaps little else than the passing scandal of the neighbourhood; uncles in cafes where the Brahmanical dignity or purity may be implicated in a manner too gross or notorious to be overlooked. Fornication or adultery between a male Sudra and a Brahmani 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; expiatory and vexations is proportion to the wealth of the offenders, and the degree of enormity in the offence.

Some writers have told us of the cafe with which the Hindoo, and even the Brahman, seem to change their religion; "with as much facility," say they, "as their garments." The theological change of fet, 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 confusions and benefits of religion, such as they are. But the work of conversion altogether from that religion, and liberation from the trammels of pieties, 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 sectarial 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 extravagances as worshipping deified heroes, female powers or indecent symbols, or avatars. See Veda.

We shall here subjoin a brief account of Sanihsy, omitted in its proper place. Sanishya denotes an order of Hindoo mendicants, who arrive at this distinction by divers acts of pervercing penance and supposed piety. We are not aware of any material distinction between this description of saints, and those 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 Sanishya, who performeth that which he hath to do independent of the fruit thereof. Sanishya, or a forsaking of the world, is declared to be the fame with Yogi, or the practice of devotion. He who can bear up against the violence produced from lust 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 flames are the same. The man is distinguished whose resolution, whether amongst his companions and friends, or in the midst of his enemies, with those

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who love and with those who hate; in the company of fainds or sinners, is the fame. The Yogi conftantly exercifieth the spirit in private. He is a reftoration of a fubdued mind, free from hope, and free from perception. He planteth his own foot firmly upon a foot that is unfounded, and fitteth upon the facred grafts, jufis, covered with a skin and a cloth. (See KUS.) There he, whose businefs is the reftaining of his passion, fhould fit, with his mind fixed on one object alone, in the exercise of his devotion for the purification of his foul, keeping his head, his neck, and body fteady, without motion, his eyes fixed on the point of his nofe, looking at no other place around. To be a Sanialy, or refline, without application, is to obtain pain and trouble.

This divine discipline is not to be attained by him who eateth more than enough, or lefs than enough; neither by him who fleepeth too much, nor by him who fleepeth not at all. A man is called devout, when his mind remaineth thus regulated within himfelf, and he is exempted from every luft and inordinate difeffe. The Yogi of a fubdued mind, thus employed in the exercise of devotion, is compared to a lamp standing in a place without wind, which wavereth not. He becometh acquainted with that boundles pleafure, which is far more worthy of the understanding than that which arifes from thefenefes; depending upon which, the mind moveth not from its principles; which having obtained, he refpe& each no other acquisition fo great as it; on which depending, he is not moved by the fevereit 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 Tapasvi (see Tapas); the zealot who harrafes himfelf in performing penances, he is refpe& above the learned in fience, and superior to thofe attached to moral works.

The above paffages from different pages of the Gita, may serve as a fpecimen of that extraordinary work; fuppofed to have been composed by Vyafa, many centuries before the Christian era. See Vyafa, Jaina, Yati, and Yogi, for fome farther notice of Hindu penance and devotion; and Tapas, for infances of their aulterity.

Individuals calling themselves Saniyafts and Yogis, are flill feen wandering about India; fometimes defcending to the ocean, fometimes ftching, and fometimes being stripped to deferve a hot bath, and fticked in the mud. They do not have fuch defcendants as the Sairsa (which fec) that the god Siva being reprefented fo 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 fec under Vishnu and Varana. In the latter cafe, the individuals are probably of the fec of Vajbana, which fec.

**SECTA regalis**, a fuit by which all persons were bound twice in a year to attend the sheriff's tour, and was called regalis, because the sheriff's tour was the king's feet; wherein the people were to be obliged by oath to bear true allegiance to the king, &c.

**SECTA unica torum facienda pro pluribus hereditatiuis**, a writ that lies for an heir who is deftrained by the lord to do more fuits than one, in refpect of the land of divers heirs deftrained to him.

**SECTA**, among the Romans, pavements laid with fones cut into various forms. Suetonius diliugfes them from thofe that were telicotated.

**SECTINEUS**, in Anatomy, a small, flat, and pretty long fphere, broad at the upper part, and narrow at the lower; fitted obliquely between the os pubis, and the upper part of the os femoris.

It is commonly a single fphere, but is fometimes found double. It is fixed above by flefhy fpheres to all the sharp ridges, or criflata, of the os pubis, and to a small part of the oblong notch, or defcription, on the fide of the vertebra, in which the upper extremity of this fphere is lodged; and thence it runs down obliquely towards the little trochanter, under, and a little behind which it is inferted obliquely by a flat tendon, between the superior infertion of the varius internus, and inferior infertion of the triceps femoris, with which it is united. Winflow.

**SECTIO CESAREA.** See CESARIAN Section.

**SECTION**, Sectio, formed from secio, 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 fection is §.

The ancients negle&ted to divide their books into chapters and fections; that was a talk left for future editors and critics.

**SECTION**, in Geometry, denotes a fide or furface appearing of a body, or figure, cut by another; or the place wherein lines, planes, &c. cut each other.

The common fection of two planes is always a right line; being the line fuppofed to be drawn by the one plane in its cutting or entering the other.

If a fphere be cut in any manner, the plane of the fection will be a circle, whose centre is in the diameter of the fphere.

The fections of the cone are five, viz. a circle, triangle, parabola, hyperbola, and elipife. See each under its proper article. See alfo 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 SEQUENTES, in Conics, may be thus conceived: fuppofe two right lines, as A B, C D, (Plate XIII. Analysis, fig. 5.) mutually interfecting one another in E, which point E is fuppofed to be the common centre of the opposite hyperbolic fections F, G, H, I, and whose common afymptotes, the propped lines A B, C D, also are. In this cafe, the fections G, F, and H, I, are called fectiones sequentes; becaufe they are placed following one another in the contiguous angles of two interfecting right lines.

If the determinate diameter, H G, of one of the fectiones sequentes (which is cofident with the fuppofed indeter-minate diameter of its oppofite) be equal to the vertical tangent K L, applied between the afymptotes in the point G, of the diameter G F; then Apollonius calls fuch fections, conjugate fections. See Genesis of the Hyperbola, under CONIC SECTIONS.

**SECTIONS**, OPPOSITE. See OPPOSITE.
SECTIUS non Paciendus, in Law, a writ brought by a woman, who for her dowry, &c. ought not to perform suit of court.

SECTOR, in Astronomy, the name of two different astronomical instruments, for measuring small angular distances in the heavenly regions; one of which has a motion in or parallel to the equator, and the other is directed to the zenith. The construction and use of each of these instruments may be seen under the respective titles of Equatorial Sector, and Zenith Sector.

SECTOR, in Geometry, a part of a circle comprehended between the radii and the arc.

Thus the mixed triangle \( \triangle ACD \) (Plate XIII. Geometry, fig. 5.) comprehended between the radii \( AC \) and \( CD \), and the arc \( AD \), is a sector of the circle.

It is demonstrated by geometers, that the sector of a circle, as \( \triangle ACD \), is equal to a triangle, whose base is the arc \( AD \), and its altitude the radius \( AC \).

If from the common centre of two concentric circles be drawn two radii to the periphery of the outer, the two arcs included between the radii will have the same ratio to their peripheries; and the two sectors, the same 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 semimperiphery; then to 180 degrees, the given arc \( DE \), and the semimperiphery just found, find another fourth proportional; this will give the arc \( DE \) in the same measure in which the radius \( DC \) is given: lastly, multiply the arc \( DE \) into the semimperiphery, 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 "Menuration," has given the 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, \( a \) = the length of the arc of the sector, \( b \) = the degrees in \( \frac{1}{2} a \), \( s \) = half the chord of the arc \( a \), or the sine of \( \frac{1}{2} a \), and \( v \) = the versed sine of \( \frac{1}{2} a \); then, by multiplying the radius by half the arc, by a variety of rules which Dr. Hutton has stated, we shall have,

\[
1. \quad A = \frac{1}{2} ar = 1.1475329 \text{ brr.}
\]

\[
2. \quad A = \sqrt{\pi d} \times (1 + \frac{v}{2.3.3} + \frac{3v}{2.4.5.5} + \frac{3.5v}{2.4.6.7}) \text{ &c.}
\]

3. \( A = \frac{rs}{3} \times (1 + \frac{3s}{2.3r} + \frac{3s^2}{2.4.5s} + \frac{3s^3}{2.4.6.7s}) \text{ &c.}
\]

4. \( A = 4 \sqrt{\frac{s + \frac{v}{2}}{3}} = 4 \sqrt{\frac{2rv}{3} - \frac{s}{3}}
\]

5. \( A = rd \sqrt{\frac{3v}{2d - v}} \text{ nearly.}
\]

6. \( A = \frac{r}{9} \times (5d \sqrt{\frac{5v}{5d - 3v}} + 4 \sqrt{\frac{2v}{d}} \text{ nearly.}
\]

It appears that the area of the sector might be expressed in several other ways; such as by the tangent, cofine, &c. of its semi-arc; but the forms above given are those that are the most useful.

Rule 2.—As 360° is to the degrees in the arc of the sector, so is the whole area of the circle to the area of the sector.

SECTOR also denotes a mathematical instrument, of great use in finding the proportion between quantities of the same kind; as between lines and lines, surfaces and surfaces, &c.: whence the French call it the compas de proportion.

The great advantage of the sector above the common scales, &c., is, that it is made so as to fit all radii, and all sectors. By the lines of chords, sines, &c. on the sector, we have lines of chords, sines, &c. to any radius between the length and breadth of the sector when open.

The sector is founded on the fourth proportion of the sixth book of Euclid; where it is demonstrated, that similar triangles have their homologous sides proportional. An idea of the theory of its construction may be conceived thus. Let the lines \( A B, AC \) (Plate XIII. Geometry, fig. 5.) represent the legs of the sector; and \( A D, AD \), two equal secions from the centre; if, now, the points \( C \) and \( D \) be connected, the lines \( CB \) and \( DE \) will be parallel; therefore the triangles \( ADE, ABC \), will be similar; and, consequentiy, the sides \( AD, DE, AB \), and \( BC \), proportional; that is, as \( A: D = D: B \); &c.; whence, if \( A \) and \( D \) be the half, third, or fourth part of \( AB \), \( DE \) will be a half, third, or fourth part of \( CB \); and the same holds of all the rest.

If, therefore, \( AD \) be the chord, sine, or tangent, of any number of degrees to the radius \( AB \); \( DE \) will be the same to the radius \( BC \).

SECTOR, Description of the. The instrument consists of two rulers, or legs, of brass or ivory, or any other matter, representing the radius, moveable round an axis or joint, the middle or which expresses the centre; whence several scales are drawn on the faces of the rulers. See Plate XIII. Geometry, fig. 7.

The scales generally put on sectors may be distinguished into single and double. The single scales are such as are commonly put upon plain scales; the double scales are those which proceed from the centre; each scale is laid twice on the same face of the instrument, viz. once on each leg; from these scales, dimensions or distances are to be taken, when the legs of the instrument are in an angular position.

The scales commonly put upon the bent sectors are

<table>
<thead>
<tr>
<th>Inches, each inch divided into 8 and 10 parts</th>
<th>Decimals, containing 100 parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches, Chords, Sines, Tangents, Rhumbs, Latitude, Hours, Longitude, Incre. Merid. of the Numbers, Sines, Vered lines, of Tangents, Lines, or of equal parts, Chords, Sines, Tangents to 45°, Secants, Tangents to above 45°, Polygons,</td>
<td>marked</td>
</tr>
</tbody>
</table>
SECTOR.

The manner in which these scales are disposed of on the sector, is best seen in the figure.

The scales of lines, chords, lines, tangents, rhumbs, latitudes, 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. lines, log. verified lines, 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, lines, 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 10, the chords at 60, the lines 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 scantals 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 lines, and of tangents, to 45 degrees, are always equal. And the angles made by the scales of upper tangents, and of scantals, are also equal, and sometimes these angles are made equal to the scale made by the other double scales. The scales of polygons are put near the inner edge of the legs, their beginning is not so 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 were 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 from these into ten equal other 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 six inches makes a ruler of twelve inches when opened; and a foot sector is two feet long, when quite opened. The scales of chords, rhumbs, lines, tangents, hours, latitudes, 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 verified lines, 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 lines, the 0 on the verified lines, and the 45 on the tangents, should be opposite to each other; the other end of each of the scales of lines, verified lines, 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 2/3 degrees on the verified lines.

The double scales are constructed in the following manner. The line of lines is only a scale of equal parts, whose length is adapted to that of the legs of the sector; thus, in the six-inch sector, the length is about 5 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 divisions 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 same number of divisions be contained between the points of the compasses in every application, the scale may be received as perfect. The line of lines is constructed by making the whole length of this scale equal to that of the line of lines; and from this line, taking off 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 the several divisions 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 1/4 of such of the natural tabular 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 reflects the centre of the instrument, is distant from the centre 1/4 of the length or radius of the lower tangents.

The distance of the beginning of the scale of scantals 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 scantals are to be used.

For the scale of chords; its length is to be made equal to that of the lines; and the divisions, which are twice the length of the lines 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 lines.

The scale of polygons usually comprehends the fides of the polygons from 11 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 fides are also introduced, this line 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 some of the double scales above describ'd, there are found other scales on the old sectors, and also on some of the French ones, such as scales of superficies, of folds, of inscrib'd 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
responding divisions of the scales of the same name, the legs
of the sector being in an angular position: but in taking
these transverse distances, it is to be observed, that each of
the several scales hath three parallel lines, across which the
divisions of the scales are marked, and that the points of the
compasses must be always set on the inside line, or that line
next 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.

Sector, Use of the Line of Lines on the. 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 3rd part of it; or such a sub-
multiple of the 3rd part, as was taken of the given line:
or the 3th part will be the difference between the given line
and the transverse distance of 8 and 8.

Hence, 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 inches long, and contain 140 poles, and let
be required to open the sector, so that a corresponding
scale may be taken from the line of lines. Make the tran-
verse distance 7 and 7 (or 70 and 70, *viz. 110) equal to 3
inches (= 2); and this position of the line of lines will
produce the given scale.

3. To divide a given line (e.g. of 5 inches) into any
aligned proportion, as of 4 to 5. 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 aligned numbers, 4 and 5, will be the parts required.

4. To two given lines, *viz. 2 and 6, to find a third pro-
torical. 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 will fall on the cor-
responding 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 tran-
versely 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 : 4. If the legs
of the sector will not open so far as to let the lateral distance
of the second term fall between the divisions expressing the
first term, then take 4, 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, *viz. 3, 7, and 10, to find a fourth
proportional. Open the legs of the sector, till the tran-
verse 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, required; or such a submultiple of it, as
was taken of the second term; for 3 : 7 :: 10 : 20.

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 24; for

6. To diminish a line of four inches, in the proportion

8 to 7. Open the sector till the transverse distance of
8 and 8 be equal to the lateral distance of 7: mark the
point, where four inches, as a 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 4, 7, or 5 or 8, &c. part
of the given line for the lateral distance, and the corre-
ponding transverse distance, taken twice, thrice, 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 3, on the
other scale of lines, and then the above scale 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, *viz. 40 and 60, to find a mean
proportional. Set the two scales of lines at right angles; find
the half sum of the given lines, *viz. 65, and the half
difference, *viz. 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 : 90.

Sector, Use of 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 joint 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 afore-
said 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
lights on the scales of chords, the sector may be used to
take angles, as a surveying instrument.

3. To protract or lay down an angle of any given number
of degrees. 1. Let the number of degrees be less than 60,*
viz. 46. At any opening of the sector, take the transverse
distance of 60 and 60 on the chords: and with this open-
ing describe an arc: take the transverse distance of the
given number of degrees, 46, 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. 2. When
the degrees given are more than 60, *viz. 148; describe
the arc as before; take the transverse distance of 4 or 4 of
the given degrees, 148, *e.g. 2 = 494 degrees: lay this
distance on the arc thrice: 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 tran-
verse distance of 60 and 60, equal to that alligned
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 be-
tween 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 cir-
cumference of a circle. Open the sector till the distance

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 sector, and lay it off on the circumference of the given circle. By this use, any regular polygon may 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 six equal parts; 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.**

1. In a given circle to inscribe a regular polygon, e.g. an octagon. Open the legs of the sector 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 any other polygon, the number of whose sides does not exceed 12, may 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 of 5 and 5; at that opening of the sector, 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 be inscribed the pentagon, whose side is given, the length of a line process may any other polygon, of more that 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 sector 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 sector, we have scales to several radii: so that, 1. having a length, or radius, given, not exceeding the length of the sector when opened, we find the chord, sine, &c. there: 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 reach 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 others set. 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 that 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 and 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 sector in the following manner. Thus, the tangent of any number of degrees may be taken from the sector 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 tangents; 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 lines, if the radius of the circle can be made a transverse distance to the cosine of those degrees. Thus, making two inches a transverse distance to the sine 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 sector is set to the given radius. Thus, for a tangent, make the given line a transverse distance of 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 tangent 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 lines: then the degrees answering to the given radius, applied as a transverse distance on the lines, will be the cosine of the degrees answering to the given sector.

4. If the converse of any of these things were required, that is, if the radius be required, to which a given line is the sine, 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 sector 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 sine, tangent, or secant, it is but making it the transverse distance of the given number of degrees; then will the distance of 90 and 90 on the lines, of 45 and 45 on the lower tangents near the end of the sector, and of 45 and 45 on the upper tangents towards the centre of the sector, and of 0 and 0 on the secants, be the radius.

5. If the radius, and any line representing a sine, tangent, or secant, be given, the degrees corresponding to that line may be found by setting the sector to the given radius, according as a sine, 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 transverse line to a given number of degrees, and a given radius. Make the transverse distance
tance of 90 and 90 in the sines equal to the given radius; take the tranverse distance of the fine complement of the given degrees; if the given degrees are less than 90, the difference, but if greater, the sum of the fine complement and radius gives the vered fine.

7. To open the legs of the secter so that the corresponding double scales of lines, chords, sines, tangents, may make, each of them, a right angle. On the lines, make the lateral distance 10, a distance between 8 on one leg, and 6 on the other leg; on the lines, make the lateral distance 90 a tranverse distance from 45 to 45, or from 40 to 50, or from 30 to 60, or from the line of any degrees to their complement; or, on the lines, make the lateral distance of 45 a tranverse distance between 30 and 30.

SECTOR, in Trigonometry. Use of the. 1. The base and perpendicular of a right-angled triangle being given, to find the hypotenuse. Suppose the base $AC$ (Plate Trigonometry, fig. 5.) 40 miles, and the perpendicular $AB$ 30; open the secter 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 30 on the same scale on the other leg; then the extent from 40 on the one to 30 on the other, taken in the compasses, 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 fine 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 secter till the two scales of lines be at right angles; then lay off the given base on one of those scales from the centre; take the hypotenuse in your compasses, and setting 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 $ABC$; 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 $AC$, on both sides the secter, from the centre, and note its extent; then take the given perpendicular, and to it open the secter in the terms of the base; 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 secter 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 secter, on each of the scales of lines; the extent between their extremes is the length of the side $AB$ sought.

7. The angles $CAB$ and $ACB$ given, and the side $CB$; to find the base $AB$. Take the given side $CB$, and turn it into the parallel line of its opposite angle $CAB$; and then the parallel line of the angle $ACB$ will be the length of the base $AB$.

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 $ACB$. Lay the sides $AC$, $CB$, along the scales of lines, from the centre, and set over the side $AB$ in their terms; so is the secter opened, in these lines, to the quantity of the angle $ACB$.

10. The hypotenuse $AC$ (fig. 7.) of a right-angled spherical triangle $ABC$, given, $r.$ gr. 43 degrees, and the angle $CAB$ 20 degrees; to find the side $CB$. The rule is, as radius is to the line of the given hypotenuse, 43 degrees, so is the line of the given angle 20 degrees to the line of the perpendicular $C$. Take then 20 degrees from the centre, along the scale of lines, in your compasses, and set the extent from 90 to 90 on the two legs; and the parallel line of 45 degrees, the given hypotenuse, will, when measured from the centre on the scale of lines, give 13° 30', the side required.

11. The perpendicular $BC$, and the hypotenuse $AC$, given, to find the base $AB$. As the fine complement of the perpendicular $BC$ is to radius, so is the fine complement of the hypotenuse to the fine complement of the base. Therefore make the radius a parallel line of the complement of the given perpendicular, $r.$ gr. 73° 30'; then the parallel line of the complement of the hypotenuse, $r.$ gr. 47°, measured along the scale of lines, will be found 49° 25', the complement of the base required; consequently the base itself will be 40° 35'.
CD, bisect each other at right angles in E (Plate XIII. Geometry, fig. 9.) Make AE a transverse diameter to 90
and go on the lines; and take the transverse distances of 10°, 20°, 30°, 40°, 50°, 60°, 70°, 80°, successively, and apply those distances to AE from A towards A, as at the points 1, 2, 3, 4, 5, 6, 7, 8; and through those points draw lines parallel to EC; make EC a transverse diameter to go and go on the lines; take the transverse 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, 5 to 6, 6 to 7, 7 to 8, and so many points will be obtained, through which the curve of the ellipsis is to pass. The fame work being done in all the four quadrants, the elliptical curve may be completed. In the construction of foliar eclipces, 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 half the given parameter; divide AB, like a line of fines, into every ten degrees, as at the points 10, 20, 30, 40, 50, &c. and through these points draw lines at right angles to the axis AB. Make the lines Aa, 10b, 20c, 30d, 40e, &c. respectively equal to the chords of 90°, 80°, 70°, 60°, 50°, 40°, etc. to the radius AB, 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 sector run no farther than 60, those of 70, 80, and 90, may be found by taking the transverse distance of the lines of 35°, 40°, 45°, to the radius AB, and applying those distances twice along the lines 20, 10b, etc.

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 bisecling the angle 1BH, and the vertex A taken, draw AI, AC, parallel to BH, BI. Make AC a transverse distance to 45 and 45, on the upper tangents, and apply to the asymptotes from B so many of the upper tangents taken transversely as may be thought convenient, as BD 50°, BE 55°, BF 60°, BG 65°, BH 70°, &c. and draw Dd, Ee, &c. parallel to AC. Make AC a transverse distance to 45 and 45, on the lower tangents; take the transverse distances of the co-tangents before used, and lay them on those parallel lines; thus, make Dd = 40°, Ee = 35°, Ff = 30°, Gg = 25°, Hb = 20°, &c. and through the points A, d, e, f, g, h, &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 CAB, being given; and the distance of each, from a fourth standing among them, as D, i.e. BD, DC, and AD, 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, C, A. Having drawn the triangle EFG (fig. 2) similar to ABC, divide the line EG in H, so that EH may be to HG, as AD to DC, having already directed; and after the like manner much EF be divided in I, so that EI may be to IF as AD to DB. Then continuing the sides EG, EF, Fay, as EH - HG is to HG, so is EH + HG to GK; and as EI - IF is to IF, so let EI + IF be to FM; which proportions are easily wrought by the scales of lines on the sector. This done, bisect HK and IM in the points L, N; and about the said points as centres, with the distances LH and IN, describe two circles, intersecting each other in the points O; to which, from the angles E, F, G, draw the right lines EO, FO, and GO, which will have the fame proportion to each other, as the lines AD, BD, DC. Now, if the lines EO, FO, and GO, are equal to the given lines AD, BD, DC, the distances EF, FG, and EG, will be the distances of the places required. But if EO, OF, OG, be less than AD, DB, DC, continue them till PO, OR, and OQ, be equal to them; then the points P, Q, R, being joined, the distances PR, RQ, and PQ, will be the distances of the places sought. Lastly, if the lines EO, OF, OG, be greater than AD, DB, DC, cut off from them lines equal to AD, BD, DC, 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 EH be equal to HG, or EI to IF, the centre 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 EF, EG, instead of circles, till they intersect each other; but if EH be less than HG, the centre L will fall on the other side of the base continued; and the same is to be understood of EI, IF.

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 sector, Bion's Construction, &c. of Mathematical Instruments, by Stone, p. 54, &c. edit. 1. and Robertson's Treatise of Mathematical Instruments, &c. p. 30, &c. edit. 2.

Sector of a Sphere, is composed of a segment less than a hemisphere, and of a cone having the fame base with the segment, and its vertex in the centre of the sphere. The sector of a sphere, generated by the revolution of the sector of a circle C A E (Plate III. Geometry, fig. 12.) about the radius AC, is equal to a cone, whose base is equal to the portion of the spherical surface generated by the arc AE, or to the sector described with the radius AE, and whose height is equal to CA the radius of the sphere. Arch. de Sphera. et Cyl. Maclaurin's Fluxions. Intro. p. 15. See SPHERE.

SECU LAR, in Geography, a town of European Turkey; 5 miles S.W. of Niemecz.

SE CULAR, something that is temporal; in which sense the word stands opposite to ecclesiastical.

Thus we say, secular power, secular arm, secular jurisdiction, &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 sense the word stands opposed to regular.

The Romish clergy is divided into regular and secular.

The regulars pretend, that their state is much more perfect than that of the seculars. Secular priests may hold abbeys and priories both simple and conventual, though not regularly, but only in commendam.

It is a maxim, in their canon law, secularia secularibus, i.e. secular benefices are only to be given to secular persons; regular only to regular.

Secular Corporation. See Corporation.

Secular Games, Ludi Seculares, in Antiquity, were solemn 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 aXayv, and by the Latins secularum.

The secular games were also called Terentian 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 Terentum; he there found an altar incribed to Dis, or Pluto and Proserpine; upon which, as had been foretold in his dream, three of his children, born blind, obtained their sight; and he, in gratitude, performed sacrifices on the same altar, for three days and three nights successively. Or, finally, by reason here an altar of Pluto buried deep under ground, because the water of the Tyber, terram terret, eat into the ground in this place.

The secular games lasted three days, and as many nights; during which time sacrifices were performed, theatrical shows exhibited, with combats, sports, &c. in the Circus.

Their origin and institution are delivered at length by Val. Maximus; the occasion of which, according to this writer, was to stop the progress 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 if 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 Paze, their city should ever flourish, and all nations be subjected to their dominions. 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 seen, nor was ever to see again.

They were introduced with extraordinary preparation, under the direction of the quindecemviri; who distributed to the people flannel and sulphur, and wheat and other grain, 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 verses in Greek and Latin, to recommend the city to the protection of those deities, whom they particularly honoured by their sacrifices.

Authors are not agreed as to the number of years in which these games returned; partly because the quality of an age or seculum, 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 seculum, or age, was our century. This Varro and Livy seem to express in very plain terms; yet others will have it, that seculum 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 fly 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. 305, or 408; the third, A. 518; the fourth, either A. 656, or 668, or 678. Augustus held them in the year of Rome 736, and Claudius again in the year of Rome 800, and of Chrilt 38, viz. sixty-four years after the former; and Domitian, again, in still lesser times; viz. in the year of Rome 847, or of Chrilt 79, at which Tactius alluded 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 their first institution. The emperor Severus exhibited them the eighth time, that is, a hundred and ten years after those of Domitian. Zosimus says, these were the last; but he is mistaken, for in the year of Rome 1800, that is, fifty years after those of Severus, the emperor Philip had them celebrated with greater magnificence than had ever been known. Those that were celebrated by permission of the emperor Honorius, after having received the news of the victory of Stilicon over Alaric, were the last recorded in history. Zosimus ascribes the decline of the empire to the neglect of these games among the Romans. We find them represented on many medals.

Secular Poem. See Seculare Carmen.
Secular Year, the fame with jubilee.
SECULARE CARMEN, Secular poem, a poem sung, or rehearsed, at the secular games.
Of this kind we have a very fine piece among the works of Horace; it is a sapphic ode, which usually comes at the end of his epodes. In some editions, the twenty-first ode of the first book is also called "Carmen Seculare."

SECULARIZATION, the action of secularizing, or of converting a regular person, place, or benefice, 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.

SECULUM, in Antiquity. See Age and Secular Games.

SECUNDA AQUA, among Chemists, &c. See Aqua Secunda.

SECUNDA super operations pasturae. See Surcharge.

SECUNDANI, in Ancient Geography, a people of Gaul, who inhabited the town of Arausio, situated in the interior of the country.

SECUNDANS, in Mathematics, an infinite series of numbers, beginning from nothing, and proceeding as the squares of numbers in arithmetical progression, as 1, 4, 9, 16, 25, 36, 49, 64, &c.

SECUNDARAH, in Geography, a town of Hindostan, in the fubah of Delhi; 28 miles S.E. of Delhi. N. lat. 28° 22'. E. long. 78° 7'.

SECONDARY, or Secondary. See Secondary.

SECUNDERPOUR, in Geography, a town of Hindostan, in Benares, on the Ganges; 35 miles N.E. of Gazypour.—Also, a town of Hindostan, in the circar of Jeynagar; 15 miles S.E. of Parafaool.

SECUNDI GENERIS, in Anatomy, a distinction among the lalceal vessels. There are two kinds of lalceals; viz. primary, or those of the first kind, primi generis; and secundi generis, secondary, or of the second kind.

The first carry the chyle from the intestines into glands dispersed in great numbers throughout the mefentery. The second carry it from these glands, after its being diluted there with lympha, into the common receptacle. See LALCEALS.

SECUNDI internodiis pollis extensor. See Extensor.

SECUNDIANS, in Ecclesiastical History, a sect of Valentinians 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
whence arofe the good and the evil that are observable in the universe.

**SECUNDINES, in Anatomy and Midsowery, the placenta, umbilical cord, and membranes including the fatus, which, being expelled from the uterus after the fatus, constitute the after-birth. They are described under the article Embryo.

Dr. Grew, in his Anatomy of Plants, applies the term fucundine to the fourth and laft coat or cover of seeds, because this performs nearly the fame office in plants, that the membranes, involed the fatus, do in animals. And indeed Pflay, Cohnemull, Apuleius, &c. have used fucundine in the fame sense.

**SECUNDO. Propriofo de Secundo adjacent. See Proposition.

**SECUNDRA, in Geography, a town of Honduras, in the eircar of Sirhind; 90 miles E. of Sirhind.—Alto, a town of Honduras, in Doab; 15 miles W. of Canage.

**SECUNDUS, Johannes, in Biography, is the literary name of John Everard, a celebrated Latin poet, the fon of Nicholas Everard, an eminent jurisft, and prefident of the council of Mecklin under Charles V. He was born at the Hague in 1511, and at an early age studied the law at Bourges. He, however, showed a decided attachment to polite literature in preference to jurifprudence, and contracted intimacies with fome of the moft distinguished Latin poets of his time. He travelled into Italy and Spain, and was made secretary to cardinal Taver, 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 poifomed more facility and sweetness than Secundus. A volume of his elegies, epigrams, odes, and miscellaneous pieces, together with a narrative in prole of his different journeys, was published. Of all his poetical works, the "Balía" have been the moft popular, on account of their fentence, and the delicate volupptuousnefs of their painting. They are still read, and new editions are frequently printed. Johanne had two brothers, who were also elegant Latin poets, known by the names of Nicolas Grudius, and Adrian Marius. They have united in an affectionate commemoration of their decailed brother, annexed to his poems. Secundus himself practifed the art of engraving, and to his volume is prefixed a portrait of a female, with the following inscription: "Vatis amoris Julia culpata manu."

Secundus, in Botany, a term not very eafy, in the technical fene of Linnaeus, to translate. One-ranked may generally express its meaning. This term is applied to a racemus, or clufser, whose flowers are all turned to one fide, as in *Pyrola fecondani*, Engl. Bot. t. 517.

Secundus Malls, in Anatomy, a name given by Daverney, and fome others, to one of the muscles of the ear. It is the internus auris of Cowper and others, and is moft properly named by Albinus tenor tympani.

**Secundus Occlus Moeotis, a name given by Vefalius to that muscle of the eye, called by Riolanus and others fuperbus, and elevator oculii, and by Albinus the fubducitor, one of his four muscles reft of the eye.

**Secundus Peronaeus. See Peronaeus.

**Secundus Scaleus. See Scaleus.


Gen. Ch. Cal. Perianth inferior, small, deciduous, of three, ovate, coloured leaves, the uppermost of which is opposite to the flandard, the others accompanying the keel. Cor. papilionaceous, of five petals; wings much spreading, very obtuse; flandard of two leaves, oblong, ftrait, 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, obtufe, plaited appendage. Stam. Fila- ments eight, combined at the bottom; anthers oblong, erect. Pfl. German superior, ovate, terminating in an awl-shaped fyle; stigma flat, dilated, toothed at the tip. Petio. Le- gume ovate, of one cell, ending in a ligulate wing. Seed foltary, oblong.

Obf. In this genus is very nearly allied to *Polygala*, but it is polypetalous, and the fruit has only a fingle cell, refembling the capsules of *Banifhieria*.

Eff. Ch. Calyx of three leaves. Corolla papilionaceous: the flandard of two leaves within the wings. Legume ovate, of one cell and one seed, ending in a tongue-shaped wing.


2. *S. velubils*. Climbing Securidaca. Willd. n. 3. Swartz Prodr. 104. (Sparium flandani, fructu alato, flora rubro; Plum. Lc. t. 247, f. 1.)—Stem twining. Leaves oblong, acute.—Native of South America, and the Wef Indies. Found in Jamaica by Browne, and at Carthagena by Jacquin.—A twining plant, whole younger, leafy branches are changed into very ftrong tendrils. Leaves alternate, oblong, pointed, fcarcey falked. *Flowers in loofe, lateral clufers, red, feen tufces.*

3. *S. angusta*. Wood-like Securidaca. Willd. n. 5. Swartz Prodr. 104. (Sparium alterum, fructu alato, flora rubro; Plum. Lc. t. 144, f. 1.)—Stem twining. Leaves round, ftvel obtufe.—Native of Jamaica and Hispaniola. Swartz is of opinion, that Browne's fifth species in his History of Jamaica, must be this, and not *S. erecta*, as Linnaeus fuppofed. We know of no further defcription of this species than what is quoted above. For Securidaca of Tournefort, Miller, and Garton, fee CORONILLA.

**Securinaga, so denominated by Commerson, from securis, a hatchet, and naga, to deny, or refuse to yield; in allusion to the extreme hardness of the wood, called *Bois dur* by the French, in the Ile de Bourbon. Some also call it, according to Commerson's manuscripts, *Bois de Té*, and others Quin-quin. The English, who met with this tree in Oethebe, named it, from the appearance of the leaves, Othebe Myrtle.—Jull. 388. Willd. Sp. Pl. v. 4, 761. Porte in Lamarck Dict. v. 7, 691, Ait. Hort. Kew. v. 5, 383.—Clafs and order, Diadelphi Penicularea; (or rather *Mena- delphus*.) Nat. Ord. Euphorbiaceae, Jull.


Female, on a different tree, Cal. Perianth as in the male, inferior, permanent. Cor. Nectary as in the male, permanent. Pfl. German superior, nearly globular, three fidced; stigmas round.

**Stilbus, in Botany, a term ap-
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styles three, short, permanent; stigmas obtuse. Peric.
Capsule three-lobed, three-celled. Seeds solitary?


Female, Calyx and nectary as in the male, permanent.
Capsule superior, three-lobed, three-celled.

Syn. v. 2. 673." Ait. n. i. (S. duriffima; Gmel. Synth.
Nat. v. 2. 1008. Poiret in Lam. Dict. v. 7. 632.)—Native of the isles of Mauritius and Bourbon, as well as of Otaheite, where it was observed by the late Mr. Christopher Smith. Living plants were brought to Kew by admiral Bligh, in 1793. This is treated as a flow plant, flowering in spring and summer. In the Mauritius it is a tall tree, with alternate, round, minitely warty branches, and very hard yellowish wood. Leaves alternate, stalked, ovate, various in size and blunt nuts, from one to three inches long, and about one broad, entire, smooth, with one rib, and many fine interbranching veins. Flowers numerous, in dense, fiffle, globular, axillary tufts. Commeron describes fix flaments, but we find only five, according to the general observation of the authors above quoted.

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 medicine, the latter under the celebrated professor Silvius. On his return, he settled at Salisbury, and was much respected to on account of his skill in the practice of physic. He published annual tracts, which he called "Prognosticons;" and which appear to have been a kind of almanacs, accompanied with astronomical predictions and medical precepts. Anthony Wood had seen two of them, for the years 1579 and 1586. 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 Querysmy of the daily Enormities and Abuses committed in Physic, concerning the Three Parts thereof." Lond. 1666. This is a little tracts, written with learning and pliability, on the often repeated complaint of the intrusion of irregularly educated persons into the practice of physic, and the presumption 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 have so much merit, 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 Doctor 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 Physicians, Surgeons, and Potheurists." See Ankin's Biography.

Memos of Med.

SECURITE PACEs, in Law, a writ which lies for one who is threatened with death or danger, against the person who threateneth him. It is taken out of chancery, directed to the sheriff. See PEACE and SURETY.

SECUROTEM invocandi quod se non diversit ad partis exteras, fine licentia regis, an ancient writ lying for the king against any of his subjects, to lay them from going out of this kingdom into foreign parts; the ground whereof is, that every man is bound to serve and defend the commonwealth, as the king shall think fit.

SECURUM, Si te fuerit. See Si te fuerit.

SED

SECUTOR, among the Romans, most commonly signified an attendant upon great men.

SECUTORES, in Antiquity, a kind of gladiators among the Romans, who fought against the retiarii.
The word is formed from the verb seque, to follow; because the secutores used to pursue the retiarii, when they failed to call the net, and fled to put in order.
The secutores were armed with a sword and a buckler, to keep off the net, or noose, of their antagonists; and they wore a cloak on their head. Some confounded the secutores with myrmillones, because both had nearly the same weapons.

Secutor was also the name given to such gladiators as took the place of those killed in the comb; or who fought the conqueror. The poet Tullus taken by lot. In ancient inscriptions we also meet with secutor tribuni, secutor duti, secutor Cefaris, &c., who were officers attending the tribunes and generals; perhaps like our aids-de-camp.

SECEZENIAGA, in Geography, a town of European Turkey, in Dobrud Tarty, on the Danube; 20 miles N. of Kirlova.

SEDA, a town of Portugal, in Alentejo; 6 miles W. of Altor do Chao.

SEDAB, in Botany, a name given by the Arabian physicians to the wild, or mountain rue, a plant common in Syria, Greece, and other places. Avicenna supposes the gum, which he calls gentum, or jenum, to be produced from this plant, but very erroneously, that gum being obtained from the roots of the thapsia, or deadly carrot.

SEDALLE, Michel Jean, in Biography, a French dramatic writer, was born at Paris in 1719. His father, an architect, having left his family entirely destitute, the subject of this article was obliged to work as a common mason, to maintain his mother and two younger brothers. By his laudable industry he became a master mason, but his fondness for the theatre having led him to make some attempts at dramatic composition, which were attended with a confiderable 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 successful; the "Le Deferteur" was represented one hundred times. He had a perfect knowledge of stage effects; 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.

SEDAN, a town of France, and principal place of a district, in the department of the Ardennes, situated on the Meuse; strongly fortified, and reckoned one of the keys of France. It is divided into the north and fourth parts: the former contains 5984, and its canton 11,471 inhabitants, in 14 communes; the latter has 4560, and its canton 13,124 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; 133 polls S.S.W. of Liege. N.lat. 49° 42'. E. long. 5° 0'.

SEDAN Chair. See Chair.

Y 2
SEDANG, in Geography, a town on the N.W. coast of the island of Borneo. N. lat. 2° 15'. E. long. 116° 48'.
SEDAREE, a town of Perian Armenia; 30 miles S.E. of Erivan.
SEDASHYGR, 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 Periapatan.
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 it 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 increaseth or excites that power, or its actions, is thence called a stimulant; and those agents, on the contrary, which diminish or restrain 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, sugar of lead, &c. In the school of Bruen, however, where 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 farther 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 excitation, and, secondly, that a previous excitation occurs, where it is not cognizable, as in the case of digitalis, and the suprachiasmatic lead, and some other narcotics, which appear to influence directly the action of the heart and arteries, and to depref the whole nervous power. The use of sedatives for medicinal purposes, is principally confined to the regulation of the arterial sytem, as in cases of hemorrhage, especially from the lungs, in diseases of the heart, &c.
SEDATIVUM SAL. See Sedative Salt.
SEDAU, in Geography. See Supply.
SEDERGH, a market-town in the west division of the wapentake of Staintcliffe and Ewefore, West Riding and county of York, England, is situated in the parish of Sedergh, 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 1805 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 Aboukir to within a mile or two of Alexandria. It communicates with the sea by a narrow opening, and westly the British army opened a channel to form a communication with lake Mareotis: it is also called the "lake of Aboukir."—Allo, a lake of Egypt, producing pasture; 55 miles N.W. of Cairo.
SEDEANA, a town of Italy, in Friuli; 10 miles W.S.W. of Udina.
SEDEEE, a town of Egypt, on the left bank of the Nile; 7 miles S. of Abutighe.
SE DEFENDENDO, in Latus, 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 affronting him, that his death was not done as he did, he must have been in danger of his own life. See SEDITION, HOMICIDE, and MANSLAUGHTER.
SEDELLA, in Geography, a town of Spain, in the province of Grenada; 12 miles N. of Velez Malaga.
SEDEM ATOLENS, in Anatomy, a name given by Veleus and others to the muscle, now more generally known by the name of levator ani.
SEDETARIIUM Os, a name given by some anatomical writers to the protuberance of the os coccyxidis, on which the whole weight of the body rests in sitting.
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 sedar olam zuta, that is, the great sedar olam; and the other, sedar olam zutu, i.e. little sedar olam.
Seder Olam, the Great, commences at the creation of the world, and comes down as low as the war of the pseudo-melliah Barchochebas, under Adrian, fifty-two years after the destruction of the temple of Jerusalem; and from 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 Hepheta of Tipporsa, who lived in the second century, about the year 130, and was master of the famous R. Juda Hakka- dofch, the compiler of the Mishana.
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 Tehmah David, and flown that the date in the beginning is an interpolation.
The two chronicles were first printed at Mantua in 1514. 4to.; again at Basii, from Frobeniis, in 1580, 8vo.; at Venice, in 1545, 4to.; and at Paris, with a Latin version of Genevraed, in 12mo. 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.
SEDEF, 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 grasses of the poor hard earth kind, which are very hardy in their nature, and prevail much in most heath land. They are fearely ever touched by live- stock, being what may be called the fork end of herbage. See Carex and Weeds.
SEDGEFIELD, in Geography, a market-town in the north-east division of Stockton ward, county palatine of Durham, England, is situated at the distance of 11 miles S.E. 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 swell, surrounded on all sides by a country in the highest state of cultivation. On the south and south-east is a delightful prospect of Cleveland, Rosberry-Topping, and a long range of lofty hills, with the borders of the river Tees, down to the German ocean; on the south-west is a beautiful country decked with a variety of fine feats; and on the north and north-east appear the towns of Bishop Middleham, and Fildburn and Trimdon. The celebrated Dr. Aikew 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 cross. 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 tabernacle work in oak, having three arches on each side, divided by beautiful light columns, and covered with canopies. The whole chancel is wainscotted with oak, panneld, and ornamented with cherubs. In this church were formerly two chantries, one dedicated to St. Catherina, 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 Kellawe. The market-day is Friday, weekly; and the fair is held on the eve of St. Edmund. Here is an hospital, founded by the trustees of Thomas Cooper, surgeon 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 291 houses; and a population of 1507 inhabitants. The History and Antiquities of the County Palatine of Durham, by William Hutchinson, F.A.S. vol. iii. 4to. 1794.

SEDGE RIVER, a river of Patagonia, which runs into the Straits of Magellan. Its water is excellent, and on each side are very fine trees, which commodore Byron says, would supply 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 land, 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 Hindoostan, in Guzcrat; 20 miles E. of Surat.

SEDGWICK, a town of America, in the state of Maine and county of Hancock, on Naskeag Point, which bounds Penobscot on the N.E., extending to the town of Penobscot, and distant 315 miles E. from Boston. It contains 1523 inhabitants.

SEDHOUT, a town of Hindoostan, in the cirque of Cuddapa; 6 miles N.E. of Cuddapa.

SEDILLO, a town of the island of Sardinia; 30 miles N.E. of Orilagghi.

SEDIMENT, formed from the Latin sedimentum, which Matthias Sylvaticus derives a divituna fede, the settlement or dregs of any thing; or that gros, heavy part of a fluid body which, upon relicking, sinks to the bottom of the vessel.

Some physicians have found means to discover much of the nature of the disease, from the sediment of the urine. Dr. Woodward maintains, that, at the deluge, the whole terrestrial globe was divided into one uniform mass; and that the new world, arising thence, was perfectly spherical, and without any inequalities, confining of several strata, which the earthy sediment gradually produced, as it drained.

SEDINA, in the Materia Medica, a word used by some writers to express dragon's blood.

SEDINI, in Geography, a town of the island of Sardinia; 10 miles S.E. of Callet Argonene.

SEDITY, among Civilians, 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 REBELION.

This offence is of different kinds: some seditions more 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 variously punished, according as its end and tendency threatened greater mischief. (See lib. i. Cod. de Seditionis, and Matth. de Crimin. lib. ii. n. 5. de Leta Majestate.) 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 fame distincion 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 flat. 25 Edward III. as levying war against the king. And several seditions are mentioned in the Scottish acts of parliament as treasonable. (Bayne'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 chiefly 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 sheriff, lieutenants, and bailies of regalities, 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, lieutantry, 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 Riots.

SEIDLEY, Sir Charles, in Biography, a dramatic writer, born in 1639, was son of Sir John Sidley of Ayleford, in Kent. He was educated at Wadham college, Oxford, and after leaving the university, he passed his time in retirement till the restitution. On that event he came to court and was one of the licentious circle round Charles II. His first essays 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
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 mullet off, in which quality she was raised to the title of countess of Dorchester, an elevation that, as her father indignantly said, only rendered his infamy 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 humourous 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 margravate of Meissen; 2 miles S.W. of Pirna.— Also, a village of Bohemia, in the circle of Saazt, where Hoffmann, in the year 1729, discovered a medicinal spring, from which is prepared a purgative salt, near Molf.

SEDMA, a word used by some as a name for the lapiss hemaitis.

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 Segeborg.

SEDOSA, a town of the island of Corica; 12 miles N.W. of Corte.

SEDSCHERROI, in Ancient Geography, a people of Pontus, in the vicinity of the river colibus, according to Tacitus.

SEDR, oR SEDRE, the high priest of the sect of Ali, who usually confers the dignity on his nearest relation.

The jurisdic-tion of the sedr extends over all effects de- limed for pious purposes, over all mosques, hospitals, colleges, fepulchers, 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 sedr, however, has not any indelible character, but frequently quits his post for another purely secular one. His authority is balanced by that of the muditchid, or first theologue of the empire.

SEDRE PASSAGE, in Geography, a narrow channel of the East Indian sea, on the N. coast of Sumatra, between Pulo Nanci and King's Point.

SEDULIUS, CADIUS Cælius, or CEELIUS, in Biography, a priest and poet, who flourished about the year 170. He is known only by his writings, of which the principal is a Latin poem in heroic verse, entitled "Pachale 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 1724. A prose work of the same writer is extant, entitled "Pachale Opus.


Eff. Ch. Calyx five-cleft. Petals five, with five nectariferous scales at the base of the germ. Capsules five, superior.

The herbage of this genus is succulent, and moist, 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, Planitia and Tereflolia; 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 British. As a selection from the whole genus, the following are the most remarkable.

Sed. 1. Planitifa.—Leaves flatish.

S. Telephium. Origine or Live-long. Linn. Sp. Pl. 616. Engl. Bot. t. 1319. Curt. Lond. sene. t. 3. 25.—Leaves flatish, serrate. Corymbe leafy. Stem erect. Found in dry fields, about hedges, and on bushy 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 fleshy fleshy, ovate, fleshy, flat, toothed in a serrate manner, rather glaucous, smooth. Flowers purple, occasionally white, forming terminal, manyflowered, crowded, leafy twigs. This species is found to vary in the colour of its flowers and the serration of its leaves, as well as in the size of all its parts.

S. Anacampheros. Evergreen Origine. Linn. Sp. Pl. 616. Curt. Mag. t. 118. (Anacampheros minor, rotundifolius, sempervirens; Tourn. Infl. 264.)—Leaves wedge-shaped, attenuated at the base, nearly fimbriate. Stems decumbent. Flowers corymbosae.—Native of the south of France, mostly in the crevices of rocks. It flowers in July and August.—Root perennial, fibrous. Stems reddish, trailing at their base, more upright and glaucous towards the top. Leaves numerous, alternate, or falted, ovate, fl. dotted at the tip, of a blueish-green colour. Flowers deep lilac or purple, rarely white, in compact, leafy, terminal tufts.

Sedum.

Auguft.—Root slightly fibrous. Stems herbaceous, erect, a little wavy, spreading, about a foot in height, frequently of a bright red colour. Leaves alternate, remote, on longish stalks, slightly lobed, turning of a brownish-red colour, flabby.

In habit and appearance, this plant greatly resembles Saxifraga rotundifolia.


S. tetraphyllum. Four-leaved Stone-crop. Sm. Prodr. Fl. Græc. Sibth. n. 1048. "Fl. Græc. t. 448."—Leaves in fours, spatulate, entire, obtuse.—Found by Dr. Sibthorpe 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, flabby, fringed with hairs. Flowers in long, terminal, leafy spikes, white, tipped with a pink rib. The whole plant is of a yellow-brown hue, dotted with red, and thickly beset with hairs.


S. dasyphyllum. Thick-leaved Stone-crop. Linn. Sp. Pl. 618. Engl. Bot. t. 566. Curt. Lond. fusc. 3. t. 26.—Leaves opposite, ovate, obtuse, flabby. Stem weak. Native of Europe. —Found on walls or rocks in many parts of Britain, and if introduced into a garden, it propagates itself freely upon artificial rocks and garden walls; flowering copiously in June. Root apparently biennial, white and fibrous. Stems decumbent, creeping, tufted, thread-shaped, a little vilifed, leafy; flowering branches erect. Leaves mostly opposite, imbricated, gibbous, very succulent, entire, glaucous, tipped with red. Flowers three or four together, white with a purple streak, forming small, spreading panicles.

S. anglicum. English Stone-crop. Sm. Fl Brit. 486. Engl. Bot. t. 171.—Leaves thick, ovate, gibbous, and loose at the base, alternate. Cyms of two branches. Native of Great Britain, but not a common plant. It has been gathered near Dumfartons castle, on the sandy downs near Yarmouth, and other maritime and mountainous situations, flowering in July. Root annual, fibrous. Stems tufted, decumbent at the base, smooth, ruby-coloured, leafy. Leaves frequently alternate, or inclining to opposite, very thick, flabby, obtuse, slightly glaucous, with a protrusion at their base. Flowers at first thickly clustered, afterwards more remote; the petals white, with a reddish rib, and generally dotted with red at the tip. Caffules smooth, corymbose.

S. acris. Biting Stone-crop. Wall Pepper. Linn. Sp. Pl. 619. Engl. Bot. t. 839. Curt. Lond. fusc. 3. t. 32. Wood. Suppl. t. 231.—Leaves alternate, somewhat ovate, flabby, gibbous, fixed to the stem by their inner side above the base. Cyme three-cleft, leafy.—This brilliant little flower is conspicuous enough about midsummer, and for some time afterwards, on walls, roofs, and dry banks or sandy ground, in which it clothes as if with a cloth of gold, in defiance of the drought and most searing sun.

—Root perennial, fibrous. Stems tufted, branched, decumbent, smooth, round, leafy. Leaves alternate, imbricated, erect-spreading, grass-green coloured, protuberant at the back. Flowers corymbose, golden-coloured, in terminal, solitary, three-cleft, leafy panicles. —The whole herb is acrid, hot and biting to the taste, whence its common name Wall Pepper. Dr. Woodville quotes several authorities to prove its use in febrilitic and febrifulous disorders.

S. fassquale. Infapid Stone-crop. Linn. Sp. Pl. 620. Engl. Bot. t. 1445. Curt. Lond. fusc. 4. t. 53.—Leaves in fix or seven rows, somewhat cylindrical, obtuse, flabby, spreading, fixed to the stem by their inner side above the base. Cyme three-cleft, leafy.—Occasionally to be met with in dry, sandy places, about walls, flowering in June and July. In habit this perennial greatly resembles the last species, but it is generally rather larger. The leaves are more cylindrical, not ovate, about three together in alternate whorls, producing in the whole leafy stem or branch fix or seven angles or rows. Cymes terminal, of two larger flowers, and a small one. Flowers pale yellow.

The foliage frequently turns red. The whole herb, though unpleasantly audite, is delirious of all acid pungency of flavour.


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. ochroleucum. Pale Stone-crop. Sm. Prodr. Fl. Gr. Sibth. n. 1923. Sm. in Trans. of Linn. Soc. v. 10. 6. (Sempervivum sediforme; Jacq. Hort. Vind. t. 81.)—Leaves glaucous, scattered, acute; the lower ones round; upper elliptical, deflexed. Segments of the calyx rather acute. Found on walls, stones, and banks, as well as about shady enclosures, 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 shewn to be the Sempervivum sediforme of Dioscorides, who describes it thus: "Several flender flents spring from one root, thickly encrusted with little, round, succulent, sharp-pointed leaves. It throws out, moreover, a flent towards the middle, about a span high, with an umbel of flender (greenish or) pale yellowish flowers."

This plant, when pounded, is used at Athens as a cooling cataplasm to bruises or to gouty limbs.


S. glaucum. Glaucous Stone-crop. Engl. Bot. t. 2477. (S. reflexum; Sm. Fl. Brit. 490. S. minus hematoideus; 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 flender leaves, especially those of the branches.


S. Forsterianum. Forsterian Stone-crop. Engl. Bot. t. 1822.—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. efq. near the Devil's bridge, Cardigan- shire, in 1806. It flowers in July. This species has hitherto been confounded with rupestris, from which however (says the author of English Botany) it differs "in having the leaves of the barren branches spreading in a rofaceous form, not close-piled or erect, and especially in the want of a glaucous hue in the leaves, stem, and calyx. The petals 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. telephiurn); the evergreen orpine (S. anacampseros); the yellow stone-crop (S. aizoon); the poplar-leaved stone-crop (S. populifolium); the starry stone-crop (S. flittatum); the purpure-leaved stone-crop (S. cespitum); 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 infiph stone-crop (S. saxifragulare); 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 stem 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 waife 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 forts, are cultivated in Holland and Germany to mix with lettuces in fellawds. The eleventh fort is eaten by some as a pickle.

Method of Culture.—These plants are all raised without much difficulty, by proper care and attention to have the foil 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 parting 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 stalks in the spring or summer season, 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 forts, they may also be introduced as rock plants, to embellish artificial rock-works, ruins, and other similar places in pleasuregrounds. The stone-crops and other low trailing kinds may also be made to occupy the tops of any low walls, pent-houses, fedhs, or other low buildings.

And further, the twelfth and thirteenth forts may like-
wife be disposed in patches towards the fronts of borders, &c. as they spread thick and tuftly close to the ground, and flower abundantly; and being planted in pots, are proper to place on the outside of windows, copings of low walls, and in balconies, and court-yards, in allelamb to other lower fancy plants; they will clothe over, spread the surface, and flower profusely as far as they extend in such situations.

**Sedum Acre**, Wall-stone Crop, or Wall-pepper, in the *Materia Medica*, a common Britsh plant, growing on houses, walls, and gravelly banks, is, in its recent state, extremely acid, like the hydropiper; and, therefore, if taken in large doses, it acts powerfully on the prime vae, proving both emetic and cathartic; and applied to the skin, as a cataplasm, frequently produces vesications and eruptions. 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 scurvy complaints: for which purpose, a handful of the herb is directed by Below, a Swedish physician, to be boiled in eight pints of beer till they are reduced to four; of which three or four ounces are to be taken every, or every other, morning. Milk has been found to answer this purpose better than beer. Not only ulcerous, simply scurvy, 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. Woodv. Med. Bot.

**Sedum Majus**. See **Sempervivum**.

**Seduni**, in *Ancient Geography*, a people of Gallia Narbonenensis, in the vicinity of the Nantuates and Veragri, which jointly occupied the country that lies between the Allobroges and the higher Alps.

**Sedunoa**, in Geography, a town of Ruffia, in the government of Irkutsk, on the Lena; 12 miles N. of Orkengia.

**Sedusii**, in *Ancient Geography*, a people of Germany, who fought under Ariovistus against Caesar.

**Sedziszow**, in Geography, a town of Poland, in the palatinate of Sandomirz; 35 miles S. of Sandomirz.

**See-amol**, a small island in the East Indian sea, near the eait coast of Borneo. N. lat. 5° 27'. E. long. 118° 48'.

**Seeassee**, a small island in the Sooloo Archipelago. N. lat. 6° 25'. E. long. 120° 50'.

**Seeaxur**, a river of Hindoooland, which runs into the bay of Bengal, near Pondicherry.

**Seebach**, a town of Austria; 1 mile S.S.W. of St. Jorgen. — Allo, a river of Saxony, which runs into the Muldan, 2 miles S. of Elnburg.

**See-dangog**, a small island in the East Indian sea, near the east coast of Borneo. N. lat. 4° 15'. E. long. 118° 24'.

**Seebergen**, a town of Germany, in the duchy of Gotra, in which is a celebrated observatory, erected by the late duke; 4 miles E.S.E. of Gotra.

**Seebugunge**, a town of Hindoooland, in Bengal; 12 miles S. of Goragot.—Allo, a town of Hindoooland, in Bengal, on the left bank of the Ganges; 5 miles N. of Boghgiore.—Allo, a town of Bengal; 45 miles N.E. of Furracah.—Allo, a town of Bengal; 40 miles N.N.E. of Natore. N. lat. 25°. E. long. 89° 32'.

**Seebo**, the largest river in West Barbarie; it rises in a piece of water situated in the midst of a forest, near the foot of Atlas, eastward of the cities of Fez (Fas) and Mequinex (Mequinias), and winding through the plains, passes within five miles of Fez. Another stream, proceeding from the south of Fez, passes through the city, and discharges itself into this river. This stream is so valuable to the inhabitants of Fez, as it supplies the town with water, that it is called "Wed El Juhor," the river of pearls, a term indicating its value. Some auxiliary streams, proceeding from the territory of Tezza, fall into the Seebbo in Liah, or the period between the 20th of December and 30th of January inclusive. This river is impassable, except in boats, or on rafts. At Mehduma, or Mamora, where it enters the ocean, it is a large, deep, and navigable river; but the port being evacuated, foreign commerce is annihilated, and little shipping has been admitted since the Portuguese quitted the place. This river abounds more than any other in that rich and delicate fish called shebel. If this country afforded any encouragement to industry, corn might be conveyed up the Seebbo river to Fez at a very low charge; whereas it is now transported to that populous city by canoes, the expense of the hire of which often exceeds the original cost of the grain. Jackson's Account of the Empire of Morocco.

**Seebpoor**, a town of Bengal; 12 miles N. of Hoogly.

**Seeburg**, a town of Prussia, in the province of Ermelland; 55 miles S. of Konigberg. N. lat. 53° 31'. E. long. 20° 40'. — Allo, a town of Welfphalia, in the county of Mansfeld; 5 miles E. of Eifzeleben. N. lat. 51° 31'. E. long. 11° 51'.

**Seed, Jeremiah**, in *Biography*, a learned divine of the church of England, was born at Clifton, in Cumberland, and educated at Queen's college, Oxford, where he took his degrees in the arts, and obtained a fellowship. He was afterwards prefented to the rectory of Eham, in Hampshire, where he died in 1747. His sermons, which are very highly esteemed, are published in 4 vols. 8vo.

**Seed, Semen**, in the *Animal Economy*. See **Semen and Generation**.

**Seed, in Botany**, is that most important organ in the fructification of vegetables, the perfecting of which is indeed the sole object of all the other parts: to this end they are subervient either in forming, perfecting, or dispersing it. A seed is composed of many essential parts. See **Emery, Cottyledones, Albumen, Vitellus, Testa, Hilum**.

Besides these, there are various accedary parts, or appendages, to seeds, which come under the following denominations. See **Pellicula, Arillus, Papus, Cauda, Rostrum**. To these we must add **Ala**, which our predecessor has neglected to describe as a seminal appendage, in its proper article. (See that article.) The **Ala**, or **wing**, is a dilated membranous appendage to seeds, serving to waft them along in the air; it is commonly solitary, except in some umbelliferous plants. Seeds are occasionally furnished with spines, hooks, scales, crested appendages, particularly a little gland-like part sometimes called **Sripophiium**, 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 **Introd. to Bot. ed. 3. 210—232**.

**Seeds, Echiniate.** See **Echinate**.

**Seeds, Naked.** See **Naked**.

**Seeds, Winged.** See **Winged**.
SEED.

SEED-Down. See Pappus.
SEED-Fell. See Pericarp.

Seed, in Agriculture, the grain or other product of a plant, whereby the species is propagated, upon its being tawn or put into the earth.

It may be observed, that the choice of the seed intended to be tawn, 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 small of italk, more little as it is much as kinds new, found, that and must be perfed. 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 threfhed from the straw, and that the skin be clear and thin; for it is found that grain which is fresh, and only just threfhed out, is in a much more proper state for quick vegetation, than such as has been long kept, consequently less liable to perish in bad feafls; and that while the rind or skin is of a bright colour, and thin, a much larger proportion of fine farmaceous or mealy matter is yielded from the same 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 Synops of Husbandry has shown, 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 used in the taise of 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 depofed, under such conditions, to take on the putrefactive fermentation, or become rotten, than to the abfolition of oxygen, which is believed to be essential to the procefs of vegetation in the early stage, as stated by Mr. Gough in the Manchester Transacions; 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 seeds, 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 atmospheric air; and that the bed of mould, or earth, in which it is deposited, be in as fine a powdery 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 expofed 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 seeds. 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 forfed, 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 feeds, can only disappoint the views and hopes of the farmer, by propagating various fatal 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; and 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 best ripened. These benefits or advantages may likewise, in some measure, be attainted in the most valuable sorts of grain, by having them picked over by hand, after being threfhed out; but this is a tedious practice, and not at 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 feed; 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 con- tended by an experienced farmer, depend so much upon obtaining new feeds from places at a considerable distance, as upon collecting and reserving 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 had recourse to, in consequence of its having been found that though vegetables of all kinds are extremely liable to changes, in respect to the time 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 stacks or sheaves, there may, however, be disadvantages in the way of lessening the produce, by choosing the largest ears, which have rarely more than one a stalk, and by taking such as become ripe at different periods.

It is observed that many different modes have been proposed for ascertaining the goodness of grain or feed-corn; but the farmer generally depends upon the appearance that it exhibits, preferring such as is full, plump, and well fed, and that has a certain brightness and starness, without any thrivelling or shrinking in the husks 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 immered 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 goodness of the corn, as none but such as are perfectly found sink in them. And
the author of the Philosophy of Gardening conceives, that the weight of a given measure of grain may also be a tolerably certain method of discovering the quantity of bulk or bran contained in it, compared with a quantity of flour: as that grain which is cut too early, or which is otherwise not quite ripe, as happens in wet seafons, shrinks in the barn or granary, and becomes wrinkled, and has thus a greater proportion 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 operation; 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 teft of experiment in the field. The result of a single trial, made under the circumstance of a hot-houfe, can never be satisfactory to the farmer. He thinks, that although the seeds of wheat may be rendered by the exhausting power of a fungus so lean and thrifted, that scarcely any flour fit for the manufacture of bread can be obtained by grinding them, these very fees will, except in the very worst cases, answer the purpose of feed-corn as well as the fairest and plumpest sample that can be obtained, and in some respects better; for as a bushel of much blighted corn will contain one-third at least more grains in number than a bushel of plump corn, three bushels of such corn will go as far in feeding 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 contents 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 let aside or to purchase for feed-corn the boldest and plumpest samples that can be obtained, that is, those that contain the most flour, this is unnecessary waste of human subsistence; the smallest grains, such as are sifted 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 propagating the sort from whence they sprung 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 defraded of its proportion, and become shrivelled 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 faroist and fullest grain that can be obtained from the bottoms of the lower cups by the waifeful process 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 make care to have good well-ripened grain, clear from all adulteration of seeds of the weed kind; without any blackness about the extremities of the grains, being free from that dark-brown colour that indicates its having been heated too much in the flack; and that it have no signs of mouldiness from being badly secured, or of shrivelling from being cut in too green a state. It has also been lately suggested by Mr. Leop, 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 grown, but from a district south of it; as he considers it a general rule, that the product of seed improves in going from the south to the north, but decreases in virtue in passing 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 seed into the ground, but also to the nature of the feafon, and the mode in which the sowing is executed in it. For crops in general, the strong, wet, and richer 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 light retentive clays, must 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 operations 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 stems often issuing from the same root, in conformance 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 mostly 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 seeds or sets should not on the same account be sown or put in too great a quantity, or too thickly. While in the strong, stiff, wet, retentive soils, from the plants seldom striking, or branching off much from the roots, except in particularly favourable circumstances of season, 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 most corps.

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 kind of ground, from their poling up much less strength the crops will rarely, except in particular seasons, be well formed in the ear, or have the grain plump and well fed. It is likewise a practice 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 shoots, than that which is later sown, which, when the soil is not very free as well as fertile, generally runs up into one single stalk, so that if a liberal quantity of feed be not allowed, the crop, however luxuriant in respect to the plants, must be feanty in the
the article of grain or produce. And for this there may also be other reasons, as where the seed 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 to afford protection by the clodens 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 seed 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 seed may fail in vegetating, than where the contrary is the case; which also shews the propriety of sowing and putting in the seed 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 seed, 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 quarters 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 feeding soils of different kinds and qualities.

It may be necessary, before sowing this however, to shew the quantities in ufe in a great southern grain district with wheat. In Norfolk, in practice of the best farmers, the proportions of seed wheat usually made use of, according to the late Agricultural Survey of that district, are about Walton, when dibbled, fix or seven pecks, in the practice of some; but with others, when sown before Michaelmas, two bushels, afterwards two and a half. Alto near Dereham, the quantity is four bushels broadcast, and when dibbled, from ten pecks to three bushels. At Wisken 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 plowed per acre; but the common quantity broadcast, from ten to twelve. And in the clays of Marthland, from five to fix pecks are sown broadcast. And about Wymondham they dibble in from fix to eight pecks, but in the broadcast method few three bushels. In some situations they however complain of lofs from too thin a plant in this sort of crop.

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<th>Kinds of Soil</th>
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<th>Wheat Crop</th>
<th>Barley Seed</th>
<th>Barley Crop</th>
<th>Oats Seed</th>
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The exact proportion of seed that may be required, however, under different clods and circumstances of lands, in order to afford the most full and productive crops, cannot by any means be ascertained, much constantly depending on the judgment of the seedman, 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 seed, 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 seed that are made use of in all the different sorts 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
thinks that, in the general selection of seeds, it would seem that those arising from the most highly cultivated varieties of plants, are such as give the most vigorous produce; but that it is necessary from time to time to change, and, as it were, to cross the seeds, 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 1795 and 1796, when almost the whole crop of corn in the island was blight ed, the varieties obtained by sowing alone escaped, though sown in several sorts, and in very different situations. By sowing two varieties of peas, a large fine pea has also been produced, which may probably be cultivated by the farmer with great benefit."

The seeds 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 Frosts, &c. on 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 severe degrees of cold, and occasionally even to frost. That when the field 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 feed, the crop which it yields depends, in a considerable degree, on the weight of it, yet this does not happen in any 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 sort. 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 good corn; the latter being plump, full, and of a peculiar healthy appearance, and mottly free from chaff; while the former is curled and pinched in, and never entirely full, being bleached and chaffy. Where these marks are not present, the mere vegetation of the seeds is, it is said, 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 infects, are particularly apt to spread and communicate the contagion to others that are weak; which, like animals in a state of debility, do not so readily resist it, or the formation of those vermin by which they are most liable to be destroyed, as those plants which are found and in a vigorous state. That this therefore should be considered as a powerful motive for using only the best corn for feed, a maxim that cannot be too strongly inculcated; as the opinion which has already been hinted at prevails with many, of all feeds that vegetate being nearly equally fit for the production of crops, they frequently make use of the weak light part of their corn for feed, and convert all the rest of it into flour or meal; and thus, for a temporary advantage, continue to perpetuate the production of crops that are both small in quantity and of very inferior quality. That, for the prevention of these hurtful consequences, none but the best feeds of every kind should be sown. That, with this view, farmers should not procure feed that has been well ripened, but such as has been well kept, and never injured by frosts, snows, or rains. That it would also be much for their interest, to wash the whole of their feed-corn in strong brine; not only their wheat but their barley and oats, as well as their beans, peas, and tares; as nothing renders corn so fit for feed as this operation, when properly done: as it not only carries off all the light feeds, but also the feeds of a great many weeds which cannot in any other way be completely separated from it.

That it is thought, that the preference commonly given to new corn for feed, is not well founded; as it was found that the produce of old corn was equal, both in quality and quantity, to that of the best corn newly reaped. This is the case too with all the grass-feeds that are commonly sown. One of the best crops of hay, which is recollected to have been seen, was produced from a mixture of red, white, and yellow clover, rib-grass, and hay-grass, which, by accident, had been neglected, and kept for five years. An acre, or thereabouts, was sown 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 hence advisable, that in very warm seasons, when all the grass-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 seasons. That it is on this principle, of the feeds 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 upon the site of almost every house in the space of a few months, although the whole had been occupied with fires 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 grass-feeds, where they have been found 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.

Seeds, 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 off-spring of the future plants, of each particular sort, which consists of several different parts, but the principal of which are the: the cotyledons, or 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 seed, between what are called the cotyledons 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 seas. It consists of two parts, the
the rostellum and the plumula; the former of which constituting the radical or defending part, which strikes downwards into the earth, or soil, 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 vitalis.

The cotyledons, or fide-lobes, are the perihedral 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 other kinds 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 soil, 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 cases, circumstances, and kinds of seeds; the cotyledons expand, bursting open the outer coverings, and rise in a gradual manner out of the earth or soil, in the form of blades or leaves, which are commonly, in most sorts, termed the feed-leaves, in which displaying the fist, or primary visible foundation and rudiments of the infant plant; accompanying it for some length of time after its eruption or fist breaking from the ground, as until the first proper leaves are formed in the centre of the vegetable, and advanced a little in their growth, when the lobes or feminal leaves becoming useless, they wither, decay, and are destitute. See Germination.

In general, plants are furnished with two cotyledons, or feed-leaves, especially almost the whole of the tribe of fibrous-rooted herbaceous 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 blade; and there are some seeds which have no cotyledons at all, for instance, such as the ferns, mosses, flags, and fougues.

The other parts of seeds are the alae, or wings, and the cornicles, or horns; in the former, many of which are winged, or furnished with thin membranous web or film, by which it means that they fly and are qualified being dispersed about, as in the fir, birch, maple, asf, elm, hops, and a great number of other sorts; and in the latter kind many of the seeds are crowned, and some surrounded with a pappose substance, or a sort of feathery or hairy down, especially in many of the compound and other descriptions, which serve for the purpose of their dissemination, when being thus framed for flying, in a somewhat similar 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 full numerous sorts 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, size or dimensions, and the substance or solidity of different seeds, are extremely various, as produced by different kinds of garden plants. In respect to the particular number, it may consist of from one, to several hundreds, or even thousands, in a single feed-veil, 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 vast numbers of seeds, and are of amazing fertility; as, for instance, in the tobacco-plant, one simple feed-veil frequently contains not less than about one thousand seeds; 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 suspected it to be more than three hundred thousand; and that of one single flax of flaxen-wort is conceived from calculation to be above one million of seeds. This is mostly in flower and other plants, but rarely in the culinary sorts.

In regard to what concerns the forms of garden seeds, 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 fizes 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 creoles, and others, which are still much smaller in their fizes. With respect to the substance and solidity of seeds they vary greatly, some seeds are soft, pulpy, fleshy, others hard and firm without any fleshy matter, some membranous, others hard and long in their nature, which is the case in all the different kinds of the nut tribe, as well as in the flones of many sorts of berries and other fome fruits.

Seeds of the garden sorts are likewise either covered or naked; the covered feeds are all such as are contained and concealed in some vesseles of the capsie, pod, berry, apple, pear, cherry, or some other similar kinds; the naked feeds are all those which are not contained in any vessele, but lodged in their receptacles, 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 disseminating and dispersing the feeds of plants, which is truly wonderful, though of but little conuenaience in garden culture; in a very great many plants, the fruit or vesseles containing the feed, are raised above the ground, either by erect firm items, or by climbing flaxes, 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 same reason, also, that description of feed-veils which is called capsiule, in some instances, opens at the top, in order that the feeds may be more fully and completely, as well as more daily, dispersed or thrown about. And from a great number of feeds being winged, as has been seen above, they are in that way spread far and near by the winds, and find their passage into different soild and territories. Besides, some feed-veils are ended with a remarkable degree of elasticity, by means of which they dart and throw their feed with great force to a very considerable distance; of this kind are the plants called touch-me-not, and the spiriting cucumber, as well as some others. There are many feeds and feed-veils 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 sorts that are devoured by birds, 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 pass through the body uninjured, and falling to the ground, likewise not seldom take on a growing flate. Seeds are also very frequently carried, disseminated, and dispersed by brooks, rivers,
SEED.

rivers, torrents, and all forts of running waters and tides to a great number of leagues distance from their native soils and exposures, where, after being left in such different grounds and climates, they, however, not unfrequently establish 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, &c. more perfectly.

The duration or lasting of seeds, in so far as respect their powers or properties of vegetating or producing new plants, is very considerable indeed; as for instance, tho' the cucumber, melon, and gourd, not seldom retain their powers of vegetation for eight, ten, or twelve years; and it has been confidently asserted that those of the mimofa, or sensitive 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 some even when kept this short length of time. There are some indeed which require to be sown or put into the ground soon after they become ripe, or they will not grow until the succeeding year; others, unless they are sown immediately after they have been gathered, will not grow at all, as is not unfrequently the case with the berries of the coffee-plant. It has, however, been remarked, that almost all sorts of seeds which have been sown the first year after being collected or gathered, in general rife much sooner, and a great deal stronger, than such as have been kept for a greater length of time; for which reason it is principally advised to have recourse to new seeds, or such as are not more than one year old, wherever it can possibly be done; except in the particular cases of cucumbers and melons, in which seeds of two or three years old, or more, are often more to be preferred, as the plants of this kind, when raised from new seeds, are liable to run or grow much too vigorously to items or stalks, without becoming either tolerably expeditiously fruitful, or producing fruit in any sufficient quantity.

In regard to the keeping of garden seeds, all such as are produced in dry capsules, or other dry seed-vessels, are found to keep much better and longer in such vessels than, if taken out of them; but it is probable that most kinds of seeds will keep and retain their germinative property the longest and most perfectly in the bowels of the earth, when they have been accidentally deposited and buried to a considerable depth, and out of the reach of the influence of the sun and the air or atmosphere. For it has been noticed respecting the seeds 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 soil being turned up that depth to the top, they have begun to vegetate and have grown freely. The same thing has likewise been remarked of many other kinds of seeds, 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 situations, and which have not been flurred for many years, as is evident from the circumstances of the cases; as when occasion has required the soil or earth to be thrown to the top of the surface, and to be exposed to the sun and air, many seeds have vegetated and plants arisen, which had not been remembered to have been sown in such places any time before, or at least for a very great length of time. Most sorts of garden seeds should therefore be kept constantly in the capsules, hulks, and other parts in which they are included.

It may also be remarked, that most sorts of seeds, if sown too deep, remain inactive, and some never exert their vegetative properties at all, while others, notwithstanding, preserve their power of vegetation and growth; and whenever the ground or soil is again fresh stirred, or newly turned up, such of them as happen to approach towards the upper part, will frequently show themselves, and come up, which fully demonstrates the power and effect which the sun and free air have, in promoting and bringing forward the vegetation of seeds as well as plants. On this account, therefore, it is advised that seeds of this sort should never be sown too deep in the ground, but constantly, in some measure, in proportion to their size, or the quantity of matter which they contain, as from about a quarter or half an inch deep, in the smaller sorts, 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 seeds, after they have been regularly sown or deposited in the earth or soil to a proper depth, it is very quick in some sorts, while in others it is slow; as for instance, the seeds of celeries, mulard, turnips, and many other sorts, vegetate and come up in a few days, some other sorts in one, two, or three weeks; as in most of the eculent kinds of the kitchen garden, and a great many others of the herbaceous clafi; but the seeds of parsley and some other kinds of plants often remain in an inactive state for a month or six weeks, and there are still some other sorts which lie one or two years or more in the ground before they germinate and rife in plants. With respect to the seeds of shrubs and trees, there are some which will rife in the course of a month or six weeks, or even in a much shorter time, while others require two or three months to vegetate and grow, and there are some kinds which lie a whole year or more, before they begin to vegetate and grow, as in the case of the hawthorn, the holly, and mect others of the very hard long-seeded kinds.

On the whole, these seeds are the deciduous 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 considerable length of time when properly kept and preserved.

It is of great importance in the practice of gardening, to be careful in collecting seeds from the best sorts 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 likewise be gained in some cases, by keeping them in a suitable manner, and by producing a change in them, from the mixing or combining of different varieties of the same plants, in raising those from which they are taken. Peas have been very greatly improved in this way.

With proper precautions, and with a zeal in any degree resembling that of the late Dr. Solander, of Mr. Blake, who had formed a plan of procuring the seeds of all the vegetables produced in China, which are used in medicine, manufactures, or food, or are in any way serviceable to mankind, and to forward to Europe not only such seeds, but the plants producing them (see Kippis's edit. of Biog. 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 seed of fruit-trees, it is said, should not be chosen from those that are the most fruitful, so much as from the most solid and fair; nor are we to covet the largest acorns, but the most weighty, clean, and bright. Porous, insipid, mild sorts of seeds, are to be sown as soon as ripe; hot, bitter seeds, ought to be kept a year before they are sown. See Seminary.

The
The shape and weight of seeds direct how they are to be let; most of them, when they fall, lie on one side, with the small end towards the earth; which shews that posture to be best to let any stone or nut in; if they be heavy, sow them the deeper. Acorns, peaches, &c. are to be sown two or three inches deep. See Semination.

There is a common method of trying the goodnes of many sorts of seed, 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 saved 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 they produced were not so thick-flushed as those which 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 succundans; 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 affluting 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 one another the seed of their lands, as wheat, and the like; it being a received opinion, that the seed produced on one land will grow better on another than on that which produced it, though the same species of plant be sown.

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.

Laurremburgius 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 pasture, as one plant degenerate into another by fault of the soil. Tull's Husbandry, p. 116. See Change of Seed.

Seeds, Steeping of, in potable 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 presumption, that, by filling the vessels 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 steeping has no inherent virtue; having found more than once the same seed, steeped and unsteeped, all other circumstances being alike, he never found the least difference in the growth of the crop. When, indeed, the light seeds are skimmed off, as in the operation of brining, the crop will be improved, and diseases prevented; but these advantages proceed from the goodnes of the grain itself, 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, affirms the farmer, that the radicle and germ never appeared so vigorous and healthy, as when sprouted by elementary water; whereas it appears, that the seed requires no affilience.

Upon the whole he concludes, that as no invigorating or fructifying liquor, however pompously introduced, has ever stood the test of fair and correct experiment, it may be laid down as an established truth, that plump seeds, 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 goodnes of his crop. Hunter's Evelyn's Silva, p. 15, &c.

Seeds, in Pharmacy, &c. The medicinal seeds, especially those imported from the Indies, Levant, &c. are severally described under their respective articles; which fee. Among those used with us, the principal are, the four greater balsam, and the four greater cold seeds, as they are called. The first are those of anise, fennel, cummin, and caraway; the latter, those of gourd, citral, 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 grasses, or to lands newly laid to grass, in many cafes. Seed-Furrow, the furrow or ploughing on which the seed is sown, or put in. It is usual, in the last ploughing before sowing, to have the furrow left turned than in other cafes. See Ploughing.

Seed-Graft, a term used to signify cultivated herbage, or grass, raised in opposition to natural grass. See Artificial Grasses.

Seed-Lip, a sort of basket, in which the former carries his feed, in order to sow it. It is sometimes written feed-lap, or feed-lap.

A great improvement has lately been made on the common fowing-basket, by a farmer at Malden, in the county of Essex. He has contrived it in such a manner, that the bottom is a wire-sieve, which sifts out the seeds of weeds from the grain, in the motion of sowing; a cloth bag being attached beneath, for the purpose of catching them.

Seed-Room, the room or place where garden seeds are kept and preserved in, either for the purpose of sale, or future use in sowing and raising crops. Rooms for this purpose should have but little air, be perfectly free from all sorts of moisture, and be fitted up with every kind of convenience for receiving, hanging, and keeping all descriptions of seeds.

In the arrangement with other garden buildings, the seed-room should have a place as near the hot-house 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 seeds.

Seed-Scam, the interface between two plots, as left by the plough; also the channels made by floating, drilling, &c.

Seed-Weeds, such weeds as arise from the sowing or disper- sion of their seeds, and which do not propagate them- selves by the roots. See Weeds.

Seed, Amber, Anise, Lac, Linen, Mustard, Worm. See the respective articles.

Seed of Pearl. See Pearl.

SEEDLING, among Gardeners, denote such roots of gillflowers, &c. as come from seed fown. Also the young tender shoots of any plants that are newly fown.
SEEDLY, in Geography, a town of Morung; 55 miles
N.W. of Amerpourt.

SEEDNESS, in Agriculture, provincially used for seed
time.

SEEDSMAN, a term applied to the labourer or perfon
who scatters, diperfes, or puts the feed in or on the ground,
in fowing for different forts of crops, before it is covered.
Certain peculiarities of step and caft 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, in fo far as the fuccesfs, goodnefs,
and beauty of the crops are concerned, as well as in faving
much expence in the feed, and other ways: consequently
the farmer who does not perform this fort of bufinesf him-
self, will find it to be greatly his interest to have contantly
the bell, moft able, and experienced men of this kind proc-
cured for executing the work of fowing; as he will thereby
have not only conforable immediate saving, but the ad-
vantages of a more certain and favourable appearance, and
much greater produce in his crops. It is hardly to be con-
ceived, except by thofe converfent in the matter, how great
the waffe and injuries are, which are committed by feedmen
who are not well acquainted, experienced, and expert in
the bufinefs of fowing. They are, besides, in many incal-
capable of getting on with the work with that expedi-
tion which is neceffary; which is a very great inconvenienc
and lofs to the farmer at this very busy fefon of the year, when
every thing of this fort ought to be in the greatest activity.
See Seed and Sowing.

It is also a term which is made ufe of to dignify the perfon
who keeps a thop, or other place, for the fale of feeds,
either to the farmer, or the gardener, or any other perfons.
Thfe feed-dealers have fometimes the name of garden
feedmen. The London feed-dealers are a very conforable
clef of men, who do much bufinesfs in the difpofing of all
forts of feeds which are neceffary to be employed in the
practice of farming and gardening, as well as in different
other ways.

The garden feedman is commonly the gardener himfelf,
other perfons being never, or very rarely, employed in fow-
ing any fort of garden crop.

SEEDY, in the Brandy Trade, a term ufed by the
dealers to express a fault that is found in feveral parcels of
French brandy, and which renders them unfealeable. The
French fuppofe that thefe brandies obtain the flavour,
which they exprefs by this name, from the weeds which
grow among the vines, from whence the wine, of which this
brandy was made, was preffed.

However it be, the thing is evident, and the taste not of
any one kind; but fome pieces of brandy fhall taste strongly
of anifeed, fome of caraway seed, and fome of other of
the strong flavoured feeds of plants, principally of the um-
beflterious kind; fo that it fhall be rather taken for anifeed,
caraway, or fome other water, than for brandy.

The proprietor of fuch brandies is alwajs at great trouble
to get them off, and ufually is reduced to the necelity of
mixing them in small quantities with pieces of other brandies,
fo as to drown and conceal the tale; and where he has not
opportunities of doing this, he is obliged to fell them on
very difadvantageous terms.

The bufinesfs of rectification of spirits is very little under-
stood abroad, though much practifed with us; and a man
in France or Holland, who could take off this tale from
thefe brandies, might get great advantages by it. There
is no doubt but that the fame means, which we ufe to rec-
tify malt spirits, that is, to clear it of its noifous and
finking oil, which always arises with it in the firft diftil-
tation, would alfo serve to purify thefe brandies, and by
leaving the extraneous oils behind, render them as well tailed
as any others; for there is no question, but that the oil of
malt, which is a principle of the fame ingredient with the
spirit, is more firmly united to it than these flavoured oils
in the brandy, which are not the produce of the grape, but
of fome foreign matter only accidentally mixed with it. See
Brandy and Spirits.

It is a miftake to imagine, that all brandies made in
France are fo fine as thofe which we meet with on the quays
of London; on the contrary, there are many hundred pieces
made every year, which are as badly flavoured as our coarfe-
falt spirit. But the cafe is this, they fend the fmall brandies,
and the fmall wine, to England, where they can get the fmall
prices for them. In Holland, on the contrary, the mark
of goods of all forts, it is sometimes difficult to felct a
piece of good brandy out of fifty, the general run of them
being either feedy, or mufly, oily, or otherwife infected
with fome unnatural and difagreeable ftravours: and these
are the forts which in France they defpair of curing by re-
diffilation, or bringing to the flate of three-fifths, or trois
cinques, as they exprefs their fronger brandies. Shaw’s
Effay on Distillery.

SEEDY Abd El Abbs, in Geography, a town of Tunis, an-
ciently called “ Multi;” 16 miles N.E. of Keft.

SEEDY Meddub, a town of Algiers, in the province of
Tremonz, on the coaft of the Mediterranean, having a
good road for fhips. It derives its name from a celebrated
prophet, whose tomb the inhabitants hold in great venera-
tion; 4 miles S.W. of Mejeda.

SEEDY Meddub, a town of Algiers, in the province of
Tremonz, at the conflux of the Arhew and the Shelliff, held
as a functury; 30 miles E. of Mufiyannim.

SEEDY Bofgannim, a town of Tunis; 40 miles S.W. of
Keft.

SEEDY Bofron, a town of Morocco, on the coaft of the
Atlantic; 10 miles N. of Mogadir.

SEEDY Doude, a town of Africa, in the kingdom of
Tunis, at the north extremity of the peninsula of Dackul,
surrounded with the ruins of the ancient Miffa. Its pre-
fent name is derived from Doude, or David, a Moorish
faint, whose fepulchre, as they faw it, is five yards long.
But, according to Dr. Shaw (in his Travels), this is re ally
a fragment of fome Roman prætorium, as he is led to con-
jecture from three tellelattated or mofaic pavement, wrought
with the moft exaft symmetry; and executed with all the
artful wreathings and variety of colours imaginable, and with
an intermixture of figures of horfes, birds, fhrubs, and trees,
curiously inlaid, fo that they appear more gay and lively
than many tolerably good paintings; 10 miles S.W. of
Cape Bon.

SEEDY Efchab, a town of Algiers, anciently called Sava;
25 miles S. of Boujeiah.

SEEDY Meddub, a town of Africa, in the kingdom of
Tunis; 20 miles N. of Gabs.

SEEDY Nedja, a town of Algiers; 26 miles E. of Burg
Hamza.

SEEDY Ocubba, a town of Africa, in the province of
Zaab, famous for a tomb of an Arabian general of that
name, and for that of Seedy Laffar, its tufcular faint; 15
miles S.E. of Bifcara.

SEEFELDT, a town of Auffria; 6 miles W. of
Laab.

SEENHAUSEN, a town of Brandenburg, in the Old
Mark.
Mark, on the river Aland, which almost surrounds it; 40 miles N.W. of Brandenburg. N. lat. 52° 53'. E. long. 11° 59'. — Alfo, a town of the duchy of Bremen; 3 miles W. of Bremen. — Alfo, a town of Welfphalia, called "Sommerenchesburg," in the duchy of Magdeburg; 18 miles W. of Magdeburg.

SEEHAUSZ, a citadel of Germany, in the lordship of Schwarzenberg, on a lake; 6 miles S. of Scheinfeld.

SEE-HOO, or Si-HOOU, a lake of China, on the borders of which stands the wealthy and extensive city of Hang-choo-foo, or Hang-tseem-fou; which is this lake, with the surrounding scenery, is accounted one of the grandest, as well as most beautiful, spots in all China. The Luf-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 Confucius, 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 sides of the hills that rise from the vale are thickly set with groups of sarcophagi, in the shape of small houses, 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 Hindooftan, 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 health anatomists differ greatly as to the cause why we do not see doubly with the two eyes. Galen, and others after him, ascribe it to a coalition, or decoupling of the optic nerve, behind the os sphenoides. But whether they decouple or coalesce, or only barely touch one another, is not so well agreed.

The Bartholines and Vesalius say expressly, they are united by a perfect confusion of their substance; Dr. Gibbon allows them to be united by the closest conjunction, but not by a confusion of their fibres.

Alhazen, an Arabian philosopher 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.

Delcartes, 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 rise in the thalamus nervorum opticorum, and being thence continued to both the retinas, which are composed of them; and farther, that those fibrillae have the same parallelism; but in both eyes; consequently, when an image is painted on the same corresponding sympathizing parts of each retina, the same effects are produced, the same notice carried to the thalamus, and so imparted to the soul. Hence is that double vision ensuing upon an interruption of the parallelism of the eyes; as when one eye is depressed by the finger, or their symphony is interrupted by disease: but Dr. Briggs maintains, that it is but in few subjects there is any decoupling; and in none any conjunction more than mere contact.

Dr. Briggs's notion is by no means consonant 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 insists, 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 disjoined. 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 same object appearing to both eyes to be in the same place, the mind cannot distinguish 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 seems 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 impressed, 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. Cheffelden, 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 suggested by Gallendi, 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 deserves particular attention, that the optic nerves of men, and fuch other animals as look the same way with both eyes, unite in the fella turcica in a ganglilion, or little brain, as it may be called, peculiar to themselves, and that the allocations be tween synchronous impressions on the two retinas must be made faster; and cemented stronger 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, says Dr. Smith, that objects seen with both eyes appear more vivid and stronger than they do to a single eye, especially when both of them are equally good.

Whence it is that we see objects erect, when it is certain that the images of them are painted invertedly on the retina, is another difficulty in the theory of seeing.

Debarne: accounts for it hence, that the notice which the soul takes of the object does not depend on any image, nor on any action coming from the object, but merely on the situation of the minute part of the brain whence the nerves arise. E. gr. the situation of a capillament of the optic nerve correponds to a certain part of the brain, which occasions the soul to see all those places lying in a right line therewith.

But Mr. Molyneux gives us another account: the eye, he observes, is only the organ or instrument; it is the soul that sees. To enquire, then, how the soul perceives the object erect by an inverted image, is to inquire into the soul's faculties. Again, imagine that the eye receives an impulse on its lower part, by a ray from the upper part of an object, must not the violate faculty be hereby directed to consider this stroke as coming from the top, rather than the bottom of the object; and, consequently, be determined to conclude it the representation of the top?

Upon these principles, we are to consider, that inverted is only a relative term, and that there is a very great difference between the real object and the means or image whereby we perceive it. When all the parts of a distant prospect are painted upon the retina (supposing that to be the seat of vision), they are all right with respect to one another, as well as the parts of the prospect itself; and we can only judge of an object being inverted, when it is turned reverse to its natural position with respect to other objects which we see and compare it with.

The eye, or viile facility, (says Molyneux) takes no notice of the internal surface of its own parts, but uses them as an instrument only, contrived by nature for the exercise of such a faculty. If we lay hold of an upright fick in the dark, we can tell which is the upper or lower part of it, by moving our hand upwards or downwards; and very well know, that we cannot feel the upper end by moving our hand downwards. Just so, we find by experience and habit, that upon directing our eyes towards a tall object, we cannot see its top by turning our eyes downwards, nor its foot by turning our eyes upward; but must trace the object the same way by the eye to see it from head to foot, as we do by the hand to feel; and as the judgment is formed by the motion of the hand in one cafe, so it is also by the motion of the eye in the other. Molyneux's Dior. p. 109, &c. Mutchonrook's Introd. to Phil. Nat. vol. vi. p. 762. Ferguson's Lec. p. 132. See on the subj. of this article, our account of the physiology of the eye, under Eye.

SEEING Faith. See Faith.

SEEKIRCHEN, in Geography, a town of the archbishopric of Salzburg, on the Waller See; 4 miles N. of Salzburg.

SEEPORUM, a town of Hindooftan, in Boggicund; 35 miles N.E. of Rewah.

SEEL, in Agriculture, a term provincially applied to time or season in respect to crops, as hay feal, or hay time, barley feel, or barley feed time, bark feel, or the barking seafon, &c. It is sometimes written seel.

SEELAND, in Geography. See Zealand.

SEELANG, a small island in the East Indian fea, near the S. coast of the island of Bahian, with which it forms a good inner and also outer harbour.

SEELBURG, or SEIPPHILLIS, a town of the duchy of Courland, on the Dwina, where the bishops of Semigallia formerly resided, and who, on that account, were called bishops of Seelburg; 50 miles S.E. of Riga.

SEEING. A horse is said to feel when he begins to have white eye-brows, that is, when there grows on that part about the breadth of a farthing of white hairs, mixed with those of his natural colour, which is a mark of old age.

It is said a horse never feels till he is fourteen years old, and always does before he is sixteen. The light forrel and black sooner feel than any other.

Horse-jockies usually pull out those hairs with pincers: 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.

SEEING, in Falconry, is the running a thread through the eye-lids of a hawk, when first taken, to make her endure the hood the better.

SEEING, at Sea, is used in the same sense nearly with heeling: when a ship lies down conftantly, or steadily, on one side, the seamen say the heeds; and they call it feeling, when she tumbls on one side violently and suddenly, by reason of the sea forfaking her, as they call it, i.e. the waves leaving her for a time in a bowling sea. When a ship thus tumbls to leeward, they call it leeward; and in this there is not much danger, even in a storm, because the sea will presently right her up again; but if she rows or feels to windward, there is fear of her coming over too short or suddenly, and so 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 Soooloo Archipelago. N. lat. 6° 4'. E. long. 118° 15'.

SEELKGEN, a town of Prussia, in the province of Nattenberg; 9 miles W.N.W. of Liel.

SEELLOW, a town of Brandenburg, in the Middle-Mark; 10 miles W. of Cullin.

SEEM, or SEME. See SEAM.

SEEM-A-KOANG, in Biography, a Chinefe mandarin and philosopher of the eleventh 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.

SEEEMO, in Geography, a town of Africa, in Kaffion. N. lat. 14° 25'. E. long. 8° 45'.

SEENENDOONG, a small island in the East Indian f ea, near the N. coast of Borneo. N. lat. 7° 48'. E. long. 117° 45'.

SEENCHOO, a large town of the Birman empire, situated on the Irawaddy, 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 Pagan.

SEEBER, a town of Hindooftan, in Malwa; 50 miles E.S.E. of Shajehanpour.

SEEPARRAN, a small island in the East Indian sea, near the eait coast of Borneo. N. lat. 4° 8'. E. long. 118° 25'.

SEEER, Principality of, a petty sovereignty of Arabia, extending from Cape Muffendo to the Perian gulf. The Persians call it the country of Desulfar, another cape near Muffendo. The Europeans also call the inhabi-
SEF

SEFATIANS, a sect of Mahometans, 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 Mahometans, 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 explications 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's law, had shewn 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 "Afsharism," or followers of Abu'l Hafan al Afshar, who allowed the attributes of God to be different 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 will fill 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 a sin die without repentance, his sentence is to be left to God, whether he pardon him out of his mercy, or whether the prophet interfere for him, or whether he punish him according to his deserts, 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 "Mofhábhehites," or "Affiliators." (See Mosbáhibhites.) 3. The "Keramians," called also "Mojaffamians," or "Corporalists," 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 Balbar, both belonging to a sect of Morgians, called "Thaubaunians," are as follows. The former asserted that disobedience in not sin which profeoffs 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 certainly forgive all crimes besides infidelity; and 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
shall then be admitted into paradise. The latter held, that if God do call the believers guilty of grievous sins into hell, yet they will be delivered thence after 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 Koran—Pref. Dile.

SEFIDROU, in Geography, a town of Persia, in the province of Farisian; 144 miles S.W. of Schiras.

SEFROI, a town of Africa; 20 miles S.E. of Ferz.

SEFURA, a town of Africa, in Fouta. N. lat. 10° 30'. W. long. 10° 25'.

SEG, in Rural Economy, the name of a castrated bull.

SEGAGHEE, in Geography, a town of the Birman empire, on the Irawaddy; 6 miles from Deneebow.

SEGALLA, a gold mine of Africa, in the kingdom of Bambyuk.

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 Aragon, with a canton of Brabant, to George Brandon, the common hangman, but it being very evident that he had been impoused upon he was released. He died in 1633. Edmondson’s Baronage is said to have been principally taken from Segar’s MSS.

SEGAR, in Geography. See SADSKAR.

SEGARDEE, a town of Hindoostan, in Golconda; 30 miles W.N.W. of Hydrabad.

SEGARGIUM, a town of Thibet; 52 miles S.W. of Tsangra.

SEGEBORG, a town of the duchy of Holstein, the name of which is derived from a castle built there by the emperor Lotharius in the year 1137, of which few vestiges now remain; 18 miles N.W. of Lubeck. N. lat. 53° 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 Bactia, in the interior of the country, between the coast of the ocean and the river Tader, according to Pliny.—Allo, a large and powerful town of Spain, in the latter belonging to the people called Beifi, according to Appian.

SEGEDIN, in Geography. See ZEGEDIN.

SEGEDUNUM, in Ancient Geography, a town on the confines of Dacia, on the river Tiberius, which belonged to the Jaziges.

SEGEDUNUM, one of the eighteen flattons on the wall of Severus, in English “Counfins-town,” being the first flatton reckoning from east to west, three miles five furlongs and one and a half chain from the next flatton to the west of it.

SEGEBERAD, in Geography, a town of Norway, in the province of Chriftiania; 24 miles W. of Chriftiania.

SEGELOCUM, in Ancient Geography, a town of the isle of Albion, in the 8th Iter of Antonine, between Lindum and Dunam. All our antiquaries agree in placing Segelocum, which is called Anglecum in 8th Iter, at Litchborough, between Lincoln and Doncaster, where Roman coins, altars, and other ancient remains have been found.

SEGELSBERGH, in Geography, a town of the duchy of Bremen; 5 miles E. of Bremen.

SEGERA, a town of Arabia, in the province of Hæsia; 5 miles S. of Medina.

SEGERS, or SEGERS, GERARD, in Biography. This eminent painter was born at Antwerp in 1550. He was first a pupil of Henry van Balen, but afterwards entered the school of Abraham Jansens, and had made considerable progress in the art when he went to Italy. On his arrival at Rome, he attached himself as a disciple to Bartolomeo Manfredi; and from him adopted a taste for the vigorous style of Michael Angelo Caravaggio. To the strength of his fancy, which he thus adopted, he added somewhat of 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 appertain to the milder illumination of the day. By skilful productions of this nature, he acquired very considerable fame, and was at length invited by the cardinal Zappar, the Spanish ambassador at Rome, to accompany him to Madrid. He accepted the invitation, and was prefented by the cardinal to the king, who received him in the most gracious manner, and engaged him in 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 reviving his native country induced him to request permission to retire. His renown had reached Flanders, and his fellow-citizens were impatient to possess some of his productions; yet, when he had arrived there, and executed some paintings in his strong manner, they, whole eyes had been accustomed to the pure brilliant hues, and clear contrasts of Rubens and Vandyke, were unable to yield him that harvest of praise to which he had been accustomed, and he was obliged to change his manner, and adopt 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 his principles; and many of his latter pictures bear evident testimony in support of his general ability. His most esteemed productions are or was the principal altar-piece 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.

SEGERS, 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. Bruegel. At the age of 16 he entered the society of the Jeluaists, and abandoned painting during his novitiate there, but when that term expired, he obtained permission of his superior 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 after with avidity, and his talents were not unproductive even to his convent, which received valuable tributes in return for those ingenious and entertaining treasuries 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 sufficiently 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 1663, aged 70.

SEGESTA, or Segesta, or Segelle, in Ancient Geography, a town in the interior of Sicily, W. of Panorma. It had a harbour and gulf of the same name. The harbour was called “Segellanorum emporium,” according to Ptolemy.

Thucydides represents it as a maritime town, and speaks of the navigation at Segella. This ancient name is said to have
have been given to the place by Egeillus the Trojan, who is
said to have been one of its founders; but the Romans pre-
tend that it was founded by Eneas. Its ruins are still
visible. The mineral waters of this place were called "Se-
gestus aquae," and they are placed in the Itinerary of
Antonine on the route from the Lilybaran promontory to
Tyndaris, between Drepanum and Parthenicum.

SEGETA Tigullium, Seferi, a town of Italy, in the interior
of Liguria, towards the east. It was anciently con-
derable.

SEGSTAN, or Seisital, in Geography, a province of Peru-
na, formerly called "Minrofe," from a fabulous tra-
dition that it was once under water, and that it was drained
in the short space of half a day by the Genii, comprehends
part of Ariana and the country of the Sarangeans, and is
bounded on the N. and N.W. by Khorasan, E. by Candah-
har and Zahledan, and S. and S.W. by Mekran and Ker-
man. 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 overwhem
with clouds of dust, bones, gardens, and fields. Although
Segestian is now reduced to a deplorable condition, it once
rivalled in prosperity the most flourishing provinces of the
empire. The noble river Heermund (the ancient Eym-
ander), navigable for boats from Boit to Zarang, flows
through the extent of it, from the mountains of Hazara,
beyond Cabul to the lake of Zerrah. Capt. Christie, who
travelled in 1810 through the heart of Seistan, reports that
from Noofsky, in northern Mekran, to the banks of the
Heermund, the country was a mere desert, interfaced 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 Balouchie and Pathan shepherds, who lived in tents
pitched in the vicinity of the springs. He reached the Heer-
mund in N. lat. 30° 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 defect rising on either side in per-
pendicular 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, Kulcanpul, a noble palace in a tolerable
state of preservation. The remains of a city, named "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 Seistan is "Doo-
fhak," supposed to be the fame with the ancient Zarang; and
now the residence of the prince of Seistan, situated in N.
lat. 31° 8'. E. long. 63° 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 Pathan or Balouchie shepherds, men of wandering
life, and pitching their tents under the ruins of ancient pal-
ces. The country in the vicinity of the town is open, well
cultivated, and produces wheat and barley sufficient for ex-
portation to Herat; the palmarage also is good and abundant.
The revenues of the chief of Seistan amount to no more
than 80,000 rupees, and he can bring into the field about
3000 men. Twenty-five miles N. of Doofhak are the
ruins of a very large city, named "Peshawaran," and a few
miles beyond that the remains of another, called "Jouen."
Ferrah, or Perah, is distant fifty-five miles from Doofhak;
and it is described as a very large walled town, situated
in a fertile valley, on a river which flows into the lake of
Zerrah, or Zara, and nearly half-way between Candahar and
Herat.

Seistan is, at present, divided into a number of small in-
dependent states, governed by chiefs, who live in fortified
village, situated principally on the banks of the Heermund.
About ten days' journey from Doofhak is the city of Kuh-
ber, 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, interfaced with one or two
ranges of mountains. Through this desert is a path, by
which Carlists, 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 car-

SEEGSTE, in Ancient Geography, a town of Ifria,
belonging to the Carith, according to Pliny. Strabo places it
in Pannonia, at the confluence of several navigable rivers,
so that the Romans establised their magazines in it, during
their war with the Dacians.

SEESTE, a town of Italy, in Liguria, S.E. of Portus
Dolphins.

SEGESVAR, in Geography, See Schesburg.

SEGETICA, in Ancient Geography, a town of European
Myria, or of Micia, of which Caflus gained posseffion,
according to Dions Caffius.

SEGZ, in Geography, a river of Ruffia, which forms a
communication between the lakes Siga and Viga, in the govern-
ment of Olonetz.

SEGZAR, in the Manufacture of porcelain and pottery,
are cafes formed of coarser clays, but which are capable of
sustaining the required heat without fusion; in which dif-
ferent kinds of earthenware are baked. See Porcelain
and Pottery.

SEGGERA, in Ancient Geography, a town of Africa
Proper, according to the Itinerary of Antonine.

SEIGIDA, a town of Spain, in Celtiberia. Steph.
Byz. and Strabo.

SEGILMESSA, in Geography, See Segulmessa.

SEGISA, in Ancient Geography, a town of Spain, in the
Iarragonensis, in the interior of the country of the Ba-
rilani.

SEGISAMA, and Segisama Julia, a town of Spain, in the
Tarragonensis, depending upon the Vaceanea, according to
Ptolemy. It was situated S. of Lacobriga, 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'.

SEGLORA, a town of Sweden, in West Gothland
25 miles E. of Gothenburg.

SEGMENT of a Circle, in Geometry, a part of a circle,
comprehended between an arc and its chord; or, it is a part
of a circle comprehended between a right line less than a
semi-diameter, and part of the circumference.

Thus the portion A F B A (Plate XII. Geome-
try, fig. 12) comprehended between the arc A F B and the
chord A B, is a segment of the circle A F B D, &c.; so is
also A D B A a segment comprehended between the arc
A D B 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, i.e. the part greater than a semicircle,
is called the greater segment, as A F B; and the lesser part,
or the part less than a semicircle, the lesser segment, as
A D B, &c.
The angle which the chord A B makes with a tangent
L B, is called the angle of a segment. It is demonstrated,
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 also call the two mixed angles comprehended between the two extremes of the chord and the arc, angles of the segment; but those are in reality the same with those of the chord and tangent.

**SEGMENT, Angle in the.** See Angle.

**SEGMENTS, Similar.** See Similar.

The height of a segment \( \mathbf{DE} \), and half its base, or chord, \( \mathbf{AE} \), being given, to find the area of the segment. Find the diameter of the circle. On this describe a circle, and draw the base of the segment \( \mathbf{AB} \); draw the radii \( \mathbf{AC}, \mathbf{BC} \); and find the number of degrees of the arc \( \mathbf{AB} \). From the diameter had, and its ratio to the periphery, find the periphery itself; and from the ratio of the periphery to the arc \( \mathbf{AB} \), and the periphery itself, find the length of the arc \( \mathbf{AB} \). This done, find the area of the sector \( \mathbf{ABCD} \); and that of the triangle \( \mathbf{ABC} \). Lastly, subtract the triangle from the sector, and the remainder is the area of the segment.

If the area of the greater segment \( \mathbf{AFA} \) were required, the triangle \( \mathbf{ABC} \) must be added to the sectors \( \mathbf{ACF} \) and \( \mathbf{BCF} \). For other methods of finding the area of a segment of a circle, we refer to Hutton's *Mensuration, p. 133.*

**SEGMENT of a Sphere.** A part of a sphere 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 whole 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 adding the area of the base of the segment; or, if it be less than a hemisphere, thus: 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 convex surface 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 \( a \), and its semidiameter, \( r \), then will

\[
\frac{r^2}{2} \cdot \frac{2r}{a} = \frac{r^3}{a} + \frac{a^3}{2} + \frac{a}{2} \text{ and that shall give the axis sought.}
\]

See FRUSTUM, and SPHERE.

**SEGMENT, Resistance of.** See Resistance.

**SEGMENTS is sometimes also 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 lines, 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-LACEs, a denomination given by botanists to those leaves that are cut and divided into many furs or slices, as fennel, &c.**

**SEGMENTUM, among the Romans, an ornament of lace used by the women on their shoulders, which, according to some, resembled our shoulder-knots.**

Segmenta were likewise a kind of tessellated or Mosaic pavements, made up of pieces of various shapes and colours, but which had an uniform and regular arrangement.

**SEGMODIAL VALVES, in Anatomy, are little valves of the pulmonary artery; thus called from their resembling segments of circles, but more usually called semilunar valves.**

**SEGNA, in Geography, a sea-port town of Morlachia, on the coast of the Adriatic, declared a free port, and erected into a bishopric by the emperor Joseph II., in the year 1785. It is a free town, under the protection of Austria. The city is ill built, wofe paved, and weakly fortified. It lies on the brink of the sea, on a foundation of concreted ground, at the mouth of a narrow valley, surrounded by marble hills. Segna is supposed to have been formerly situated almost three miles farther from the valley, on a spot where are found traces of ancient habitations and funeral monuments. The sea seems to have covered the bottom of the valley as far as the city, which stood on the site of a hill, and formed a tolerable harbour. The walls of this city were not constructed before the 16th century; and this, together with other circumstamces, affords a further proof that Segna does not occupy the site of the ancient Senia. 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 fat are frequently thrown down in the market-place of Segna; and the roofs of houses, though covered with heavy flizes, 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 month of the channel of Segna, oppositeto 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 Vilchw; and by importing, besides many other articles of merchandise, salt, oil, and wine, for the supply of the interior provinces. At length, however, the inconvenience of their situation disconcerted their marine and commercial enterprises, so that at present Segna has but few ships belonging to it. Another damage was fupplied by this city, in consequence of the regulation made by the court of Vienna in 1741, which depriv'd it of 60,000 florins a year in money, 45,000 fls of cloth, and 20,000 measures of grain, given yearly by the emperor to the inhabitants of Segna, 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, Segna 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 Segna is at present computed at less than 7000; and yet the people, amidst 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 their parts. N. lat. 45° 4'. E. long. 15° 3'.

**SEGNI, BERNARDO, in Biography, an early Italian historian and man of letters, was born at Florence about the close of the 15th century. He was educated at Padua, where he pursued with great avidity the study of the Latin and Greek languages. He then engaged in legal pursuits, which were interrupted by a commision from his father to manage some commercial business at Aquila. Re-
turning to Florence, he was employed in public affairs by the republic, and by duke Cosimo, who in 1541 sent him on an embassy to Ferdinand, king of the Romans. He was, in 1542, appointed confuol 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 till the year 1713, when it appeared, together with a life of Niccolò Capponi, gonfalonier of Florence, Signi's uncle. This writer likewise translated into the Italian language several treaties of Aristotle, 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 site of a small town, called "Sinei," or "Signi," on the frontier of Namur, and to have founded it.

SEGNTZ, in Geography, a town of the duchy of Wurzburg, on the Main, 12 miles S.E. of Wurzburg.—Alto, a town of Germany, in the principality of Anspach; 4 miles S.W. of Mayrhohrnheim.

SEGNO, Ital., in Maffe, a sign or mark of reference, for the repetition of any strain, or portion of a strain. It is usuall y an S, the initial of signum or segno, dotted on each side, thus °; of more use in rondeaux than in any other movements. The sharp a, natural e, and flat b, are accen
tual signi, as in the diefs x, or double sharp. The paufe, or corona o, is a segno di filenter, as well as a final terminating sign. (See all these terms under their several heads.) The ° is likewise used in canons and catches written on a 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 consists of a very large portion of the country, formed altogether a prospect of civilization and magnificence, which our traveller little expected to find in the bosom of Africa. From the best inquiries he could make, he had reason to believe, that Sego contained altogether about 30,000 inhabitants. The king of Bambara constantly refides in the largest quarter of the city, called Sego See Korro; 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 singular construction, each of them being formed of the trunks of two large trees, rendered concave, and joined together, not side by side, 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 a group of a great many people, crossing 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 indigested, either from aversion or from fear, to accommodate him with lodging and entertainment, he was under a necessity of sheltering himself, in a form of thunder and rain, under a tree. For an account of the hospitable treatment he received on this occasion from a poor Negro woman, see 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) willing 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 Sanfanbon. Sego is situated in N. lat. 14° 10' 30", W. long. 2° 26'.

SEGOBRIGA, in Ancient Geography. See Segorbe.

SEGDUNUM, a town of Galia Celtica, belonging to the people called "Rutani," or "Ruteni," according to Ptolemy. In the Peutingerian Table, it is called "Segodum," and it afterwards took the name of "Rutena," or "Ruteni," and at length that of Rhodes.

SEGOLTA REX, one of the Hebrew accents, usuall y anfwering to our fennifon, and marked with three points over a letter, thus ♫ or ♫.

SEGONTIA, in Ancient Geography, a town of Spain, in the Tarragonen, upon the route from Emerita to Saragossa, between Cadiz and Arcobrega, according to the Itinerary of Antonine.

SEGONTIA Parana, a town of Spain, in the Tarragones, belonging to the people called "Varduli." SEGONTIACI, a people of the ile of Albion, who inhabited with the Trimobantes, and were of the number of those who submitted to Caesar.

SEGONZAC, in Geography, a town of France, in the department of the Charente, and chief place of a canton, in the district of Cognac; 6 miles S.E. of Cognac. The place contains 2549, and the canton 12,386 inhabitants, on a territory of 222 ½ kilometres, in 19 communes.

SEGOR, in Ancient Geography, a town of Palestine, 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, agreeably situated in a very fertile vale, abounding in grain and fruit, on a river of the same name, which there takes that of Murviedro or Murviedro. Its population consists of 12,000 families, or about 60,000 souls. Some people relying on the similarity of names, pretend that this is the ancient "Segobriga," which we find on many Roman medals; others, on the contrary, place that ancient town in Catalonia; and others in Aragon. Segorbe is the fee of a bishop, suffragan to Valencia, the diocese of which comprehends 43 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 provisor, who is at once official and vicar-general of the diocese; nine gates, and six 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 cathedral church has some paintings of the school of Joannez, and of that of Ribalta. The church of the convent of nuns is of good architecture, and has some good paintings. The feminary is kept in the ancient house of the Jesuits. Antony Ximen, a poet in the commencement of the 16th century, and Juan Valero, a theologian of the beginning of the 17th century, were born in this town. At a quarter of a league from Segorbe stands the Carthusian monastery of Vel de Chirilo, founded by the infant don Martin, son and successor of Peter IV., king of Aragon. Here are some good paintings by Vergara, Camarou, Danofo, Joannez, and Orrante. The monks have enriched it with a paper manufactory at Altura, a village of about 1500 inhabitants, which belongs to them, and which is at a quarter of a league's distance between their monastery and Segorbe.

N. lat. 39° 58'. W. long. 6° 39'.

SEGORTIALACTA, in Ancient Geography, a town of Spain, in the Parragonensis, which belonged to the Arevaci. Po&mey.

SEGOSA, a town of Gaul, marked in the Itinerary of Antonine between Aqu and Bourdeaux. It is now the place called "Écoufré."

SEGOSTAEO, in Geography, a town of Russia, in the government of Kolovan; 44 miles W. of Krafnoarik.

SEGOVELLAUNI, or Segalauni, in Ancient Geography, a people of the interior of Gallia Narbonensis, in the vicinity of the Rhone. Phiny.

SEGOVIA, a town of Hitler Spain, south of Cauca; famous for its aqueduct, said to have been constructed in the time of Trajan.

SEGOVIA, in Geography, a town of Spain, in Old Castile, in which the arrangement of its buildings exhibits the figure of a ship, with the stern to the eait, and the prow to the west, commanding an immense rock, and appearing buried between two deep valleys, one lying to the north, and the other to the south. The first is watered by a stream, called Clamareo, which forms a junction with the Erofa, that waters the laff, on which are five handsome bridges. This river, whose banks are clothed with wood, formerly bore the name of Areva, whence the appellation of Arevaci 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 10,000 souls. The streets are almost all narrow and crooked, and irregularly paved. The four suburbs are on more even ground, and contain several manufactories. Segovia is the see of a bishop, suffragan of the archbishop of Toledo, whose diocefe includes the cathedral chapter of Segovia, the collegiate chapter of St. Idefonso, and 433 parishes. The cathedral chapter is composed of 8 dignities, 37 canons, 7 prebends, and 19 sub-prebends; and besides these, 23 chaplains are attached to the church. In Segovia are reckoned 24 parishes, a chapel of the hospital of the confraternity of St. John, and 21 convents for both sexes. This city is the residence of the intendent of the district, which assumes its name; and under the superintendence of a corregidor, an alcalde, and a fixed number of regidores. Here are a statitical society, the members of which assume the title of "friends of the country;" and a military school, destined for the instruction of young engineers. Segovia was once a commercial and opulent town, eminently distinguished for its cloth and woollen manufactories; and it has been calculated, that 44,100 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 fabrication of stuffs and cloths employed no more than 120 looms, in which only 4318 quintals of washed wool were consumed. Between 40 and 50 years ago, this manufacture revived; and in 1790 there was an addition of 63 looms, which employed 800 or 900 quintals of wool, and afforded occupation to 2400 manufacturers. This city has still a manufactory of delfi-ware, but it is of little importance. Among its public edifices we may reckon the mint, producing at present only copper, which is a handsome building, constructed in the 15th century by Henry IV., and in part re-edified by Philip II.; it is divided into two compartments, with simple Doric pillars, arranged in double rows, and on each side a tower supported on a piazza by ten columns;—the church of the Jeronimites of Parral;—the cathedral church, which presents a mixture of Gothic and Grecian architecture, though constructed in the 19th century, with the principal altar of marble, and having in the middle a flat statue of the Virgin, and several other ornaments;—and the alcazar, formerly the residence of the Caflilian kings, bearing the characters of venerable antiquity, where Alphonso the Wise composed his astronomical tables, and in which are apartments fretted with mosaic work, still fresh; and a series of 52 statues of painted wood, and each bearing an appropriate inscription. The noblest monument of Segovia is its aqueduct, which has been referred by some writers to a very remote antiquity, and ascribed to the architrets 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 Licinius, Larcius, or Trajan. The materials are of rough free-stone. It commences at a large stone fountain, (about 50 paces from the town,) from whence it proceeds through an open canal 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 east and west, and cross the valley and the place of Azoquejo; 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 on the interior side. The aqueduct terminates at the alcazar, after having distributed the greater part of the water through different quarters of the town. In modern times, this noble work of Roman architecture has been disfigured by the erection of several houses on its pilasters, a disposition highly injurious to the majesty of the original edifice. It is built of freestone blocks, which are placed one on the other, without any appearance of cement. Segovia was the native place of Alphonso de Ledefma, a good poet, who flourished at the commencement of the last century; of Domenico Soto, the son of a gardener, who published an essay "De Justitia et Jure," two books "De Naturae et Gratiae," and Commentaries on St. Paul's Epistles to the Romans. At Segovia was born the Jesuit Francis Ribera, who died at Salamanca in 1591, well known for the erudition and acumen displayed in his Commentaries on the minor prophets. Segovia is distant 46 miles N.N.W. of Madrid. N. lat. 41° 3'. W. long. 4° 1'.

SEGOVIA, Nueva, a town of the island of Luzon, founded in 1598, 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.—Alfo, a town of Mexico, in the province of Bb.
viance 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 Caraccas, and province of Venezuela, founded by the Spaniards in 1552; 130 miles S.W. of Caraccas. N. lat. 8° 50'. W. long. 68° 16'.

SEGOVIA, Nueva, or Yare, a river of Mexico, in the province of Colta Rica, which runs into the Spanish Main, N. lat. 13° 10'. W. long. 83° 5'.

SEGURA, a river of Spain, which rises in the N. part of Catalonia, and joins the Ebro, on the borders of Aragon, near Mequinez.

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 sprightliness of his conversation, carried him to Paris when he was about twenty years of age, and placed him with Mademoiselle de Montenier, who first gave him the title of her almoner 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. The reputation of Segrais gave him admission, in the year 1663, into the French Academy. In 1672 he quitted Mademoiselle de Montenier, and was domiciliated with Madame de la Fayette, whom he visited 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 Dissertations 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 incommoded 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 dispersed members of the academy of Caen, and gave them an apartment to meet in. He died in 1701, at the age of 70.

After his death, there appeared his translation of Virgil's "Georgics," and a miscellany of anecdotes and literary opinions.

SEG, 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 206 kilometres, in 15 communes.

SEGRET, a term used in Heraldry for a griffin, when drawn in a leaping posture, and displaying its wings, as if ready to fly.

SEGREGATA, Polymammia, in Botany, the last order of the class Syngenesia, 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.

SEG, in Rural Economy, provincially the name applied to fedges, or fedge-grais.

SEGSTADT, in Geography, a town of the duchy of Wurzburg; 5 miles E. of Hasturt.

SEGUITANO. See Chequetan.

SEGUE, in Italian Muses, is often found before ario, allegro, allettajab, amon, &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 si pie, or ad libitum, are added, they imply that such movements may be performed or not, at pleasure.

SEGUIZENZA, Ital. in Ecclesiastical Music, is a kind of hymn sung in the Roman church, generally in prose. The sequenza are generally sung after the Gradual, immediately before the Gospels, and sometimes in the vespres before the Magnificat. They were formerly more used than at present. The Romish church has retained three sequenza, called by the Italians, il tre sequenze dell'anno: which are, "Lauda Sion salvatorum, &c., "Vittima pacifali laudes, &c., "Veni Sancte Spiritus." These are few, in many places, to figurative music. There is also one beginning "Dies ira, 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.


Seg. Cal. Perianth inferior, spreading, permanent, of five, oblong, coloured, concave leaves. Cor. none. Stam. Filaments numerous, capillary, spreading, longer than the calyx; anthers oblong, flat-tipped. Pist. Germen superior, oblong, compressed, membranous at the top, thicker on one side; style very short, at the thicker side of the germen; stigma simple. Peric. Capsule 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 Seguieria. Linn. Sp. Pl. 747. Jacq. Amer. 170. "Pict. t. 82."—Stem climbing, prickly. Leaves lanceolate, emarginate. Chilters branched, leafy.—Native of South America, especially in woods and copses near Carthagea, flowering in September. The stem of this shrub is generally twelve feet in height, with very long, round, green flowering branches, by which it is supported. Leaves alternate, slaked, ovate, entire, shining, with recurved prickles. Flowers in terminal clusters, white, smell disagreeably. The unripe fruit is said to resemble that of Scutidaca.


SEGUN ISLAND, in Geography, a small island on the coast of Maine, in Casco bay.

SEGULAM, one of the Fox islands, in the North Pacific ocean. N. lat. 53° 35'. E. long. 187° 50'.

SEGUNTIAS CIVITARUM, in Ancient Geography, a town of Spain, in Celtiberia. Livy.

SEGUR, in Geography, a town of France, in the department of the Corrèze; 12 miles W. of Uzerche.—Alfo, a town of France, in the department of the Aviron; 12 miles E.S.E. of Rhodes.
SEGURA, a town of Spain, in the kingdom of Aragon; 23 miles S.E. of Daroca.—Alfo, a river of Spain, which rises in the mountains of Murcia, 10 miles S.S.E. from Segura de la Sierra, traverses the province of Murcia, and the south part of Valencia, and runs into the Mediterranean, 16 miles S.S.W. of Alicante.—Alfo, a town of Spain, in Guipuscoa; 18 miles S.S.W. of St. Sebastian.—Alfo, a town of Portugal, in the province of Beira, near the frontier of Spain; 6 miles N. of Rofmarilha.—Alfo, a town of Spain, in Estremadura; 25 miles S.E. of Xeres de los Caballeros.

SEGURA de la Frontera, a town in Mexico, in the province of Tlaxcala, built by Cortes; 50 miles S. of Tlaxcala.

SEGURA de la Sierra, a town of Spain, in Murcia; 60 miles S.W. of Chinchilla.

SEGUS, a town of France, in the department of the Upper Pyrenees; 4 miles N. of Argeloz.

SEGUS, in Ancient Geography, a river of Germany, the banks of which were inhabited by the Sicambri, according to Caesar and Tacitus.

SEGUSIANS, the inhabitants of Segusia. Their country, in Cisalpine Transpadane Gaul, towards the sources of the Duria Minor, formed a small state, of which Cottius was the only king upon record. This prince retired to the mountains, and escaped subjection to the Roman yoke by his obfuscity. But he fought security in an alliance with the Romans, and with this view he flattered Augustus by assuming the name of Julius Cottius. He made many efforts for rendering the passage of the Alps practicable in that part which he occupied. Claudius, upon augmenting his small territory, gave him the name of king. After his death, Nero united this country to the empire; but the memory of Cottius was long resented in the country which he governed. In the time of Ammiianus Marcellinus, that is, about the year 370 of our era, the tomb of Cottius was shown at Segusia. One part of the Alps took its name, "Cottian," from him.

SEGUSIANS, or Seyfisani, a people of Gallia Celtica, or Lyonnaesis. To the N. were the Ceduica and Secquiri, to the E. and N. the Allobroges, and to the W. the Averni. Pliny says, that these people were dependent on the Ceduici in the time of Caesar; but that they rendered themselves independent under the empire of Augustus.

SEGUSIO, Szue, a town formerly not inconsiderable, in Transpadane 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 comprehended in Piedmont. 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 SEGUSIANI.

SEGUSTERO, Sistieron, 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 Hindoostan, in Baghana; 20 miles S.S.E. of Damaun.

SEHALOUR, a town of Hindoostan, in Myoure; 36 miles N. of Seringapatam.

SEHAN, a town of Arabia, in Yemen; 3 miles W.N.W. of Doran.

SEHAURUNPOUR, a town of Hindoostan, and capital of a circar, to which it gives name, between the Jumnah and the Ganges, in the lubah of Delhi; 86 miles N. of Delhi. N. lat. 30° 41'. E. long. 77° 15'.—Alfo, a circar or province of Hindoostan, in the subah of Delhi, bounded on the N. by mountains, which separate it from Thibet, on the E. by the Ganges, which divides it from Sumbul, on the S. by the district of Delhi, and on the W. by Sirhind, from which it is divided by the river Jumnah. Its chief towns are Seharunpour, Merrett, and Hurdwar. It is about 90 miles from E. to W., and nearly the same from N. to S.

SEHESTEN, a town of Prussia, in the province of Natangen; 54 miles S.E. of Konigberg.

SEHIMA, in Botany, so called by Forskål, from its Arabic name; a genus of that author’s, separated from Ijdehunum, but apparently without sufficient reason.

SEHIRMAN, in Geography, a mountain of Arabia, in the province of Yemen; 8 miles S. of Kataba.

SEHAN, a town of Seeelatan, on the Sinde; 66 miles N.E. of Nusfepour. N. lat. 26° 5'; E. long. 69° 16'.

SEIAL, a town of Persia, in the province of Adirbeizan; 50 miles S.E. of Ardebil.

SEJANT is a term used in Heraldry, when a lion, or other beast, is drawn in an effcuteon, fitting like a cat, with its fore-feet straight.

SEJANUS, AElius, in Biography, celebrated in the history of Rome for the tyranny of his administration, was a native of Vulfini, in Estruria. His father, Seius Strabo, a Roman knight, was commander of the praetorian guards in the reigns of Augustus and Tiberius. AElius, when young, attached himself to Caius Cæsar, the grandson of Augustus. After the death of that prince, and of Augustus, he was associated with his father in his command, by Tiberius, with whom he refe to great favour, and was appointed governor to young Drusus. When the theatre of Pompey was destroyed by fire, the emperor, at the time that he declared his intention of rebuilding it, pronounced an eulogy on Sejanus before the senate, on which that servile body decreed him a statue, to be placed in the new edifice. Having by his artifices and dissimulation obtained a complete ascendency over the mind of Tiberius, he applied himself to strengthen the fabric of his power, and pave the way to higher honours. With this view he ingratiated himself as much as possible with the praetorian guards, and he created a great personal interest in the senate, by means of his recommendations to lucrative places, and he is said to have secured the wives of many men of high rank by secret promises of marriage. The imperial family being, as he thought, a confiderable obstacle to his projects of ambition, he determined upon their destruction; and beginning with Drusus, the son of the emperor, who had manifested a jealousy of his influence, he entered into a criminal intrigue with his wife Livia, the sister of Germanicus, by means of whom he was supposed to have caused a false poison to be administered to that prince, which occasioned his death. He next endeavoured to persuade Tiberius to quit Rome, and retire to a life of repose, that the whole care of government might devolve upon himself, and that nothing should reach the emperor’s ears but through a channel subject to his control. This he effected in the twelfth year of Tiberius’s reign, and from that moment Sejanus was master of Rome. The dislike manifested by the emperor to the widow and family of Germanicus was inflamed by the minister, till his perfecution of them ended in the banishment and death of Agrippina and her two sons. Every kind of homage was now paid to the minister, Rome was crowded with his statues, and the senators all vied with each other in adulation of the favourite. At length Tiberius began to be suspicious of his designs,
but for a time he concealed his suspicious in his own breast, and even while under the fear of danger, he conferred upon his minister additional marks of his favour, making him his colleague in the confuishment. 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 measures for his destruction. He now appointed another commander of his pratoiars. 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 partisans, formed a bold conspiracy, resolved by any means to seize the sovereign power. A powerful league was formed with alorning rapidity, and great numbers of all descriptions, fanatics as well as military men, entered into the plot. Among these, Saturnus Secundus was the confidential friend and prime agent of the minister, who, for reasons that are not known, resolved to betray his master. For this purpose he addressed himself to Antonia, the daughter of 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 sent dispatches to the emperor by one of her slaves. Tibetrius was alonnedi, but not at all dismayed: the danger increased, and he determined to take decisive measures. He sent Macro to Rome with a special commission, 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 still farther the honours of Sejanus. The senate was summoned to meet in the temple of Apollo, near the imperial palace. Sejanus attended without delay, and a party of pretorians followed him. Macro met him in the vestibule of the temple. He approached the minister with all demonstrations of profound respect, and taking him aside, told him not to be surprised that he had not received a letter from the emperor himself, but, says he, I am this day to deliver the emperor’s orders. Sejanus, elated with joy, expecting some unlooked-for dignity, entered into the senatus, and Macro followed. He opened his commission by reading a long letter in the senate, to the confuls from Tibetrius, which concluded with an order to seize his person; instantly the whole assembly loaded with insults and reproaches the man at whose feet they lately bended, and the people began to throw down and treat with every indignity the statues before which they had been accustomed to offer sacrifices. His person was seized, and thrown into prison, and being accused of high treason, he was condemned without a single defender. On the same day he was executed, and his body thrown into the Tiber. A massacre of his relations took place, and even his infant children were inhumanly butchered. This catastrophe took place in the year 31 of the Christian era, and it furnished Juvenal a fine instance of the miscibility of fortune, of which he took advantage in his tenth satire.

SEIBERSHOLZ, in Geography, a town of Bavaria, in the principality of Aichfatt; 3 miles N. of Aichfatt.

SEIBERSTORF, a town of Austria; 8 miles N.E. of Ebenfurth.

SEIBO, or Zeybo, a town of the island of Hifpanola; 50 miles E.N.E. of St. Domingo.

SEIBOUSE, 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 district of Marmande; six miles N.E. of Marmande. The place contains 1,351, and the canton 13,546 inhabitants, on a territory of 230,000 square kilometres, in 20 communes.—Also, a town of France, in the department of the Maine and Loire, and chief place of a canton, in the district of Baugé; nine miles W. of Baugé. The place contains 1,364, and the canton 996 inhabitants, on a territory of 245,000 square kilometres, in 13 communes.

SEIDEN, a town of Períia, in the province of Laris; 25 miles N. of Lar.

SEIDE. See Saida.

SEIDENBACH, a town of Germany, in the principality of Coblenz; 9 miles W.S.W. of Bayreuth.

SEIDENBERG, a town of Lutich, in which are manufactories of cloth and knit stockings; 8 miles S.S.E. of Gorlitz.

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.W. of Waidhoven.

SEIFERSDORF, a town of Bohemia, in the circle of Boleflau; 5 miles S. of Krottan.

SEIG, a town of Hindoustan, in Bahar; 15 miles S. of Bahar.

SEIGNH, a town of Hindoustan, in Bahar; 31 miles N. of Hdyppour.

SEIGN, a fortress of Dalmatia, 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 SEIGNIORS, Lord. See SIRE, SIEUR, MONSIEUR, LIGORD, &c.

SEIGNORY, DOMINION, in our Law, is used for a manor or lordship.

SEIGNORAGE, or SEIGNORAGE, a right or duty belonging to a seigneur, or lord.

SEIGNORAGE is particularly used for a duty belonging to the prince for the coining of money, called aloceineage, (which see), and in the bale Latin monetaodium. See RE-

MEDY FOR THE MASTERS OF THE MINT.

This duty is not always the same, but changes according to the pleasure of the prince, and the occasions of state. 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 masts to be coined, the king’s duty was five shillings; one shilling, and sometimes eighteen pence, of which went to the matter of the mint. Under Edward III. the feignorage of every pound weight of silver was eighteen pennyweight, which was then equivalent to a shilling. Under Henry V. the king’s feignorage for every pound of silver was fifteen pence. At present, the king claims no feignorage at all, but the subject has his money coined at the public expense; nor has the king any advantage from it, but what he has by the alloy.

In France, under Philip Augustus, the feignorage was one-third of the profit made by the mint; 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 reason of the distempered state of his finances, raised it to three-fourths of the value; Louis XIII. fixed it at six 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.
SEI

It must be observed, that for the levying of this duty of feignorage, the just value of the money is augmented by the value of the duty.

SEIHAN Dag, in Geography, a mountain of Turkish Armenia; 36 miles S.S.E. of Erzurum.

SEIHOUN, a river of Caramania, which runs into the Adana, at Pedendo.

SEIJAT, a town of Asiatic Turkey, in the province of Diarbekir; 6 miles N.E. of Diarbekir.

SEIKS. See Siks.

SEIL, a small island near the coast of Scotland. N. lat. 56 16'; W. long. 5 37'.

SEILA. See Zeila.

SEILAND, a small island in the North sea, near the coast of Norway. N. lat. 70 20'.

SEILHAC, a town of France, in the department of the Corrèze, and chief place of a canton, in the district of Tulles; 6 miles N.W. of Tulles. The place contains 1,271, and the canton 11,355 inhabitants, on a territory of 237½ kilometres, in 9 communes.

SEILLAN, a town of France, in the department of the Var; 10 miles N.E. of Draguignan.

SEILLE, a river of France, which runs into the Saône, 4 miles S.W. of Cluny, in the department of the Saône and Loire.—Allo, a river of France, which runs into the Scheldt, above Valenciennes.

SEIM, in Agriculture, a term used by the farmers of Cornwall to express a certain determinate quantity of seaweed, which they use as manure to their lands.

They dredge this up on the sea-coasts, and carry it as far towards the lands where it is to be used, as they can by water. At the landing-place the farmers bring a train of horses to receive it; each horse carrying a team, that is, a team consisting of thirteen gallons. The land-carriage of this kind, in Cornwall alone, is supposed to cost thirty-two thousand pounds annually; and yet the farmers find abundant encouragement to continue the use of it, because it is so rich a manure.

SEIMAN, in Geography, a town of Asiatic Turkey, in Natalia; 48 miles N.N.E. of Alah Sehr.

SEIMARIEH, a town of the Arabian Iрак, on the Euphrates; 42 miles W. of Korna.

SEIME, a town of Nubia, which affords good water. N. lat. 22 15'; E. long. 30 12'.

SEIMOUR, a river of Hindooftan, which runs into the Jamna, 70 miles below Etawah.

SEIN, a small island near the coast of France, in the department of the Finisterre, the coasts of which are dangerous on account of its rocks and shallows; 28 miles S.S.E. of Ulhant. N. lat. 48 2'; W. long. 42 2'.

SEINE, a river of France, which rises about two leagues S. of Aignay-le-Duc, in the department of the Côte d'Or, and runs into the English Channel at Havre de Grace.

SEINE, a town of France, in the department of the Var, situated on a tongue of land, which runs into the sea; 3 miles S. of Toulon.

SEINE, a department of the northern region of France, formed of the line of France, situated in 48° 50' N. lat., containing 24 square leagues, on 452½ kilometres, and 629,763 inhabitants, and divided into three circles or districts, 20 cantons, and 79 communes. The circles are St. Denis, including 36 communes, and 42,984 inhabitants; Sceaux, with 24 communes, and 39,923 inhabitants; and Paris, comprising 12 cantons, in one commune, and 546,856 inhabitants. The contributions in the 11th year of the French era, were 22,499,486 francs, and the expenses charged upon it 1,819,941 francs 34 cents. The capital is Paris. According to Halleinfratz, its length is six and breadth five French leagues. Its circles are eight, cantons 17; and population 947,472. This department is diversified with plains and eminences; its soil is of various qualities, and in some parts moderately fertile. It abounds with fowls of all kinds, especially in the vicinity of Paris.

SEINE, Lower, a department of the northern region of France, formed of Roumois and the territories of Caux and Bray, and bounded on the N.W. by the English Channel, on the E. by the departments of the Somme and the Oise, and on the S. by the departments of the Eure and the Calvados, from both which it is mostly separated by the river Seine. It is situated in 49° N. lat., and contains 67,473½ kilometres, or 207 square leagues, and 642,773 inhabitants. It is divided into five circles, 50 cantons, and 987 communes. The circles are, La Havre, containing 117,733 inhabitants, in 125 communes; Yvetot, with 120,222 inhabitants, in 202 communes; Dieppe, having 166,082 inhabitants, in 222 communes; Neufchatel, with 82,506 inhabitants, in 200 communes; and Rouen, with 207,228 inhabitants, in 200 communes. Its contributions in the year 11, were 9,105,417 fr. and expenses 575,526 fr. 33 cents. Its capital is Rouen. According to Halleinfratz, its length is 35 and breadth 50 leagues; its number of circles is seven; and of cantons 64; and its population comprehends 559,400 inhabitants. This department affords abundance of grain, fruits, and pastures.

SEINE and MARNE, a department of the same region of France with the former, formed of a portion of French Gatois, and of Upper and Lower Brie, and bounded on the N. by the departments of the Oise and the Aisne, on the E. by the departments of the Marne and the Aube, on the S.E. by the department of the Yonne, on the S. by that of the Loiret, and on the W. by the departments of the Loiret, and of the Seine and Oise. It contains 617,258 kilometres, or 306 square leagues, and 298,515 inhabitants. It is situated in 48° 45' N. lat., and is divided into five circles, and 561 communes. The circles are Melun, comprising 55,830 inhabitants, in 107 communes; Coulommiers, with 49,420 inhabitants, in 80 communes; Mâcon, having 88,441 inhabitants, in 164 communes; Fontainbleau, with 15,964 inhabitants, in 104 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 507,648 fr. 33 cents. The capital is Melun. According to Halleinfratz, the length of this department is 32, and its breadth 16 French leagues; its number of circles is five; and of cantons 37; and its population is 296,497. This department is diversified with forests, cultivated tracts, and pastures.

SEINE and OISE, a department of the same region of France, confining of a portion of Vexin-François, of Hurepoix, de Mantois, &c. and bounded on the N. by the department of the Oise, on the E. by the department of the Seine and Marne, on the S. by that of the Loiret, and on the W. by the departments of the Eure, and of the Eure and Loire. It contains 588,030 kilometres, or 286 square leagues, and 529,523 inhabitants. It is situated in 48° 30' N. lat., and is divided into five circles, and 566 communes. The circles are Mantes, including 59,279 inhabitants, in 127 communes; Pontoise, with 91,088 inhabitants, in 165 communes; Ver-Salles, having 163,349 inhabitants, in 195 communes; Corbeil, with 56,507 inhabitants, in 56 communes; and Etampes, with 58,860 inhabitants, in 111 communes. Its contributions in the year 11, were 7,312,659 fr. and its expenses 448,928 fr. 62 cents. The capital is Ver-Salles. According to Halleinfratz, the length of this department is 24, and its breadth 16 French leagues.
It is plain, from Avicenna, that this fetum, or setum, is no other than that species of acacia, which, from its producing our gum arabic, is called the gum arabic 

It is plain, from Avicenna, that this fetum, or setum, 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 feet = 70 kopfen = 40 maass = 4 viertels = an eimer; and 30 eimers = a dreckling, and 32 eimers = a fuder of wine. The contents of a maass is 71/2 French cubic inches, or 86 English ditto, or 3 English pints nearly; to that one eimer = 15 English gallons.

SEIT'SAARI, 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-boats here reach as far as to the Peterburg channel, and, being invisible from their lying under water, are liable to dangers in dark nights, that in this place alone not fewer vessels have been lost than in all other parts of the gulf of Fland together. The land is everywhere unfruitful; though in some of the marshes there is a slight crop of hay. Great numbers of eels and eel parrch are caught here. The herring and seal fisheries are also considerable. The inhabitants compose about 20 families. Here is a little

SEITLENHOFF, a town of the duchy of Carniola; 3 miles N. of Weixelburg.

SEITZ, a town of the duchy of Stiria; 6 miles N.E. of Gilley.

SEJUR, a river of Syria, that rises 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.—Alfo, a town of Syria; 15 miles S. of Antab.

SEIX, a town of France, in the department of the Arriage; 7 miles S. of St. Giens.

SEIZE, SEIZE, or Seije, Ty, in Sea Language, is to join two ropes, or the two ends of one rope, together, &c. by several clove turns of small rope, line, or linen-yarn, round them, with two or more cross-turns.

Throat-feising, is the first feizing clapt on where a rope or ropes cross each other; see RIGGINS, Plate No. 11. fig. 16, at 5.

Middle-feising, is a feizing between a throat and end-feising, as at 6.

End-feising, is a round feizing near the end of a rope, as at 7, on the same plate.

Eye-feising, is a round feizing next the eye of a throud, &c. RIGGINS, Plate II. fig. 15, at 9.

The feizing, seizing, or seafen of a boat, is a rope tied to a ring or little chain in the fore-part of the boat, by which means it is fastened to the side of the ship.

SEIZING, in Falconry, is when an hawk grips her prey, or any thing else, fast between her claws.

SEIZURE, in Commerce, an arrest of some merchandise, unmoveable, or other matter, either in consequence of some law, or by 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 seizure.

In seizes among us, one half goes to the seizor, or informer, and the other half to the king. In France, half the painted linen, &c. seized, used to be burnt; and the other half sent 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 Nippon; 20 miles S.S.W. of 1 xo.

SEKIALLE, a town of Japan, in the province of Nedsjed; 300 miles E. of Median.

SEKIS, a town of Arabia, in the province of Gold Coast, in the district of Agoune, which has an English factory.

SEKIN,
SEKIN, a town of Asiatic Turkey, in Caramania, 30
miles S.W. of Seodickeh.
SEKARA, a town of Africa, in the kingdom of
Wangara, on the Niger; 640 miles E. of Oama. N. lat.
45° 30'. E. long. 18°.
SEKOOBOOM, a small island in the Soooloo Archipel-
lago. N. lat. 5° 2'. E. long. 120° 20'.
SEL, Le, a town of France, in the department of
the 11e and Vilaine, and chief place of a canton, in the dis-
trict of Redon; 7 miles N.N.E. of Bain. The place con-
tains 3477, and the canton 4971 inhabitants, on a territory
of 1329 square miles, in 7 communes.
Sel, in the Materia Medica of the Ancients, a name given
to the fruit of an Indian plant, resembling the cucumber
in its manner of growth, but bearing a fruit like a pita-
chia-nut.

There are three of these fruits mentioned by the Arabian
writers, the 

cel, fel, and fel.

They tell us expressly that the bel and fel, as also the fruit
fel, were not the fruit of a tree, but of a plant, and that
of the creeping kind. It is very probable, that the other
fel of Avicenna is the root of the nymphia indica, which
he mentions in the chapter of nauph, as possessing the same
virtues which he attributes to this sort of fel, or the same
with those of mandrake.

SELA, in Ancient Geography, a town of Palestine, in the
tribe of Benjamin, according to Joshua. Here Saul was
interred in the tomb of his father Cic.—Afe, a river of
Peloponnesus, the mouth of which is placed by Ptolomy on
the coast of Melfenis, between the promontory Cyprinum
and the town of Pybus.

SELABINA, in Geography, a town of Hungary, 4
miles S.W. of Kobenhof.

SELACHLEA, a town of Abyfinia; 20 miles E. of
Sire.

SELAGEREH, a town of Affam, on the Burram-
pooter; 60 miles N.W. of Ghergon.

SELAGNOIDES, in Botany, the name of a genus of
mofles in the arrangement of Dillenius, a species of lyco-
podium; the characters of which are these: the capsules
are produced in the ax of the leaves, in the manner of those
in the felago, but they are of a different form, being trico-
ceous, and sometimes quadricepsceous, and opening, when
mature, into so many valves.

Of this genus of mosses we have only one known species,
which is the prickly Selagno, commonly called feeding
mountain moss. This is found in the mountainous parts
of Yorkshire, and in Wales, and loves rocky and moil
places.

SALAGO, an ancient generic name in the works of
Philo, who observes that the plant so called was in great
repute among the Celtic nations; its juice being expressed
and used by the Druids as a remedy for many disorders,
especially for diseases in the eyes. The name indeed (fays
De Theis) is expressive of this latter quality, being derived
from the Celtic words fel, light, and jack, good or balmy.
The celebrated hall of Fingal, recorded in Ollin's poems,
ought its appellation to the fame source, Selina meaning
beautiful to behold, belle-ce. Selago has also been thought to
be derived from felago, to choose; the Druids having gathered
or selected it both for medicinal and religious purposes. It
is impossible to make out the reasons which induced Linneus
to apply this name to the genus under consideration, which
appears to have nothing in common with the celebrated luc-
and sometimes on all of them, and an orange spot at the mouth of the tube. *Braétona alternata*, ovate, large. It is valuable not so much on account of its beauty as its fragrance. Linnaeus described it under the name of *Lippia ovata* from a dried specimen, which may account for his laying the flowers are of a dark-violet colour. M. L'Her
tier first referred it to *Selago*; in doing which, Mr. Curtis observes, it would have been better to change the specific name to *bracteata*, its floral leaves or bracteas constituting the most prominent feature of the plant.

*Selago*, in Gardening, furnishes plants of the shrubby and under-shrubby kinds, of which the species cultivated are; the five-leaved selago (*S. corymbosa*); the linear-leaved selago (*S. purpurea*); 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-stems, and be planted out during the summer months in a bed of fresh earth, covering them close with a bell or hand-glass, shading them from the sun, and refreshing them now and then with water. They should be gradually hardened, and then transplanted into small pots, placing them in the thickest 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 house. 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 similar plants.

**Selah**, in Scripture Criticism, a word which occurs no less than seventy times in the Hebrew text in the Psalms, and which has occasioned great difficulty to the critics. The Septuagint renders it ἀκρόστιον, q. d. a psalm in fingling; 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.—Also, a town of Mexico, in the province of Yucatan, near the coast; 45 miles N.W. of Merida.

**Selame** is an island, or rather cluster of small islands, near the coast of Arabia, at the entrance into the gulf of Perisha, near Cape Mogandum.

**Selamum**, a town of Egypt, on the W. branch of the Nile; 48 miles N.N.W. of Cairo.

**Selanieh** or **Zelanieh**, a town of Egypt, on the E. branch of the Nile, opposite to Damietta.

**Selanieh**, in Botany, a name by which some authors 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 principality of Culmbach; 14 miles S.E. of Hof.

**Selbe**, a river of the 1st of May, which runs into Ramsey harbour.

**Selbergh**, a mountain of Austrian Swabia; 4 miles W.N.W. of Schonau.

**Selbst**, a small town of Persia, in the province of Faridit, at the distance of 18 farsangs 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 absorbed 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.—Also, a river of Germany, which rises in the principality of Culmbach, and runs into the Saal, 2 miles N.E. of Lichtenberg.

**Selboe**, a town of Norway, in the diocese of Drontheim, where a copper-mine was discovered in the year 1712; 40 miles S.E. of Drontheim.

**Selboese**, 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 wapentake of Barkston Ash, Wellingborough, and county of York, England, is situated on the fourth 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 Saxan times by the name of Selbea. 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 Monday, the 22d of June, and the 15th of October. Here also are held the petty feoffments for the wapentake of Barkston Ash.

Selby abbey stood 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 dissolution its revenues were valued at 720l. 12s. 10d. per annum, according to Dugdale; and at 819l. 2s. 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 elegant pile. From the various styles of its architecture, no doubt can be entertained of its having been erected at different periods. The oldest divisions are the body and nave, which evince an early Norman origin, and are probably coeval 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 cross, the shaft of which measures 267 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 stalls, similar in form and workmanship to the prebendal stalls in York cathedral. In the windows are considerable remains of stained glass, representing the armorial bearings of Thomas, earl of Lancaster, and other distinguished characters of the fourteenth and fifteenth centuries. Here are likewise several ancient monuments, and a great variety of modern date, i.e. ecclesiastic, since the church became the parochial place of worship about the year 1600.

According to the parliamentary returns of 1811, Selby parish contains 742 houses, and 3363 inhabitants. The principal trade of the town consists in ship-building, and in the manufacture of leather, sail-cloth, and iron articles.

Five miles to the northward of Selby is the village of Cawood, remarkable for the ruins of its ancient castle, which is said to have been ereeted by king Athelstane in the year 920, and which afterwards became a palace of the archbishops.
archbishops of York. The lately entrance or gateway is still remaining, on the summit of which cardinal Wolsey used to fit, and enjoy the view of the surrounding country. Cistwood castle continued in all its splendour till the commencement of the civil war in 1641, when it was seized upon, and garrisoned for the parliament. It subsequently, however, fell into the hands of the king's party, and sustained a siege of ten months before it was retaken by the parliamentary troops, when it was ordered to be demolished.


Selch Skernie, one of the smaller Orkney islands, a little N. of North Ronaldsha.

Selcha, or Selcha, in Ancient Geography, a town of Judea, 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 Gros- tius "the glory of England," was born at Salvington, in Sussex, in 1584. He was educated at the free-school at Chichester, where 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 Pastorals.

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 "Analeton Anglo-Britannicon," which was a chronological summary of English history down to the Norman conquest. This work was followed, in 1610, by "England's Epinomis," and "Janii Anglorum Facies altera," a Latin and English treatise on the origin and progress of English law. By these compositions he became known as an eminent enquirer into the early history and constitution of his own country, and acquired the esteem of several eminent literary characters, amongst whom were Camden, Spelman, and Sir Robert Cuffin. 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 gentility in this kingdom, in which light it is still revered; 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 Dis Syrius." 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 inquiry into Syrian idolatry in general, with occasional illustrations of the theology 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 Heinius.

Hitherto Selden had passed 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 Tythes," printed in 1618, subjected him to much angry opposition, and brought upon him, says his biographer, "a storm from 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 impost, advanced by the clergy, and now beginning to be maintained by the English church, and though he only treated of it as a matter of his history, without arguing for or against the right, yet as the sum of his authorities manifestly 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 philosophical disputes, and who was always defirous of keeping on good terms with the church, set 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 do to degrade himself, as to sign a declaration of 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 upon them among his friends. This incident unquestionably confirmed him in that 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 convene in 1621, was soon at strife with him on the point of their powers and privileges, all of which the king affect to have been granted 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 legal antiquarian of his time, for information relative to the ancient privileges of that body, spoke to 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 yale of impeachment, 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 Edward Eadmer, a monk of Canterbury, with learned notes relating 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 Lancashire, 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 imprisoned for refusing to contribute to a forced loan; and in 1628 he was the perfon 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 so 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 marbles, containing inscriptions of great value in the study of history and chronology. This was another obligation conferred by Selden on the learned world, which was received with due gratitude.

On the dissolution of the parliament, on account of its vigorous 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 attended 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 like condition was again proposed, and again rejected, and both parties seemed to persist 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 Marshalsea prison, and then to the Gatehouse, was at length suffered to go at large on bail, as were the others likewise, till the beginning of 1634, when bail was no longer required, and they were fully liberated.

Their fame was much applauded by the parliament, 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 thrown in a work entitled "De successionibus in hona defuncti ad leges Ebrorum," which was published in 1631, and reprinted in 1636, with the addition of a treatise "De successione in Pontificatum Ebrorum." Selden had long employed his great talents in a work which was intended to afford 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 Claustrum, 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 Claustrum, 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 contently enjoyed such a dominion, which had been confessed 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, uninterruped 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 chamber, 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 Ebbrorum." 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 matters 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 reforming 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 usurpations of ecclesiastical power, to which he was a most decided enemy; and he had no wish to abrogate the episcopal form of church government, which he preferred to the presbyterian. So well affected was he, upon the whole, to the existing 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 contending parties, 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 synod 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 those 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 literary 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 uninterred, and new works were occasionally issuing from his pen. Of these, the most considerable were, "Eutychius /Egyptii Origines Ecclesiae fux," translated from the Arabic; "De Anno Civili Veteris 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 Synodis Veterum Ebrorum," being a copious account of the juridical courts of the Jews. His concluding work was "Vindiciae de Scriptione Maris Claustr," the object of which was to controvert a malignant libel of a Dutch author, that he had composed his Mare Claustrum 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 circumstances, 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 estimation, and they now make part of the Bodleian library. After his death, his amanuensis printed a collection of Selden's sayings, entitled "Table Talk,"
Talk," which contains much curious matter, and became popular.

"Selden," says Dr. Aikin, to whose lives of Selden and Usher our readers are referred for much curious and interesting matter, "was one of the most learned men of his time, and though the nature of his subjects, and a harsh and difficult style, have thrown his works out of the ordinary course of reading, yet he has been a considerable benefactor to literature, and his merit, as such, has been freely acknowledged by the most eminent scholars at home and abroad.

Grotius, Salmasius, Bochart, Gerard Vossius, Gronovius, Daniel Heinsius, and many other writers of great celebrity, have mentioned him with high encomium, and in England he was looked up to as at the head of a literary body. He was liberal in his patronage of men of letters, and appears to have been free from the jealousy and arrogance too frequently accompanying the learned character. "Lord Clarendon, though widely different from him in political sentiments, has, in his own life, spoken of him in terms of profound respect and admiration; and from personal knowledge, has testified to the amiable qualities of his heart, and urbanity of his manners, as well as to the powers of his understanding." Another author observes that he was a man of uncommon gravity and greatness of soul, averse from flattery, liberal to scholars, and charitable to the poor. His works were published collectively in three vols. folio, by Dr. David Wilkins, in 1726, with a Latin life of the author.

Selden is celebrated in German musical dictionaries, as a musical writer, for his notes on the Arundelian Marbles, concerning Hyagnis, the inventor of the flute, the Ambabak, Terpander, and the Names of the ancients.

**SELENA, in Ancient Geography, a town of Asia, in the interior of Susiana. Ptolemy.

SELE, in Geography, a river of Naples, which runs into the gulf of Salerno, N. lat. 43° 28'. E. long. 13°.—Also, a town of Nuba; 83 miles W. of Arkiko.

SELEBAR, a river on the W. coast of Sumatra, which runs into the sea, S. lat. 4° 2'. E. long. 102° 15'.

SELECTI JUDICES, in the Roman Republic, were persons appointed by the praetor with the mutual consent of contending parties, and bearing in many respects a remarkable resemblance to our juries; for they were first returned by the praetor, then their names were drawn by lot, till a certain number was completed; then the parties were allowed their challenges; next they trucck what we call a tales; and, lastly, the judges, like our jury, were sworn.

SELEFK, or terrace, in Geography, a town of Asiatic Turkey, in the province of Carmania, feasted on a river which soon after passing the town discharges itself into the Mediterranean, opposite to the island of Cyprus; anciently called Seleucia. It is now the residence of a fanatics, under the government of Cyprus. N. lat. 36° 45'. E. long. 33° 56'.

SELEMEUS, in Ancient Geography, a river of Achaia, N.W. and E. of the river Charadris, which discharges itself into the gulf of Corinth.

SELEMIE, in Geography, a town of Egypt, on the E. branch of the Nile; 43 miles N. of Cairo.

SELEN, or moon, in Antiquity, a kind of cakes used in sacrifices, and so called from their being broad and horned, in imitation of the new moon.

SELENERS, in the Magazine, are chops or manly fores in the bending of a horse's hough, as the malanders are in the knees.

SELENEUSIACA TERRA, Earth of Seleneusia, in the Materia Medica of the Ancients, a light scious earth, called by later naturalists agarricus mineralis, and when found in form of powder, or in a discontinuous state, lac luna.

It is an earth common enough, wherever there are stone quarries, all over the world; but the finest ever met with is that from Sicily, the place where the ancient Seleneusia, or Selenus Fod, and from whence the ancient physicians had it. Some of them have called it the creta Seleneusia; but all their descriptions agree in proving it to be this very earth now found there. Dioscorides and Galen mention its remarkable diffusibility in water, and Pliny mentions its melting in a kind of juice, or smooth homogenea fusiblance with it; properties so very applicable to this earth, and so little to any other, as to leave no doubt of their having been originally applied to the very same fusiblance.

The ancients gave it internally as an astringent; but its principal use was external, as a cosmetic among the ladies. And Dr. Plot recommends our lac luna, on personal experience, for the same purpofes.

SELENGA, in Geography, a river which rises in Chinefe Tartary, and traversing the confines of Russia, runs into the Baikal lake, 363 miles W.N.W. of Verchnei Udzin.

SELENGINSK, a town of Russia, in the government of Irkutsk, at the confluence of the Selenga and Chilok. It was made an offrog in the year 1666, and about 20 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 fortification. This is defended by five pieces of brass cannon, and as many iron guns; and the garrison consists of a regiment of felds. The inhabitants are nicknamed "Perothnikii," from the great quantities of sand found in these parts. The whole adjacent country is mountainous and barren, but a few miles below it there is good arable land. The country about Selenginsk yields a great quantity of rhubarb, inomuch that the rhubarb exported from Russia grows in these parts; 84 miles S.E. of Irkutsk. N. lat. 51°. E. long. 166° 44'.

SELENIACON, a name for a kind of amulet worn for the epilepsy.

SELENITE, in Mineralogy, crystallized gypsum. See Gypsum, and Sulphate of Lime.

SELENI, in Geography, a mountain of Carinthia; 10 miles S. of Cadenfurt.

SELENOGRAPHY, formed from σφαιρα, moon, and γραφειν, description, a branch of cartography, 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 burgler-marter of Danzic, and who published his selenography, represented the appearance of the moon in its different states 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 Parohypites, the other calls Ariflarebus. What the one calls Aenis, Sinai, Athens, Aequinum, &c. the other calls Copernicus, Poedonius, Tycho, Guiffenus, &c. A map of the moon, as it appears when full, was drawn by Cellini, who published a work entitled
entitled "Instructions Seleniques." The late Mr. Ruffel, 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. Brewster, in his improved edition of Ferguson'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 Riccioli 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. The third table exhibits the new names which have been given to the anonymous lunar spots by J. Schreiber, 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 Asiatic Turkey, in Caramania, at the mouth of the river Selenti, which here runs into the Mediterranean; 45 miles E. of Alaniah. N. lat. 39° 3'. E. long. 29° 18'.

SELERNES, one of the smaller Shetland islands. N. lat. 60° 46'. W. long. 1° 22'.

SELESTRIA, a town of Asiatic Turkey, in Caramania; 50 miles S.W. of Tarbus.

SELETZKIA, a town of Russia, in the government of Archangel; 80 miles S. of Archangel.

SELEUCIA, in Ancient Geography, a famous city of Asia, 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 Asia, 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 Seleucidæ was to raise, in opposition to Babylon, a Greek city, with the privilege of being free. The ramparts and foles of this Grecian city are said to be nearly opposite to the ruins of Ctesiphon (which see); and in process of time Seleucia and Ctesiphon became united and identified, under the name of Al Modain (which see), or the two cities. For the precise situation of Babylon, Seleucia, Ctesiphon, Modain, and Bagdad, cities often confounded with each other, we refer with Gibbon, to an excellent geographical tract of M. d'Anville, in Mem. de l'Academie, 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 Parthians; but the madness of faction was sometimes provoked to implore the dangerous aid of the common enemy, who was posted almost at the gates of the colony. The Parthian monarchs, like the Mogul sovereigns of Hindoostan, delighted in the pastoral life of their Scythian ancestors; and the imperial camp was frequently pitched in the plain of Ctesiphon, on the eastern bank of the Tigris, at the distance of only three miles from Seleucia. (See Strabo, lib. xvi. p. 743.) By the influx of the innumerable attendants on luxury and deftpotism, who retired to the court, the little village of Ctesiphon insensibly swelled into a great city. Under the reign of Marcus, A.D. 169, the Roman generals penetrated as far as Ctesiphon and Seleucia. They were received as friends by the Greek colony; they attacked as enemies the rest of the Parthian kings; and yet both experienced the same treatment. The lack 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 Ctesiphon, in about 33 years, had sufficiently recovered its strength to maintain an obdurate siege against the emperor Severus.

Browne (Travels in Africa, p. 391.) identifies Seleucia with Susada, the port of Antioch, about four hours distant from it. Its former pollellers, 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 approaches to the Doric order. The rock near it has been excavated into various apartments. A part 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 land 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 mountain towards the water. It is about 650 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 side, conveying the pure element down from the mountain to Seleucia. The whole rock above is full of artificial caverns, formed for former people now unknown. A Greek inscription of five lines is visible on the S. side of the cavern. Towards the sea are some catacombs, ornamented with pilasters, cornices, and mouldings. Jackon, in his "Journey from India," considers Bagdad as the site of the ancient Seleucia; and he says that several 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 Asia Minor, which was anciently in Cilicia; but in the 4th century of the Chirilian era, the province of Isauria was made to constitute a part of Cilicia; and this city became the metropolis of the country. 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 115, 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 subjection. However it again recovered its liberty, as we learn from a medal of Gordian and another of Philip, on which it is denominated clesbura, or free.

SELEUCIA, a large town of the Perfide, in the territory of Elymais, on the river Edyphonte, according to Strabo. It was also named Salae.—Alfo, a town of Asia, in Phididia, according to the Notitia of Hierocles. Appian relates 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 Trallis, in Lydia. Pliny.—Alfo, an episcopal town of Asia, in Pamphylia.

SELEUCIA PISIAEA, a town of Asia, in Syria, situated on the coast of the Mediterranean sea, N.W. of the river Orontes,
Selucia, 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 Manassheh, on the other side of Jordan.

Seleucians, Seleucia, in Ecclesiastical History, a seat of ancient heretics, called also Hermians.

Seleucus and Hermias taught, that God was corporeal; that the elementary matter was co-eternal 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; alleging that he had quitted the right, and had removed his throne into the sun.

Seleucidae, in Chronology; era of the Seleucidae, or the Syro-Macedonian era, is a computation of time, commencing from the establishment of the Seleucidae, 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 contrails, because, being then subject to the kings of Syria, they were obliged to follow their method of computing in all contracts.

The Arabs call it therick dilemarain, era of two horns, which some say signify 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 Seleucidae, 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 Epocha.

Seleucis, 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 Belus, 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, fumamed Nicanor, 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 shewed such a hostile disposition towards Seleucus, 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, for Antigonus. Demetrius afterwards expelled Seleucus from Babylon, but he soon returned, and durably established his authority.

He then proceeded with a powerful army to the East, conquered and slew Nicanor, and marching through Parthia, Bactria, and Hyrcania, subdued those countries, and the other provinces which had formed part of Alexander's empire on this side the Indus. From these important victories he assumed the name of Nicator; and the other successful captains of Alexander taking the title of kings in the year 306 B.C., he followed their example.

The historical era of the Seleucid, however, commenced six years earlier than this, viz. in the year 312 B.C., when he recovered Babylon. He now marched to regain the district of India Proper, conquered by Alexander, but he was opposed by a large 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 Caius, Lysimachus, 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 seized 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 caufe of the detraction 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 Asiatic 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 Lysimachus were now the only survivors of Alexander's captains, and a domestic 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 Lysimachus. He accordingly invaded, with a very powerful army, the territories of Lysimachus in Asia Minor. That prince crossed the Hellespont to protect them, and a most bloody battle was fought between the rivals in Phrygia, in which Lysimachus 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, eleven months after, he was treacherously murdered by Ptolemy Ceraunus, one of the fugitives from the court of Lysimachus. Seleucus died in the 43d year from the death of Alexander, and in the 73d 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. Unier, Hill.

Seleucus II., fumamed 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, slew 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, Arsaces, 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, whither he had fled, and he then turned his arms against Arsaces, 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 Ceraunus, eldest son of the preceding, succeeded him on the throne. He was a weak and incapable 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 Irkutsk.

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 affair.

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 retrenchment does not exceed the bounds of mere defence and prevention, for then the defender would himself become an aggressor. Blackft. 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 pasturage 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 retstringent, 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 taste is more serviceable in the flower tops than in the leaves; though the latter are generally directed for medicinal use.

Self-heal is also a name given to officinal.

Self-Love, in Ethics, is that principle, or passion, which leads a man to desire and pursue his own happiness. It is contradistinquisht from benevolence. See Mental Philosophy.

Self-Opens, a term used by the miners in the north of England to express certain natural caverns, 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 straddle fissures. Dr. Lillie, 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 streams of waters which arise in large quantities from the sides 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 ascribes to the breath of the pyrites, which he also says is the pyrites itself tota subflantium. This he observes takes fire of itself, on being exposed to the air in our sight, and may be, 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 fulphurous matter as this stone; and the rolling and defultory noise of an earthquake seems also to have that it is not expanded every way at once, but is propagated through a chain of these subterraneous 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 dams, which are inflammable vapours, of the very nature of those which he supposes to occasion earthquakes; and when fired make the flame 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 flaming on the surface of the waters, in the bottoms of the pits, or at the fissures of the coal. Phil. Trans. No. 157.

Selga, or Selge, in Ancient Geography, a considerable and well-peopled town of Asia, in Phrygia. It was colonized from Lacedemon.

Selgenthal, in Geography, a town of Prussia, in the circle of the Natangen; 3 miles S. of Konigsberg.

Selgenthal, a town of Germany, in the circle of the Lower Rhine; 3 miles N.W. of Burken.

Selgovæ, in Ancient Geography, a people of Britain, seated to the west of the Gaden, in the countries now called Elgæ, Annandale, and Nithdale, lying along the shores of the Solway Frith, which is believed to have derived its name from that of this ancient British nation. Mr. Baxter supposes that the name of these people was compounded of the two British words Sal Giu, 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 Saeg, which literally signifies hunting, and metaphorically thief. The Selgovæ 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 Seljuk, of which some vestiges are still remaining.

SELL, in Botany, a word formed by an abbreviation of the word jeffel, signifying the same plant.

SELIA, in Ancient Geography, a town of Hifpania, in the interior of Bética. It belonged to the Turduli, according to Ptolemy.

SELIKINSKO, in Geography, an offshoot of Russia, in the government of Tobolsk, on the Enfiei; 260 miles N.N.W. of Turuchansk. N. lat. 69° 35'. E. long. 85° 14'.

SELICA, a name given by the Arabians to a kind of cinnamon.

SELCIO, or SELUCO, in Geography, a town of Africa, on the north side of the Gambia, in Mandingo.

SELIGENSTADT, a town of Germany, in the circle of the Lower Rhine, and electorate of Mentz, formerly imperial, on the Maine; 12 miles E.S.E. of Frankfort on the Maine. N. lat. 49° 59'. E. long. 8° 46'.

SELEGENTHAL, a town of Germany, in the county of Henneberg; 3 miles N. of Smalkalden.

SELIGER, a lake of Russia, in the government of Tver; 80 miles W.N.W. of Tver.

SELIGONTON, in Botany, a name by which some authors have called piony.

SELM, in Ancient Geography, a town of Palestine, in the tribe of Judah, on the southern side along the frontiers of Edom, according to Joshua. This was afterwards captured in the tribe of Simeon. See Silem.

Selin I., in Biography, a Turkish emperor, was the second son of Bajazet II. In 1511, 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 janizaries, 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 Asia. He defeated and put him to death, which was soon after the fate of another brother. Selim then invaded Perisa with a numerous army, and defeating Shah Hamael in a great battle, entered the city of Tauris. He afterwards annexed Diarbekir to the Turkish empire; and one of his officers recovered Bosnia, which had been conquered by the Hungarians. In 1517 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 Bey, which terminated in a total defeat of the Mamelukes. Cairo, after a desperate resistance, was taken, and all Egypt submitted. Selim returned to Constantinople, and, elated with his successes, made a vow that he would not lay down his arms till he had put an end to the Perisan 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.

Selim II., Turkish emperor, son of Solymon I., succeeded his father in 1566. Being an indolent disposition, and extremely intemperate, the actions of his reign are those of his viziers and generals. Of these the principal was the capture of Cyprus, then belonging to the Venetians, which, after a vigorous refutation, was reduced in 1571. The European powers, who had combined for its relief, gained, in the same year, the famous naval battle of Lepanto, which nearly ruined the Turkish marine. Notwithstanding 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 intermence. He had many good qualities, but was slothful and featural.

SELMABAD, in Geography, a town of Hindoostan, in Bengal; 12 miles S.S.E. of Burdwan. N. lat. 23° 5'. E. long. 87° 48'.

SELIMBRIA. See Selliura.

SELMIE, a village of Nubia, on the route of the Soudan caravan from Afia to Darfur; 42 miles S. of Sheb.

SELMPOUR, a town of Bengal; 24 miles N.W. of Burdwan. N. lat. 23° 23'. E. long. 87° 35'.

SELIN, a town of Africa, in the kingdom of Galam; 15 miles S. of Galam.

SELENA, in Ancient Geography, Illan-Adaifi, or Ille Serpents, an island of the Euxine sea, near the mouth of the Danube; called Parstatus, or Paraladum. Some authors have denominated it Meladita.

SELINGAGUR, in Geography, a town of Hindoostan, in Oude, on the Ganges, opposite to Furruckabad.

SELINCOURT, a town of France, in the department of Maine; 18 miles W. of Amiens.

SELINE, a river of Sileia, which runs N.W. into the Loh, 7 miles S. of Breflan.

SE-LING, a town of China, of the second rank, in the province of Cheung-fu. N. lat. 21° 55'. E. long. 106° 29'.

SELINGUE. See Selenga.

SELENO, a province of the island of Crete, south of that of Kilamos, which takes its name from that of a small town, built on the south coast of the island, in the situation formerly occupied by Lithia or Lirius, a place of small importance, mentioned by Ptolemy. It is entirely mountainous, but very fertile. It furnishes a little flax, honey, wax, and a tolerably large quantity of fruits, such as cherries, apricots, peaches, pears, and oranges. This is the only province in which the chestnut-tree is cultivated, and it thrives well on the schisto-dolmen 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 on the quality and quantity 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. Olivier.

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Gen. Ch. General umbel of numerous, flatly-spaying rays; partial familiar. General involucrum of many, lanceolate, linear, reflexed leaves; partial familiar, spreading, the length of the flower. Perianth scarcely discernible. Cor. univerpal uniform; all the flowers fertile; partial of five, heart-shaped, equal petals. Stam. Filaments five, capillary; anthers roundish. Pfr. Gemen inferior; fyles two, reflexed; fragmas simple. Peric. Fruit comprefed or flat, oval, oblong, frigated on each fide in the middle, separable into two parts. Seeds two, oval-oblong, flat on both fides, frigated in the middle, their fides membraneous.

Obf. The form of the seeds is liable to variation, and fo is the number of leaves in the involucrum.


3. S. auffricum. Austrian Selinus. Wildl. n. 5. Jacq. Alur. v. 1. t. 71.-Stem frigated. Leaves of the involucrum wedge-shaped, much divided. - Native of Austria and the south of Europe, flowering in July. Root perennial, containing a yellowiy-white milk. Stem frigated, smooth. Radical leaf divided by a round ftalk into three branches, which are again frigated. Leaves dark green above, paler beneath. Flowers yellowiy-white, forming a compound umbel, which is usually made up of about twenty partial ones.

4. S. flbricum. Siberian Selinus. Wildl. n. 4. Retz. Obs. fcel. 2. 16.-Leaves tripily pinnate. Involuteums faded, of nine leaves. - Native of Siberia. Root biennial, fpindle-shaped. Stem erect, three feet high, hollow, frigated, glaucous. Leaves tripily pinnate; leaflets acute, on comprefed ftalks which are channeled on the upper fide. Flowers white; the general umbel composed of twenty or thirty partial ones. Its root smells like that of Daucus Carota.

gul. Root perennial, fibrous, both falted and feentlefs. Stem almost three feet in height, pale green, fimple, occasionally with one branch. Leaves pinnate in a compound manner, terminating in a white point. Flowers white, with a tinge of red on the under fide; the general umbel compact, conflating of about twenty partial ones.

6. S. Chabrei. Carrot-leaved Selinus. Wildl. n. 6. (S. carumifolia Chabrei; Jacq. Alur. v. 1. t. 72.) - Stem round, frigated. General involucrum none. Sheaths of the leaves loofe. Leaflets thread-shaped, linear.-Native of Switzerland and Germany. Firdl introduced at Kew by E. Daval, efl., in 1791, where it flowers in July and Augulf. Stems about a foot high, smooth, conflated. Radical leaves refting those of the laft species; lem-leafes tripily pinnate. Flowers white, fairly purplish on the outside. Partial umbels unequal in size, much smaller than in the laft species, generally about ten in number. Villars has observed that this species is as it were intermedium between Paeoncuma and Selinus.


white, forming a clofe compact general umbel.


10. "S. canadenfe. Canadian Selinus. Pursh v. 1. 192. (Apium bipinnatum; Walt. Fl. Carn. 115.) - Herb very smooth, shining, Leaves bipinnate. Leaflets much divided; segments lanceolate. Fruit oval.-On the mouths of large rivers from Canada to Carolina, flowering in July. Flowers white." This species is adopted on the authority of Mr. Purh, who has reffered it from Apium to the pre-
ent genus.

Selinus, in Ancient Geography, a town of Egypt, in the Thebaid, on the other fide of the Nile, between Panum and Anten, according to the Itinerary of Autonine.

SELINUS, or SELLINUM, 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 defeution of that city by Gelo. In its vicinity were many palm-trees, whence arose the epithet of palmata, given to it by Virgil. It was destroyed, a little before Himera, by Hannibal, who took it by ftem and treated the inhabitants with great barbarity, maffeacring a great number, and carrying the relic into captivity. The inhabitants had confecrated to the Olympic Jupiter a trea-
ure, in which, among other rarities, was a flature of Bacchus, the face, hands, and feet of which were made of ivory. It appears to have been destroyed in the year of Rome.
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Rome 350

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It took its name from
ftill vifible.
on the banks of which grew parfley,

ruins are

that of a fmall river,
called in Greek j-iXivov.
a river

by Ptolemy on

—

which is placed by Strabo between a fortified place called
Alfo, a river of
Laertes, and a rock named Cragus.
Achaia, which commenced in mount Lampia, and ran from
fouth to north, and paded to the call of Egium.
Alfo, a

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river of the Peloponnefus, in the Elide

watered the terrilory of Scillunte, according to Paufanias.
Alfo, a river
of Afia Minor, in Ionia: it ran near the temple of Diana,
according to Strabo.
Alfo, a river of Myfia, which traverfed the town of Pergamus, and after having watered the
territory of Caicus, flowed into that river.
Alfo, a town
of Cilicia, where Trajan died in the year 117, after his return from the Parthian war.
Alfo, a port of Egypt, upon
the coalt, of the nome of Libya, between Zagylis-Villa
and Trifarchi-Villa, according to Ptolemy.
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SELION

of Land,

Selio

Terrs,

is

derived from the

a ridge of land, or ground
arifing between two furrows, and contains no certain quantity, but fometimes more and fometimes lefs.
Therefore
Crompton fays, that a felion of land cannot be in demand,
becaufe it is a thing uncertain.
SELISIA, in Geography, a river of Friuli, which unites
with the Cobara, and forms the Meduna.
SELIUM, in Ancient Geography, a town of Hifpania, in Lufitania, in the interior of the country.
Ptofcmy.
SELIVRA, or Selimbria, in Geography, a fea-port
town of European Turkey, in Romania, iituated on the
north fide of the fea of Marmora, and having an old caftle,
formerly very ftrong, and houfes near it, called the " Upper
Town." In the fuburbs is an imperial granary, where the
corn of the province is depofited.
It is the refidence of a
Greek archbifliop ; 34 miles W. of Conftantinople. N. lat.
40° 52'. E. long. 28=^ 12'.
SELKA, a town of Hindooilan, in the circar of Surgooja; 5 miles S.S.W. of Surgooja.
a fmall ifland on the eaft fide of the
gulf of Bothnia.
N. lat. 65° 36'. E. long. 24° 54'.
SELKIE; the name in Zetland for a feal. Many of
thefe are found in that illand.
SELKIRK, Alexander, in Biography, whofe adven.
tures have given rife to a well-known and highly efteemed
romance, was born at Largo, in Fifefhire, in Scotland,
aboot the year 1676, and was brought up to the fea-fervice.
He left England in 1703, in the capacity of failing-mafter
of a fmall veflel, called the Cinquc-Ports-Galley, Charles
Pickering captain ; and in the month of September, the
fame year, he iailed from Cork, in company with another
ftiip of 26 guns and 120 men, called the St. George, comFrench,

feillon,

which

fignifies

SELKAKARI,

manded by captain William Dampikr (fee his article),
intended to cruife againll the Spaniards in the South fea.
On the coaft of Brafil, Pickering died, and was fiiccecded
in the command by lieutenant Stradling.
Tliey proceeded
round Cape Horn to the ifland of .luan Fernandez, whence
they were driven by the appearance of two French fliips of
36 guns each, and left five of Stradling's men on fliore, who
were taken off by the French. Hence they failed to the
eoatt of America,

where Dampier and Stradhng quarrelled,
and feparatcJ by agreement. This was in the month of
May 1704; and in the following September, Stradling
fame to the ifland of Juan Fernandez, where Selkirk and

Vot.

XXXII.

alone.

But when the

he determined to remain there

was ready to

(hip

fail, his refolution
defired to be taken on board ; but now
the captain refufed his requeft, and he was left with his
clothes, bedding, a gun, and a fmall quantity of powder

was fhaken, and he

of Sicily, the mouth of which is placed
the fouthern coaft of the ifland, between the
promontory of Lilybsum and the mouth of the river Mazara.
Alio, a river of the Trachjean Cilicia, the mouth of

Selixus,

his captain havinjr a quarrel,

L

and

ball, forae trifling

implements, and a few books, with
and nautical inftruments. Tims left
fole monarch of the ifland, with plenty of the neceflaries of
life, he found himfelf at firft in a Ctuation fcarcely fupportable ; and fuch was his melancholy, that he frequently
determined to put an end to his exiitcnce.
It was full
eighteen months, according to his own account, before he
could reconcile himfelf to his lot.
At length his mind became calm, and fully reconciled to his fituation he grew
happy, employed his time in building and decorating his
certain mathematical

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huts, chafing the goats,

whom

he foon equalled in fpeed,

and fcarcely ever failed of catching them. He alfo tamed
young kids, and other animals, to be his companions.
When his garments were worn out, he made others from
the fltins of the goats, whofe flefti ferved him as food.
His
only liquor was water.
He computed that he had caught,
during his abode in the ifland, about 1000 goats, half of
which he had fuffered to go at large, having firit marked
them with a flit in the ear. Commodore Anfon, who
went there 30 years after, found the firil goat, which they
fhot, had been thus marked ; and hence they concluded
that it had been under the power of Selkirk.
Though he
conftantly performed his devotions at ftated hours, and read
aloud, yet when he was taken from the ifland, his language, from difufe of converfation, had become fcarceljr
intelligible.
In this folitude he remained four years and
four months, during which only two incidents occurred
which he thought worthy of record. The firft was, that
purfuing a goat eagerly, he caught at the edge of a precipice, of which he was not aware, and he fell over to the
bottom, where he lay fome time fenfelefs ; but of the exaft
fpace of time in which he was bereaved of his aftive powers
he could not form an accurate eftimate. When, however,
he came to himfelf, he found tke goat lying under him dead.
It was with difficulty that he could crawl to his habitation,
and it was not till after a confiderable time that he entirely
recovered from his bruifes.
The other event was the arrival
of a fliip, which he at firft fuppofed to be French, but
upon the crew's landing, lie found them to be Spaniards,
of whom he had too great a dread to truil himfelf in their
hands.
They, however, had feen him, and he found it extremely difficult to make his efcape.
In this folitude Selkirk remained until the 2d of February 1709, when he fav»
two fliips come to the bay, and knew them to be Englifli,
He immediately lighted a fire as a fignal, and he found,
upon the landing of the men, that they wore two privateers from Briltol,

commanded by

captains Rogers and

Courtney. Thefe, after a fortnight's ftay at Juan Fernandez, embarked, taking Selkirk with them, and returned
by way of the Eaft Indies to England, where they arrived
on the ift of Oftober 17
Selkirk having been abfent
;
eight years.
The public curiolity being much excited, he,
alter his return, drew up fome account of what had oc
curred during his folitary exile, which he put into the handt
of Defoe, who made it the foundation of his well-known
work, entitled Robinfon Crufoe. The time and place of
Selkirk's death are not on record.
It is faid, tliat fo late
as the year 1798, the cheft and miWket, which Selkirk had
with him on the ifland, were in poflcflion of a grand nephew,
John Selkirk, a weaver in Largo, North Britain. The
circumftaiicea of Selkirk's feclufion from human fociety,
during his llay on the defolate ifland, hare given birth to a

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fine


Eight poem by Mr. Cowper, with which all our readers are no doubt well acquainted. Brit. (This appears to be a foreign text, possibly in French, and the rest of the text seems to be a mix of English and Latin. This might be a page from a historical or literary document.)

**SELKIRKSHIRE**

Selkirk, in Geography, a royal borough town, and a parish, in the county of Selkirk, Scotland. It derived its name from the Celtic word Schelcikgreich, which signifies the kirk in the wood; expressing thus one word the situation of the place itself, and the flate of the surrounding country, which in former times was one continued forest. From the vicinity 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 fortune 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 distinguished. 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 Bryan, 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, August, 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 councillors, and possesses 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 return 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, enveloped in wood, and presenting a most "fantastically wild scene of grandeur and beauty." The castle is now a ruin, but enough of it yet remains to evince its ancient strength and importance. It is generally supposed to have been the birthplace of Mary Scott, the Flora of Yarrow. Beauties of Scotland, vol. ii. 8vo. 1805. Statistical Account of Scotland, by Sir John Sinclair, vol. ii. 1762.

**SELKIRKSHIRE**

One of the southern counties of Scotland, is situated between 55° 22' and 55° 43' N. lat. and between 2° 50' and 2° 30' 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 of Berwick; 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 6886 Scotch acres.

**General Aspect of the County.**—With the exception of a few valleys, the whole of Selkirkshire is mountainous, and presents elevations of considerable height, Meads, in the parish of Galashiels, 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 the Blackhouse, 2370 feet. The highest point of elevation above the level of the sea measures 3370 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 grass. 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 moors. Bordering on Minnoch, 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 Elibank, 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 impassable; but, from its rapid descent, it 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 valleys, in a broader channel, with a less 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 fair, are now almost entirely deforested. 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 passing out of it into the Teviotdale, and in others forming its boundary. Borthwick water also constitutes part of its boundary. The hills are everywhere intersected by small streams.
When frosts frequently others might, though, the rather, on some Selkirk extensive and sharp, small very the numerous and gravel, the weather, to the heep in this pastoral district, and produce richer graps than the exposed sides of the hills. When the country was covered with wood, these glens must have afforded much beautiful scenery. In the south-west district of the county are a number of small lakes, not however worthy of description. The two already mentioned, viz., the Loch of the Lowes, and St. Mary's Loch, lie contiguous, being separated only by a narrow neck of land. The soil is very small, but the latter extends six miles in circumference, and one mile in breadth. Both of them are surrounded by high and steep hills, and abound with pine and pearch.

Soil.—The soil of the sheep-walks, with some exceptions, is found and dry, generally from its lying on a bottom of gravel, granite, or windstone; and even a good deal of it either inclining towards clay, or incumbent on clay or till, is prevented from retaining a hurtfull quantity of water, by its steepness, and the firm consistence of its surface. There is very little pure clay in the whole country; and most of the land where a mixture of it appears, or where it forms part of the sublustrum, lies on the sides of the hills, nearly at an equal distance from their summits and the valleys below. There are some, though very few, marshy spots near the sides of rivers, and on the tops of high mountains. There is, indeed, an extensive flat, in an elevated situation, between the waters of Ettrick and Borthwick, of a soft and impregnly nature, and full of morasses, but this may be confidered as the only exception to the general alleration that devers to be noticed. Heath grows vigorously on dry soil, but becomes rare and flunted, according to the wetness of the land, and in very wet land disappears altogether. Detached portions of it are found in every corner. It is only on the higher grounds, towards the sources of the waters, that the moffy soil prevails; sometimes appearing in its native dark and fertile hue, but more frequently presenting a thin fward of beautiful and tender graps, through which the feet of cattle sink more or less, according to the depth of the moffy sublustrum, and the quantity of rain it has had. It is in such places, chiefly, that the plant abounds which is called mofs, of whose leaves and root sheep are extremely fond early in spring, when other food is scarce. The soil of the small part in tillage is light, dry, and easily managed. Even the few places which lie on till have so much deadlift, that a little care in laying out and ploughing the ridges, carries off both the springs and the surface-water. Very little of it is sufficiently deep and strong for producing wheat. But nearly the whole of it is admirably adapted for turnips, clover, barley, and oats: peas, too, succeed very well; the white graps, though not large, have thin hulls, are plump, and of an admirable quality. Turnips seldom fail, and clover is frequently raised in very weighty crops. Theseth facts give the best idea of a sharp, warm, and kindly soil, which is rather, on the whole, however, deficient in depth. White clover appears, in every field that is surranded to pasture, without having been town, and indeed is found in all parts of the county where the soil is dry.

Climate.—In the lower part of the county there is not so much humidity as might be expected, from its elevation, and the numerous mountains with which it is surranded. Lefs rain falls at Selkirk than at Wool, about five miles nearly due south of it; and only about half an inch more than at Hawkhill, near Leith. According to the Statistical Account of Scotland, (vol. ii. p. 478.) the mean quantity of rain which fell yearly in Wool parish was found to be 31 inches; the medium height of the barometer 29.7; the medium of heat 43 degrees. Bransholm or Wool may be taken as a pretty just standard of the climate, about six or 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 moist as Langholm; though, in proportion as it rises, there is a greater quantity of rain; the air becomes colder and more penetrating; frosts are more early and severely felt, and snow lies deeper and longer.

The rays of the sun, reflected by the surrounding mountains on some valleys 600 feet above the ocean, excite 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 moffy land; and several lakes. The moisture exhaled from the vast quantity of water collected in these, greatly increases the dampness of the atmosphere, and produces frequent mists and showers. Nor can this inconvenience be effectually obviated by the numerous drains which are daily making, though these mult duplicat contribute to moderate the climate. The general course of the weather and feaons is much the same as in Roxburghshire.

See ROXBURGHSHIRE.

Mineralogy.—There are no metals, coal, lime, or freestone, in any part of this county. But there is abundance of windstone and granite. Moffs, formed of decayed wood and other vegetables, are made into peat for fuel. Some of them are of considerable extent and depth; though towards the south-east, in the parishes of Selkirk, Robertson, and a corner of Yarrow and Alhickir, cover large beds of excellent till-marle. In the rills by which some of them are fed, many small ftones are found; some of them overspread with a glutinous substance, others incrusted with matter very similar to that of which the shells are composed; others again with fthers 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 incrutation of fstones 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 substances, and wafted away by freams, or from pulverized fthers, 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 incrutation proceeding from a rock, or detached pieces of lime, it may become a question how far this substance is necessary or useful to the animals in rearing their fthers, and on the other supposition, of its being occasioned by pulverized fthers, it is of equal importance to ascertain the materials from which these fthers are constructed.

Agriculture.—The agriculture of such a county as this, cannot be a very intersting 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 forest, 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 flirks 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 subservient to the support of sheep, which form
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 bear or bigg are sown. The return from barley is, at an average, from seven to eleven-fold. The return from bear is nearly the same, but the weight and market price are greatly inferior. Artificial grazes are very generally sown. Pease are less cultivated than formerly, the preference being given to turnips.

Live Stock.—Sheep are the staple animal of this county, and their number is estimated at 118,200. There are two forts, 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 disputed, yet it is admitted that the white-faced lambs, when 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 hories requisite for cultivating the arable districts, are of the Lanarkshire and Northumberland breed. Swine are reared only by a few gentlemen for their tables, and by millers for the market. Vat 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.

Inclufures.—Inclufures are not very generally used, unless round gentlemen’s seats, and on the farms in their own poffeffion. The reader is referred to what is mentioned in the account of Roxburghshire, as to the kind of inclufures used.

Towns, Villages, Roads, Fairs, and Manufactures.—Selkirk is the capital of the county. (See SELKIRK.) Galloway, 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 “Galloway’s grey;” but the cloths recently 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 Croftlee toll-bar, on the confines of Mid-Lothian, through Selkirk, to Harrow’s toll-bar, with a branch of three miles to Galloway. Part of the road from Kelso to Peebles, of about six or seven miles long, also runs through this county from Galloway’s bridge to Cockhope burn, beyond Holillie toll-bar. The expense of these roads, and of a substantial bridge over the Tweed, was £560l. There are two considerable fairs held at Selkirk; four lesser fairs are likewise held there, and three at Galloway for various purposes. The chief manufactures 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 midit of several of these strengths, in the parish of Robertson. But the most remarkable remains of the Britons in this shire, is the “Catrain,” or battle fence, consisting of a large fole, with a rampart on either side. Its length is 28 miles. This wall or 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 eall, during the fifth century, the darkest period of our history. The modern antiquities of Selkirkshire consist chiefly of ruined castles and mofs-grown towers, erected, some of them, in the twelfth century, but the greater number of them in subsequent ages of foreign hollitories 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 13th of September 1515, was fought the decisive battle of Philiphaugh. This is one of the least civil conflicts which stained the forefathers of Selkirkshire with human gore.

Eminent Natives.—This shire puts forth a fair claim to rank in its annals many characters of celebrity. The Douglas, the Scott, the Murrays, and Patrick Ruthven, who had learned the art of war under the great Gustavus, and was created lord Eterick, are names conspicuous in history. Andrew Pringle, who was placed in the senate house on the 14th of June 1759, by the title of lord Alemuir, as a lawyer was distinguished by his modesty and eloquence, and as a judge for his dignity and knowledge. It produced an eminent soldier in colonel William Ruffel, of Athelney, who distinguished himself amongst the warriors of India. Mary Scott, the flower of Tarow, is still remembered by the “cold-blooded ministers of Eterick forest.” She is celebrated by Ramsay in amorous rant:

“With succces crown’d, I’ll not envy
The folks, who dwell above the sky;
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 5,889 persons.

Selkirkshire, as a county, sends one representative to the united parliament. Beauties of Scotland, vol. ii. 8vo. 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-foil, is the bottom piece in a window-frame.

SELL-Bed, in Mining, 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 but little refining to drefs it, without the washing and separation by grates, launderers, 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. Philof. Transf. No 60.

SELLA, in Ancient Geography, a river of Melitian, N. of the isle of Oenufa.

SELLA, in Geography, a town of Africa, in Benguela.
SELLA, among the Romans, a chair in which the old and infirm are carried byervants through the city, and in journeys. Sometimes the physicians prescribed it as an exer- 

icis. See Lectica.

SELLA Curulis, among the Romans. See Curule chair.

SELLA Equisina, Turrica, or Spheonicus, in Anatomy, is a name given to the four apophyses of the sp sphenoides, or cuneiforme, in the brain; in regard of their forming a re-

semblance of a faddle, which the Lattins call fella.

They are sometimes also called by the Greek name cliomide. In it is contained the pituitary gland, and in 

some beasts, the rete mirabile.

SELLARE, in Geography, a town of Naples, in 
Calabria Ultra; 16 miles N.E. of Bova.

SELLASIA, in Ancient Geography, a town of Laconia, S.W. of Glympsea, on the river Oenus. It was destroyed in the time of Pausanias. When T. Quintus Flamininus passed into the Peloponnesus, 195 years B. C., to deliver Greece from the yoke of the tyrants who opprissed it, he fo-

journed near this place; but a little after this time, it was destroyed by Aratus, the conqueror of the Lacedaemonians. Towards the N.W. was a mountain, which bore the name of Mount Olympus. The famous battle of Sellasia, in the year 122 B. C., was fought between this mountain and Eva. Antigonus, king of Macedonia, was at the head of the Achaeans, and Cleomenes, king of Sparta, commanded the Lacedaemonians. This last, having been entirely defeated, returned into Egypt to king Ptolemy Philadephus.

SELLAY, in Geography, a small island of the Hebrides, in the district of Harris and county of Inverness, Scotland. It is about a mile in circumference, and yields excellent fur-

ure for sheep.

SELL, a town of France, in the department of the Ca-

tal; 6 miles S. of Aurillac.—Alfo, a river of France, which runs into the Scheldt, about six miles above Valenciennes.

SELLA-Bird, La, a town of France, in the department of the Loiret; 7 miles N.E. of Montargis.

SELLA, a town of Hindooostan, in Guzerat; 25 miles S.E. of Mahomoodabad.

SELL, a town of Persia, in the province of Iran; 

110 miles E. of Ipahan.

SELLAS, in Ancient Geography, a river of the Pelo-

ponnesus, in Sicily. Strabo places the place Ephrya on the bank of this river.—Alfo, a river of Aetolia, in 

Agra, according to Strabo.—Alfo, a river of Astia Minor, in the Troade, which watered the town of Aribza, according to Homer, cited by Strabo.

SELLEMPUR, in Geography, a town of Hindooostan, in Oude; 42 miles S.E. of Goracpur. N. lat. 26° 15'. E. long. 84° 1'.

SELLAS, in Ancient Geography, a people who, accord-

ing to Homer, fixed their seat, together with the Perissab, in the environs of Dodona; but he must be understood to mean that they were rather mimerants of the temple than a 

distinct people. Strabo, however, says, that a barbarous 

people of this denomination inhabited the environs of 

Dodona.

SELLAS-fur-Cher, in Geography, a town of France, in the 

department of the Loire and Cher, and chief place of a 

canton, in the district of Romorantin; 14 miles S.W. of 

Romarantin. The place contains 3,400, and the canton 

67,145 inhabitants, on a territory of 325 kilometres, in 9 

communes.

SELL, in Ancient Geography, a people of Asia, in the 

Troade.

SELL, in Antiquity, an appellation given to those 

who first delivered oracles. These, according to Strabo

and Euthathius, were men, and the name felli is said to come from Selle, a town in Epirus, or from the river called by 

Homer Selleis.

SELLA, in Geography, a town of Naples, in Calabria 

Ultra; 4 miles N.E. of St. Severina.

SELLIERA, in Botany, a genus dedicated by Cava-

nillos to a Parian engraver, Natalis Sellei, who executed 

the plates of the first and second volume of Cava-

nillus' Icones, and also of his Mondelphia.—Cavan. Ic. v. 5. 

De Thisius, 427.—Clafs and order, Pentadendra Monogynia. 

Nat. Ord. . . .

Gen. Ch. Cal. Periandri superior, permanent, deeply 

five-cleft. Cor. of one petal, irregular; tube cloven lon-

gitudinally to the base; limb ascending, cloven into five, 

lanceolate segments. Stam. Filaments five, placed in an 

erect manner on the germin, surrounding the style; 

antlers ovate, erecti. Pfl. Germen inferior, ovate, turgid-shaped; 

style simple, incurved, longer than the filaments; 

uguina globular, truncated. Peric. Berry ovate-turbinate, crowned 

by the calyx, of one cell and many seeds. Seed ovate, 

compressled, roughish.

Eff. Ch. Calyx superior, five-cleft. Tube cloven lon-

gitudinally to its base. Berry of one cell and many seeds.

1. S. radicans. Cavan. Ic. v. 5. 1474. f. 2.—Native of 

the moist maritime parts of Chili, flowering between 

February and May.—Stem prostrate, hairy, a foot high, 

sending out fibrous roots. Branches scarcely more than an 

inch long. Leaves alternate, spatulate, entire, cluttered 

at the axis. Flowers blue and white, either terminating the 

branches, or axillary, on solitary stalks, which have two 

awl-shaped bracteae in the middle.—Cavalliles described 

this elegant little plant from a dried specimen only. He 

says that it differs from Scena in its fruit, which he sup-

pects is not to be succulent, as in Paflisera; for after immers-

ing the berry in warm water, he found it swelled with little 

moist cavities containing a glutinous fluid.

SELLIERA, in Geography, a town of France, in the 

department of the Jura; 9 miles W. of Poligny.

SELLAS, in the Materia Medica, a name by which some authors have called the narda Celta, or Celtic 

spikehead of the thors.

SELLINAGUR, in Geography, a town of Hindooostan, in Oude, on the left bank of the Ganges; 60 miles W. of 

Kaisabad.

SELLING of Land, in Rural Practises, the business of 

dispersing or transferring it from one to another for a cer-

tain stipulated sum. There are different modes of effecting 

this, according to Mr. Marshall, as by public biddings, 

and private contract or agreement, in each of which a pro-

per degree of precaution is requisite. In the former, as 

the conditions are fixed, an accurate valuation affords 

the greatest safety; and in the latter, with upright intentions, 

little more is necessary. In particular cases, however, 

where a landed estate has fallen into bad hands, more caution 

may be required; and it may be occasionally necessary to 

call in the professional aid of those who, from the nature of 

their employment, are upon their guard against all sorts of 

trick and cunning. It is suggested as highly improper to 

make use of the person who is to examine the title and 

adjut the deed of conveyance, to carry on the business of 

purchasing an estate;—of whose value and uses he is profes-

sionally ignorant; as the irrefutation, want of decision, the 

consequent mistakes, and the necessary delays, that will 

always attend the negociations of men who are conscious 

of a want of knowledge in the subject they are employed to 

treat on, must ever tend to the disadvantage of their 

employers. The above writer has known so many instances of
of disadvantage arising from suffering more men of the law to intermeddle in the purchases of lands, before the preliminaries of agreement have been adjusted, that no apology is due to the profession for the observances 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 feller, are, he says, the quantities of the several pieces of lands 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 feller, 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 execution of produce, to the ploughing of grass-lands, &c.; the existing rents and profits receivable; whether for tenanted lands, appurtenances, or abstract rights; and the estimated value of the demesne, and the wood-lands, in hand; together with the estimated value of the timber growing upon the estate on fable, as well as of the mineral and foils 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 purchase, but will become a valuable foundation on which to ground the future management of the estate. And he suggests, that for these and other reasons, a purchase by private contract is most to be desired 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 feller; who may gain the advantage by this mode of disposing; provided he can frustrate the combinations of public fables. 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 feller.

And in regard to the particulars to be required from a surveyor or valuer, they are principally these. The rental value of each field or parcel of land, with the fable in which it lies, as to arable, meadow, pasture, or wood-land, the value of the timber, and other appurtenances. The characteristic, and the fale of management, of each farm or tenement; with the eligibility of its occupier; together with the fale 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, with the times and mode of payment, are the principal matters of agreement. A clear understanding respecting the custody of title deeds, and the expenses 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 belted 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 abstractions 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 security of the parties. This contract, and the deed of conveyance, (namely, the instrument which is legally to transfer the property from the feller to the purchaser,) may be paid to conclude and ratify the business of the purchase, and in this part of it, legal affiancy is essentially necessary; to examine existing deeds, and see that the feller 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.

SELLUM, in Ancient Geography, a town of Spain, in Lausitania, S.E. of Callipo and N.E. of Scalabis.

SELM, a town of Pernia, in the province of Adarbizzan or Azerbijan, 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 Urmia, from Tabruz or Tabris, to the confines of Armenia. The town contains about 2000 inhabitants, principally Neftorian Christians, and is famed for its lofty poplars and delightful gardens; 75 miles W.S.W. of Tabres. N. lat. 37° 45'. E. long. 45° 30'.

SELMNITZ, 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 Petti.

SELOMOR, a town of Austrian Poland, in Galicia; 40 miles E. of Lemberg.

SELOGOOR, a town of Hindooftan, in Berar; 20 miles N. of Nottcheegong.

SELOKOI, a town of Russia, in the government of Tobolsk. N. lat. 64° 8'. E. long. 76° 14'.

SELOMME, a town of France, in the department of the Loire and Cher, and chief place of a canton, in the district of Vendome; 6 miles S.E. of Vendome. The place contains 625, and the canton 4395 inhabitants, on a territory of 215,000 square miles, in 16 communes.

SEQN, a town of Hindooftan, in the Carnatic; 10 miles S.W. of Tigrar.

SELONDA, a small island in the East Indian sea, near the N. coast of Cumbaya. S. lat. 8° 5'. 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 Isfur Tille. The place contains

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1878, and the canton 5801 inhabitants, on a territory of 200 kilometres, in 11 communes.

SELORICO. See Selorico.

SELOWITZ, a town of Moravia, in the circle of Brun; 12 miles S. of Brunn.

SELRAIN, a town of Tyrol; 7 miles W.S.W. of Innsbruck.

SELSEA BILL, a cape on the S. coast of England, in the county of Suffolk, which takes its name from a village, situated on a peninsula formed by an inlet of the sea, called "Selsey harbour;" 8 miles S. of Chichester. N. lat. 50° 41'. W. long. 0° 50'.

SELSTEN, a town of the duchy of Bremen; 8 miles S.S.E. of Bremervord.

SELTERS, or Nieder Selters, a town of Germany, in the episcopalric of Treves, situated on the Embach near which is a celebrated medicinal spring; 21 miles N. of Mentz. See Seltzer-Water. Allo, a village of the principality of Nassau, on the Lahn, with a medicinal spring; 2 miles N. of Weilburg.

SELTSCAN, or Sedlezany, a town of Bohemia, in the circle of Moldau; 22 miles S.E. of Brama. N. lat. 49° 42'. E. long. 14° 25'.

SELTZ, a river of Germany, which runs into the Rhine, 3 miles N. of Ingelheim.

SELTZ, or Selz Benheim, a town of France, in the department of the Lower Rhine, and chief place of a canton, in the district of Willemsburg, seated on the Rhine; 22 miles N.N.E. of Strasburg. The place contains 1307, and the canton 10,110 inhabitants, on a territory of 155 kilometres, in 18 communes.

SELTZBACH, a town of France, in the department of the Upper Rhine; 6 miles S.W. of Colmar.

SELZTER-WATER, the name of a mineral water of Germany, which arises near Neider Selters, or Lower Seltz, about ten miles from Francfort on the Mayne, and which is now used in England and many other countries.

This water issues forth at the spring with great rapidity, is remarkably clear and bright, and on pouring it from one bottle into another, discharges abundance of air-bubbles.

That which is imported at London is brought over in stone bottles, closely corked and cemented, containing about three English pints each, by which means this water, as long as the common air is excluded, will retain many of its excellent qualities for several months; but this caution is so necessary, that if too large an empty space be left even in the neck of a bottle, it soon looses in a great degree the brisk, sprit, pungent taste, which principally characterizes its excellence, and is more liable to be injured by keeping than any other mineral water.

Hoffman, in consequence of an analysis of this water, observes, that an immediate effervescence ensues on mixing any acid with it, and especially with Rhineh wine and sugar, in which case the emotion is attended with a noise, and the liquid becomes milky; but mixed with Rhineh wine alone, it becomes turbid, and acquires a brown colour with a reddish cast; that the taste of this water is not so penetrating and subacid as that of most other mineral waters, but has a flavour resembling that of a diluted solution of a lixivial salt; that, with an addition of powder of galls, it does not become purple, nor blacken the floors of those who drink it; that, on adding oil of tartar, it becomes milky without any precipitation: that a quart of this water, gently evaporated, yields a drachm and twelve grains of a saline matter, which, dissolved and filtrated, yields, on a second evaporation, two scruples of a pure alkaline salt; and that this salt dissolved in water, and added to a solution of corrosive sublimate, precipitates a yellow powder or turbid mineral, and mixed with an infusion of rhubarb, gives it a reddish colour, and mixed with sal ammoniac, emits a pungent smell; that a quart of this water, satured with spirit of vitriol, and gently evaporated, affords a drachm and a half of salt, not distinguishable from vitriolated tartar; that no medicinal water is so apt to spoil and be corrupted by keeping, and that if it be set for a day or two in an open vessel, it wholly loses its natural flavour, and tastes only like water in which oil of tartar had been mixed.

From all these observations he infers, that this water abounds with an alkaline salt in a much greater quantity than any of the other known mineral waters, without seeming to contain any particles of the ferruginous earth and bitter purging salt, which are the common ingredients of the other mineral waters: on this account, he adds, that it does not purge, but generally goes off by urine. Hoffman recommends it as one of the mildest and most innocent of all the mineral waters, and observes that it may be taken by persons of the weakest constitution.

From the experiments of Dr. Brockleby on Seltzer-water, we learn, that upon dropping twelve drops of very highly coloured syrup of violets into a wine-glass of it, the syrup seemed first to manifest a purple hue, but upon their intimate union, the whole changed into a beautiful green; that the same quantity of oil of tartar per deliquium dropped into a glass of sparkling, fresh, clear water, quickly turned the whole milky, and after standing, a fine pearl-coloured powder fell to the sides and bottom of the glass; on adding an equal number of drops of pure phlegmated spirit of vitriol to a glass of this water, a light cloud was seen suspended 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 shaking the glass; and the like ebullition was more readily produced by a solution of sugar and Rhineh 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. Lixivium saponarium fo 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 greedily absorbed by the caustic alkali, which is known to imbibe fixed air, whenever it comes into contact with it. This water, says Dr. Brockleby, poured into a glass, 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 sugar, as sharp cider and Rhineh wine and sugar; but, he adds, that the best Seltzer-water here will not perfectly curdle milk, nor lather with soap, and that with powder of gall nuts no further change of colour appeared than in pure water. By evaporating twenty-four ounces of the best Seltzer-water, he obtained thirty-six grains of a saline residuum; and the greatest quantity he could ever get from a pint, wine measure, was less than thirty grains.

Ten drops of strong spirits of vitriol, poured on as many grains of salt of Seltzer-water, caused great and instant ebullition, and suffocating fumes, which tinged blackish a silver spoon held in them, and gave to its polished surface a bitter tinge.

Having dissolved sixty-six grains of pure white salt, ob-
SALT.

prepared about with 15 and terri,

194, 121 to Botany. E.

e has be to land heat it London is miles the a and and gouty brilk

experienced in into incompatible with fuch nation much he found that this seems to have let go much the greatest part of its fixed air, and probably thereby loft most of the virtues inherent in the pure fresh water itself.

From such experiments Dr. Brockleby 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 soon combined with the mineral alkali: and he thinks it probable, that the active virtues of this water depend more on this elastic 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 gout and viscid 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 Rhinfiil wine and a little sugar. It is drunk with great success in scorbatic, cutaneous, and putrid disorders. It relieves the heart-burn, and is an excellent stomachic. On account of its diuretic quality, it is serviceable in dropsical complaints; and mixed with all's 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 menphis, 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 drunk by nurses, to render their milk more wholesome and nourishing, and to prevent it from turning sour on the stomach of children. See on the subject of this article Hoffman, Oper. vol. v. p. 144. London Med. Observ. 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, six scruples of foifal alkali, and four scruples of common salt to each gallon of water, and saturating the water with fixed air, in the manner directed under Pyrmont-Water.

SELVA, in Geography, a town of Spain, in Catalonia, on the coast of the Mediterranean, 35 miles N.E. of Gerona. N. lat. 42° 20'. E. long. 3° 2'.

SELVA, a small illand in the gulf of Venice, separated from Ulbo by a narrow channel; it is rocky, and the soil so poor, that the olives feldom come to perfection: the vines produce bad grapes, and the corn is still worse. The fone that abounds there is chiefly hard whitish marble. N. lat. 44° 38'. E. long. 14° 5'.

SELVAGE, in Sea Language, a fort of hank or flecin of rope-yarn tied together at several distances. It is used to fatten round any rope, as a throud or flay, so that a tackle may be hooked in it, to extend the said throud or flay, which is called setting it up.

SELUCHUSA, in Ancient Geography, an illand near the Peloponnesus, being one of those which were situated on the coast of the promontory of Spiræum. Pliny.

SELUCIA, in Geography, a town of the Arabian Inark, 160 miles N.W. of Ballora.

SELVE, la, a town of France, in the department of the Aveyron, 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 24,250 kilometres, in 15 communes.

SELVG, a town of Denmark, on the W. coast of the illand of Samfco. N. lat. 55° 52'. E. long. 10° 30'.

SELUNE, a river of France, which runs into the sea, near mont St. Michel.

SELU, in Ancient Geography, a town of India, on this side of the Ganges, in the interior of the country of the Carzéns, according to Ptolemy.

SELYMBRIA, SELYRVA, called also by Suidas Olybria, a town of Thrace, on the coast of the Propontide, between the mouth of the river Athras and Perinthus, or Heraclea. Its name signifies the town of Selys, bria signifying town in the language of the Thracians. See Selyrva.

SELZBACH, in Geography, a river of France, which runs into the Rhine, 7 miles below Fort Vanban.

SEM, a river of Russia, which rises in the E. part of the government of Kurk, and falling by Kurk, unites with the Dena, near Sofinitza, in the government of Novgorod Sieverliko.

SEMAMPLEXICAULE LEAF, in Botany. See Leaf.

SEMANA, in Geography, a town of Hindooftan, in the subah of Delhi; 35 miles S. of Sirhind. N. lat. 29° 25'. E. long. 75° 33'.—Alfo, a town of Japan, in the island of Niphon; 125 miles W. of Meaco.

SEMAM, an illand of the East Indian sea, about 24 miles long from N. to S., and from fix to ten broad; separated
SEM

rated from the S.W. end of the island of Timor by a narrow channel, called the "Strait of Seno," S. lat. 10° 15', E. long. 123° 45'.

SEMARI, a river which rises in mount Cenis, and after forming a boundary by its course between Savoy and Piedmont, falls into the Doria at Sufa.

SEMARILLARIA, in Botany, a term applied to seeds which are surrounded half way down by an arillus, or any other similar covering.

SEMATAI, in Geography, a town of China, of the third rank, in Pe-te-chi; 35 miles N.E. of Pekin.

SEMELA, or SEMAAT, a town of the Arabian Irak, on the Euphrates, where a toll is collected; 115 miles S.E. of Bagdad.

SEMBAKE, or SEMAUSER, an island in the Red sea, near the coast of Arabia. N. lat. 25° 12'.

SEMBELLA, among the Romans, a small silver coin, equal in value and weight to half the libella.

SEMBEYE, or SEMAWE, a town of the Arabian Irak, on the Euphrates, where a toll is collected; 30 miles S. of Paghm Mew.

SEMBIANI, SEMBIANS, in Ecclesiastical History, a sect of ancient heretics, denominated from their leader, Sembas, or Sembianus, who condemned all use of wine, as evil of itself; permitted his followers, that the wine was a production of Satan and the earth, denied the resurrection of the dead, and rejected most of the books of the Old Testament.

SEMBRACENA, in Ancient Geography, a town of Arabia Felix, near the sea, in the kingdom of the Sabzacs, according to Ptolemy.

SEMBRADOR, an engine, invented by Don Jose de Lucatello, for the even fowling of feeds, described in the Philosophical Transactions under the title of the Spanish Sembrador.

The perfection of agriculture is allowed to consist much in setting plants at proportionable distances, and giving sufficient depth to the roots, that they may spread, and receive their necessary nourishment; yet there is very little care taken in the practice of this important part of husbandry, but all sorts of grains are sown by hands in the best way, by which means four parts in five of the feed are lost. To remedy this inconvenience, the sembrador, or fower, is invented, which being fastened to the plough, the whole bundles of ploughing, sowing, and harrowing, is done at once; the seedman's trouble is saved, and the grain spread at equal distances, and equally deep at the bottom of the furrow.

An experiment to this purpose was made before the emperor Leopold in the fields of Luxembourg in Austria, where the land usually yields four or five-fold; but the crop from the ground sown by this instrument was fifty-fold, as appears by a certificate of the emperor's officer appointed to see the experiment; signed, Vienna, Aug. 1, 1663.

We have a figure of the sembrador, in the Transactions, No. 60, by the earl of Callemain. See Plough.

SEMBACHON, or Sibachon, in Ancient Geography, a lake of Palestina.

SEMEL, or SEMEL. See Seam.

SEMACARUS, in Botany, derived from semes, to mark, and carus, 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 mark, which serves as an excellent natural marking ink.—Linn. Suppl. 25. Schreb. 196. Willd. Sp. Pl. v. 1. 1476. Mart. Mill. Dict. v. 4. (Anacardium; Jaff. Gen. 368. Lamarck Illufr., t. 208. Gzrtin. t. 40.)—Clas. and order, Pentandria Trigynia. Nat. Ord. Terricinaceae, Jaff.

Gen. Ch. Cal. Persanith inferior, of one leaf, bell-shaped, cloven half way down into five, heart-shaped, acute segments. Cor. Petals five, lacinolate, bordered, obtuse, larger than the segments of the calyx. Stam. Filaments five, awl-shaped, shorter than the corolla, inserted into the receptacle; anthers oblong, small. Fil. Germen superior, globular, flattened; styles three, recurved, situated on the germen and shorter than it; stigma club-shaped, retuse. Peric. none, except the receptacle, which is erect, flabby, pear-shaped, smooth. Seed, a nut resting upon the receptacle, heart-shaped, flattened on both sides, smooth and shining.

Ob. Dr. Roxburgh has observed some trees of Semecarpus with male flowers only, on which account professor Martyn has described the genus as belonging to the clafs and order of Polygama Dioecia.


1. S. Anacardium. Marking-nut tree. Linn. Suppl. 182. Roxb. Curvam. v. 1. 13. t. 12. — Native of mountainous, dry woods throughout the East Indies, flowering in July and August, but ripening its seed in January and February. A handsome lofty tree, whole bark is rough, ash-coloured and glittinous within. Branches numerous, spreading, rather hairy. Leaves alternate, on shortifl salt, 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. Bracteas numerous, small, deciduous. Receptacle yellow, as large as the nut, which is black, containing a corrosive resinous juice, at first of a pale milk colour, but turning black.

The wood of this tree is soft, containing an acrid juice. The flabby receptacles when wetted have the flavour of apples, and are eaten by the natives. The green fruit, pouted into a pulp, makes good bird-lime; when ripe, its black acid juice is highly esteemed by the Telinga physicians, as a remedy for various disorders.

SEMEGONDA, in Geography, a town of Africa, in the kingdom of Wangara, on the Niger, near a lake called by Ptolemy Libya Palus. N. lat. 15° 22'. E. long. 22° 30'.

SEMEIOTICA, SIGNS, or symptoms, 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 diagnosis and prognosis, and nosology, or the art of arranging diseases in methodical order. See thes words respectively.

SEMELA, in Geography, a town of Africa, in Tripoli; 145 miles S. of Mefurada.

SEMELE, in Mythology, the mother of Bacchus.

SEMEDITANI, in Ancient Geography, a people who inhabited the interior of Sicily, according to Pliny.

SEMELE, in Botany. See Seed.

SEMELE, in Physiology, an animal fluid secreted by the male, the contact of which is necessary to render the germ formed by the female prolific. See Generation.

SEMECCAN, in Geography, a town of Grand Bucuria; 100 miles S.E. of Balk. 1
SEMENDERY, a town on the S. coast of the island of Java. S. lat. 7° 1'. E. long. 106° 50'.

SEMENDRIA, a town and fortress of Servia, on the S. 620 of the Danube; 20 miles S.E. of Belgrade. N. lat. 44° 52'. E. long. 20° 41'.

SEMENG, 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 sometimes of horsehair, are fitted to it; and it is played with a bow, not less awkward in its form than the Greek lyre.

SEMENIAN, in Geography, a town of Peria, in the province of Segellan; 132 miles S. of Kia.

SEMENJAN, a town of Grand Bucaria; 70 miles W. of Andarab. N. lat. 36° 22'. E. long. 66° 50'.

SEMENNAD, a town of Egypt, on the E. branch of the Nile; 8 miles S.S.W. of Manzora.

SEMEOV, a town of Russia, in the government of Niznai-Novgorod; 36 miles N. of Niznai-Novgorod. N. lat. 55° 30'. E. long. 44° 14'.

SEMEPOSOVSKOY, a town of Russia, in the government of Vologda; 44 miles N.N.W. of Vologda.

SEMENTINE, in Antiquity, a place 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 midsummer, usually in the month of January; for Macrobius observes, they were movable feasts. They had their name from semen, seed.

SEMERON, in Ancient Geography, a royal town of Judea, 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.---Alfo, a mountain of Judea, in the tribe of Ephraim, E. of Sichem; called also the mountain of Samaria.

SEMETS, SUMMETS, or SUMNITE, in Botany, are used by Dr. Grew and others, for the apices of the stamens 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 feni, frequently use demi, the Greeks bemi.

In music, feni has three several usages; first, when prefixed to the name of a note, it expresses a diminution of half its value, as in demi-breve, &c.

Secondly, when added to the name of an interval, it expresses a diminution, not of half, but of a lesser feni-tone, or four commas, in the whole compass, as in feni-diapente, &c.

Thirdly, in old music to the end of the 16th century, it implies imperfection in the value of notes, as a demi-circle, or circolo mezzato; the whole circle then implying perfection, or triple-time. Three breves, or three times three semibreves, without a point. Common time, or, as it was then called, imperfect, or dual measure. See Musical Characters, and the first Time-Table.

SEMI-ARIANS, in Ecclesiastical History, a branch of the ancient Arians, consisting, according to Epiphanius, of such as, in appearance, condemned the errors of that heresy, 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 homoeousios, that is, confubstantial, or of the same substance with the Father; they would only allow him to be homoeousios, that is, of a like substance with the Father, or similar to the Father in his essence, not by nature, but by a peculiar privilege. See Homoeousios, &c.

Though, as to expression, they only differed from the orthodox by a single letter, yet were they, 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 homoeousios, in speaking of the Son; applying such an idea to it as it seems consistent with orthodoxy.

But the name Semi-Arians is also given, by the second general council, to another branch of Arians, who believed orthodoxly of the Father and Son, but denied the deity of the Holy Ghost; thus rejecting that part of the Arian system relating to the Son, but still retaining that which related to the Holy Ghost.

As the zeal of the Arians was chiefly directed against the second person in the Trinity, that of the Semi-Arians was bent against the third; whereas, as the former were sometimes called Χίλουμιασιοι, the latter were denominated Πιστοιοι.

Macedonius, 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 homoeousios, of the same substance, but homoeos, of like substance with the Father; and at the same time openly affirmed the Holy Ghost to be a creature. This heresy was condemned by the eleventh general council held at Constantinople in the year 381. See Macedonians.

SEMBRE, in Music, half a breve, 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 grophometer.

It consists of a semicircular limb, as F, I, G (Plate VII. Surveying, fig. 5) 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 usual 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

leg of the angle to be measured, and the centre C over the vertex of the same. The first is done, by looking through the lights F and G at the extremities of the diameter to a mark fixed up in one extremity of the leg; the latter is had by letting fall a plummet from the centre of the instrument. This done, turn the moveable index H I on its centre towards the other leg of the angle, till through the lights fixed in it, you see a mark in the extremity of the leg. Then the degree, which the index cuts on the limb, is the quantity of the angle.

For farther uses of the semicircle, they are the same with those of the absciss.

SEMICIRCULAR ARCHES. See Arch.

SEMICIRCULAR Canals, in Anatomy, three small membranous tubes, inclosed in excavations of the bone, and composing part of the labyrinth of the ear. See Ear.

SEMICIRCULARIS TENDIN, a part of the brain. See Brain.

SEMICIRCULARIS Palpebrarum Musculus, a name given by Spigelius, and some others, to one of the muscles of the face, called by Albinus and Winslow the mucusmus orbicularis palpebrarum.

SEMICOLON, in Grammar, one of the points or stops, used to distinguish the several members of a sentence from each other.

The mark or character of the semicolon is (;). It has its name, as having somewhat less effect than a colon, or as demanding a shorter pause.

The use of the semicolon, the grammarians generally say, is to mark a fenerless complete than the colon, and more complete than the comma; but this only conveys a very obscure idea. In effect, the precise office of the semicolon, or that office which distinguishes it from the colon, is a thing very little known to the world. Our best authors seem to use them profusely. See Colon.

Dr. Ward, formerly professor at Gresham, is perhaps the first who settled a just use of the semicolon. His position is, that the semicolon is properly used to distinguish the conjunct members of sentences. Now by a conjunct member of a sentence, he means, such as one, as contains at least two simple members.

Whenever, then, a sentence can be divided into several members of the same degree, which are again divisible into other simple members, the former are to be separated by a semicolon.

E.g. If Fortune bear a great sway over him, who has nicely flatted and concerted every circumstance of an affair; we must not commit every thing, without reserve, to Fortune, lest she should have too great a hold of us.

But though the proper use of the semicolon be to distinguish conjunct members, it is not necessary that all the members divided by it be conjunct. For upon dividing a sentence into great and equal parts, if one of them be conjunct, all those other parts of the same degree are to be distinguished by a semicolon. Thus, whoever is overtaken with poverty; the same will find, that coldheifs, contempt, injuries, &c. are not far behind. Hither likewise may be referred such sentences, where the whole going before, the parts follow: as, the parts of rhetoric are four; invention, disposition, elocution, and pronunciation.

According to bishop Lowth, a member of a sentence, whether simple or compounded, that requires a greater pause than a comma, yet does not of itself make a complete sentence, but is followed by something closely depending on it, may be distinguished by a semicolon. E. g. But as this passion for admiration, when it works according to reason, improves the beautiful part of our species in every thing that is laudable; so nothing is more destructive to them, when it is governed by vanity and folly. Here the whole sentence is divided into two parts by the semicolon; each of which parts is a compounded member, divided into its simple members by the comma; which see.

SEMICOLON, a musical instrument among the Greeks, which had thirty-five strings.

SEMICROMA, Sextuple of. See Sextuple.

SEMICUBLICAL PARABOLA, a curve of the second order, in which the cubes of the ordinates are as the squares of the abscissals. Its equation is \( ax^2 = y^3 \).

SEMICUPIDUM, a half bath, in which the patient is only placed up to the navel. See Insessus.

SEMDIAMETER, a right line drawn from the centre of a circle or sphere, to its circumference; the same with what we otherwise call a radius.

The distances, diameters, &c. of the heavenly bodies, are usually estimated by astronomers in semidiameters of the earth.

For the proportions and values of the semidiameters of the planets, see Planets. For their apparent semidiameters, see Diameter.

SEMI-DIAMASON, in Music, a defective octave; or an octave diminished by a lefser semitone, or four commas. See Diapason.

SEMI-DIVAPENTE, a defective fifth, called usually by the Italians falsa quinta, and by us a falsé fifth.

SEMI-DIATESSARON, a defective fourth, called properly, a falsé fourth.

SEMI-DITONE, Diapason. See Diapason.

SEMI-DITONE, Dit-diapason. See Diapason.

SEMI-DITONUSUS, is used by some writers, as Salinas, for the third minor.

SEMI-DOUBLE, in the Roman Breviary, a term applied to such offices and festivals as are celebrated with less solemnity than the double ones; but yet with more than the single ones.

The semi-double office has double vespers, and nine lessons at matins; but the anthems are not redoubled. It is performed on Sundays, on the octaves, and on the feasts marked for semi-double in the calendar.

SEMFLOSCULOUS, a term used to express the flowers of a certain class of plants, of which the dandilion, hawkweed, and the like, are kinds.

This sort of flower consists of a number of semifloresculi, which are disposed into one or more circles, and all comprehended in the same cup, which often becomes inverted as the flower ripens. These semifloresculi are petals, hollow in their lower part, but in their upper half are flat, and continued in the shape of a tongue. These are often separated from each other by intermediate leaves, and are placed upon the embryo fruit, from which there stand out a slender calyx, divided at the end into two parts; often carried beyond the vagina, supported by five proper. The embryos are placed in the thalamus, or bottom of the cup, and finally become seeds, sometimes winged with down, sometimes naked, sometimes coronated, and sometimes foliated.

SEMIGALLIA, Duchy of, in Geography, a division of Courland, about 110 miles in length, and from 10 to 25 in breadth, bounded on the north by Ruffia, from which it is separated by the Dwina, and elsewhere by Courland. It is subject to Ruffia. Its capital is Mītaw.

SEMIGERMANÆ GENTES, in Ancient Geography, the name of a people who inhabited the Pennine Alps, according to Ptolemy.
SEMIJA, in Geography, one of the Fox islands, in the North Pacific ocean. N. lat. 53° 5'. E. long. 175° 14'.

SEMI-INTEROSSEUS INDICIS, in Anatomy, a small, short, flat, flexous muscle, very like the antihenar, or internal interfossus of the thumb. It is situated obliquely on one side of that of the thumb, between the first phalanx of it and the first metacarpal bone. It is fixed by one end to the outside of the head of the first phalanx of the thumb, and a little to that bone of the carpus, by which this phalanx is supported; and by the other end it is fixed near the head of the first phalanx of the index, on that side next the thumb. It lies almost parallel to the antihenar, crossing it a little; this muscle lying on the convex side of the hand, and the antihenar on the concave. Winslow.

SEMI-JUDAIZERS, in Ecclesiastical History, a sect of Socinians, consisting of the disciples and friends of Francis Davides, superintendent of the Socinian churches in Transylvania; who, in consequence of his adherence to the opinions he had adopted, was thrown into prison by Christopher Bathori, prince of Transylvania, where he died, in the year 1579, in an advanced age. The most eminent of his followers were Jacob Polelogoys, of the isle of Chio, who was burnt at Rome in the year 1485; Chrillian Franccken, who had disputed in person with Socinians; and John Somer, who was master of the academy of Cluflenburg. The followers of Davides were called Semi-Judaizers by the Socinian writers, according to Moreism, by way of reproach; but others maintain, that it was grounded on their sentiments, and that it was designed to express the partial preference they gave to the Law of Moses above the Gospel of Chrift. The words of Chrift, as Davides affirms, and those of his apostles, are to be tried by the doctrine of Moses and the prophets, which ought to be to us the sole rule of life and religious worship. He also maintains, that there is no difference between the old covenant established by Moses, and the new confirmed by Chrift, in doctrine or in promises; and that they differ merely in this circumstance, that under the former there was the ministry of the letter, and under the latter that of the spirit; and, therefore, the one has not abrogated or changed the other: so far from it, that the new covenant exiled only till the destruction of Jerusalem, and will have no farther influence till the time of Chrift's worldly government over Israel in the city of Jerusalem, which is to be rebuilt. In the mean time, Chrift is not really the Chrift or king of God's people, but only by designation; the Chrift predicted by the prophet, and promisèd by God, having no other than an earthly kingdom, which Jesus was appointed to take possession of; but being slain by the Jews, contrary to the divine purpose, he was translated into a secure and quickset flate. In this flate he is not any more to be called God, as he was by virtue of his office during his abode on earth, because his office had ceased; nor is he entitled to any adoration and worship, as Socinians thought, nor to any other kind of reverence, except obedience to his precepts, and faith in his doctrine; nor is he employed under the distinguishing appellation of priest and intercessor, both which offices terminated at his death. See the propositions drawn up by Paulus Socinus, and presented to C. Bathori, in Socin. Op. tom. ii. p. 801.-803, or Toulmin's Life of Socinus, p. 453, &c.

SEMI., in Geography, a river of Cabulistan, which joins the Dilen at Kerdiz, to form the Cow.

SEMI LUNAR, SEMILUNAR, in Anatomy, an epithep, applied, in consequence of their figure, to various parts of the body.

SEMI LUNAR CARTILAGES of the Knee-joint, are two small portions of cartilage situated in that articulation. See EXTRREMITIES.

SEMI LUNAR PORTION or EDGE of the Fascia Lata. See FASCIA.

SEMI LUNAR VALVES of the Aorta and pulmonary Artery, the three valves placed at the entrance of each of these vesels. See HEART.

SEMI LUNARES COCHLEAE, in Natural History, the name of a genus of sea-shells, 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 exerted apses, 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 nerite, which are of this genus, are some of them umbi- culated, and others have teeth and a kind of gums. The shell kinds, diffïntly so called, that fall under this genus, are very different from the nerites, in that they have no teeth, no gum, and no palate. The term semilunares cochlea was invented by Rumphius to express their mouths, being of the shape of half a circle.


All the species of the semilunar shells have few convolutions, and have the extremity of the voluta small, and usually standing a little out.

The species of the semilunar cochlea are thefe, as arranged under the two general divisions of dentated nerite, and umbilicate cochlea, viz. the dentated nerite, com- monly called the gum-shell; the bloody-tooth nerite; the ox-palate nerite; the triturated and punctuated nerite; the canalicate, the furrowed, the thrilling, and the partridge nerite.

Of the nerite 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 falcated; the lightly triturated green; and the undulated nerite.

Of the umbilicate shells we have nine species; viz. the long umbilicate; that with an exerted apex; that with a depreffed apex; tefficated; the hermit; the umbonated; the small nipple; the heavy white; and the orange-coloured cochlea. Hist. Natural. Eclair. part ii. p. 256.

SEMI LUNARIS LIMEN, in the abdomen, is the line following the outer edge of the rectus abdominis muscle. See OBLIGUUS.

SEMI MEMBRANOSUS, (iichio-fous-tibien; demiamionévtique) ; 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 ischium, and behind the quadratus femoris, by a strong 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 muscular fibres. The latter are all parallel, short, and placed obliquely, and form a thick
2 thick masts, which is largest at its middle, and smaller at the two ends. They defend obliquely inwards, and terminate in an aponeurosis, which, beginning opposite to the end of the superior one, receives the fibres successively, and ends below in a thick tendon, which passes behind the knee-joint, and divides into three portions. The external is narrow and slender, ascends obliquely upwards towards the joint, and is fixed above the external condyle of the thigh, confluent with the external head of the gastrocnemius. The middle, which is broad and continuous with the preceding, is fixed to the back of the internal tubercle of the tibia, and sends an expansion over the popliteus. The internal, more considerable and rounded, seems to be the continuation of the tendon; it turns round the tuberosity, and is attached in front of it, contained in a fibrous sheath, lined by a synovial membrane, which must be opened to gain a clear view of it.

It is covered by the femorodinosus, the biceps, and the vastus lata; it lies on the quadratus, the adducto magnus, the popliteal artery, the knee-joint, and the inner head of the gastrocnemius, between which and its tendon there is a synovial membrane.

It bends the leg on the thigh, or the thigh on the leg; and it extends the thigh on the pelvis, or carries the pelvis backwards on the thigh.

SEMI-METALS, a term formerly applied in Chemistry, to those metals not possessing ductility or malleability; these properties being then considered as the principal characters of a metal. In a mechanical point of view this is doubtless the cafe, but the chemical properties of these numerous classes of bodies are so striking, as to render the above distinction useless. See Metals.

SEMINA, in Ancient Geography, a town of Afia, in Parthia. Ptolemy.

SEMINAGUR, in Geography, a town of Hindoostan, in Oude; 36 miles N. of Kairabad.

SEMINAL, SEMINALIS, in Medicine, spermatic, or something belonging to the semen or seed.

SEMINAL Leaves, those soft, plain, and undivided leaves, that first shoot forth from the greatest part of all fawn seeds, and are different from those of the succeeding plant in figure, texture, and all other respects. See Seed and Vegetation.

SEMINAL Varieties of Plants, such as are produced from seeds, which, in many instances, is invariably the cafe, as in the potato, &c.

SEMINAL Root, in Natural History, a name given by Grew to that part of the seeds of plants, which may otherwise be called the inner body of the seed; this is distributed through the parenchyma of the seed, but is wholly different from it; and distinguished by Dr. Grew from the radicle, which becomes the plant-root in its future growth. The parenchyma of the seed is, in some degree, that to the seminal-root, which is the mould or earth is to the plant-root, or radicle; and the seminal-root is to the plant-root, what the plant roots is to the trunk.

SEMINALIS, in Botany, a name by which some authors have called herfetal.

SEMINARA, in Geography, a town of Naples, in Calabria Ultra; destroyed by an earthquake in 1783, though the inhabitants escaped; 17 miles N.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 Thomasin tells us, by St. Augustine.

Of these seminaries there are many abroad, furnished with halls for the assemblies of the exorcizants, and little chambers, or cells, where each person retires, studies, and prays, apart. Such is the seminary of St. Sulpius, at Paris.

The council of Trent decrees, that children exceeding twelve years of age be taken, brought up, and instructed in common, to qualify them for the ecclesiastical state; and that there be a seminary of each belonging to each cathedral, under the direction of the bishop.

In France, the establishment of seminaries was somewhat different from the decree of the council; none are taken in but young people ready to study theology, and to be ordained: so that the seminaries were a kind of houses of probation, where the vocation of clerks is examined, and they are prepared to receive orders. And by an edict of 1749, no seminary could be established without letters patent from the king.

For the subsistence of these seminaries, there are several unions of benefices, or else the clergy of the diocese are obliged to contribute to maintain them.

Pope Pius IV. having established a seminary at Rome, in consequence of the decree of the council of Trent, by advice of the cardinals, it was given to the Jesuits, who have made very good use of it.

SEMINARY, among the canons of St. Augustine, is used for a kind of college, or school, where pensioners are kept, and instructed in classical and other learning; and this among us is the popular tenet of the word.

The houses of the society de propaganda fide, established for the preparing of ecclesiastics for millions among infidels and heretics, are also called seminaries. The principal of which is that at Rome, called the apostolical college, apostolical seminary, pastoral seminary; seminary of the propaganda, &c. See Pistoia.

SEMINARY is now used among us in the same sense with school; which feem.

SEMINARY, in Gardening, the term used for the feed-plot, or place allotted for raising plants from seed, and keeping them till they are fit to be removed into the garden, or nursery.

When the seminary is intended for trees, it must be proportioned to the quantity of seeds fown, and of a soil adapted to the generality of the trees intended to be raised in it. The land should be good, and the situation warm, and well defended, and as near the nursery as possible. A fertile mead, or rich pasture, lowly situated, will be very proper for the purpose. In preparing the seminary, let the ground be double dug, working the soil to the bottom, which operation may be performed in winter. In the spring, the weeds must be constantly kept down; and about Midsummer, if the soil is not naturally very rich, some rotten dung should be spread over the surface of the ground, which should be then trenched, or double dug afresh. From Midsummer till September, the ground must be kept clean from weeds, and just before the seeds are committed to it, it should be double dug afresh; at which time the parts must be wholly incorporated. When this is done, the ground must be levelled, and the beds laid out for the different purposes wanted; reserving such a portion of it as will be wanted for the reception of those seeds which are to be sown in the spring.

The seminary must be divided into different apartments, for the different sorts of seeds, according to their nature; those seeds that are sown in autumn being sown in a part by themselves; those in the spring in another. Those seeds, which remain till the second spring before they come up, should be all sown in beds contiguous to each other; and those, which often continue three years, must be sown by themselves. When the plants produced in any of the apartments
apartments are taken off for the nursery, the ground should be double dug, and lie fallow the following summer, manuring it with rotten dung, and double-digging it about Midsummer, as before. In autumn it will be ready to be fown afresh, 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 fowing 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 paved round, and kept under 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 feed. 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 Semitendinosus.

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 first principle, from which the several figured stones, 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 shells, though they exactly repreffent 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 adherents of it, yet is not convinced by these arguments, but rather inclines to the other side of the question, or the rise of such fossils from feminia.

These fossil shells are usually found throughout one and the same substance, and that the most different imaginations from the substance 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 substance of the stone 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 substance 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 sea-shells, as they are called, thus found fossil, is also thought to argue much on this side of the question; as the favourers 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.

SEMIORBICULARES Oris, Superior and Inferior, in Anatomy, the names under which Winslow describes the orbicularis oris. See Declination.

SEMI-ORDINATES, in Geometry, the halves of the ordinates or applicates. See Ordinate and Conic Sections.

SEMI-PARABOLA, a curve defined by the equation, \( ax^{n-1} = y \); as \( a x^2 = y \), \( a x^3 = y \).

In semi-parabolas \( y^2 = ax^{1/2} \); as \( y^2 = 2x \); \( z^2 = ax \); 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 \( y \) and \( z \) are as the squares of the abscissae \( x \) and \( z \). 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 religiosi 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 Maffians, or priests of Marseilles, in regard their opinions had their first rife in that city.

Caffian, who had been a deacon of Constantinople, and was afterwards a priest at Marseilles, was the chief of these Semi-pelagians. And about the year 450, 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 dispenfe his grace to one more than another in consequence of predestination, \( i.e. \) an eternal and absolute decree, but was willing to fave all men, if they complied with the terms of his gospel. 2. That Christ died for all men. 3. That the grace purchafed by Christ, and necessary for salvation, was offered to all men. 4. That man, before he received grace, was capable of faith and holy defires. 5. That man was born free, and was consequently capable of refifting the influences of grace, or of complying with its fuggation. The Semi-pelagians were very numerous; and the doctrine of Caffian, though variously explained, was received in the greatest part of the monaflic schools in Gaul, from whence it spread itself far and wide through the European provinces. As to the Greeks, and other ancient Chriflians, they had embraced the Semi-pelagian doctrine before Caffian, 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. Molheim's Eccl. Hist. vol. i.

SEMI-PERIOD, in Grammar, a mark of diftinction recommended by Dr. Ward, but not admitted by other grammarians. It is greater than the colon, and supposed to answer the fame 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 colon and fermicron, differently applied, supercedes the necessity of his new division.

SEMPOLATNOI, or SEMPLAT, in Geography, a fortress of Ruffia, in the government of Kolivan, on the Irritich, first built in the year 1714, on the bank of the Irritich; 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 east of it; and the adjacent country is very pleasant and fertile, but remains uncultivated. The gardens at Semplat yield a very fine species of melons. The fort derives its name from Semplata, a ruinous town, distant from it about 16 versts on the river Irritich, where are seen some remains of old stone buildings. The Ruffian settlers found here seven houfes, as the name of the place imports. Some learned men are of opinion, that certain interlopers found among the ruins, relate to the mythology of the Kalmucks; and that this place was deferted 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 relinquished; 148 miles S. of Kolivan. N. lat. 50° 25'. E. long. 80° 14'.

SEMI-PORCELANÆ, in the History of Shells. See SHELLS.

SEMPREBEND. See PREBEND.

SEMPI-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 semi-proof.

In enormous cases, the semiproof frequently determined them to try the torture.

SEMIQUARTILE, or SEMIQUADRATÄ, 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 36 degrees from one another.

SEMIRA, in Geography. See SAFIRA.

SEMIRAMIS, in Biography, queen of Assyria, 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 understanding, and that she became the wife of Menon, an officer of high rank under king Ninus; that following her husband to the army, she engaged in the invasion of Babâra, and attracted the king’s notice, whom he afterwards married, her former husband, through jealousy or despair, 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 Peria, 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 Babâra with scarcely a third part of her forces. A conspiracy being then formed to affaile her, at the instigation of her own son, the either fell under it, or was obliged to resign her crown after wearing it upwards of 40 years.

SEMIIMREVÉBERATORY Fire, in Chemistry, a term used to express such a reverberatory fire, in which the flame is only beaten back upon the bottom of the vessel.

SEMIRHOMBUS, in Surgery, a sort of bandage.

SEMIRUS, in Ancient Geography, a navigable river of Italy, in Brutium, the country of the Locri, according to Pliny.

SÉMIS, among the Romans, the half of the as.

SEMISAT, in Geography. See SAMISAT.

SÉMIESEXTILE, or SEMIESEXUS, or S.S. an aspect of two planets, wherein they are distant from each other one-twelfth part of a circle, or 30 degrees.

The semiextile was added to the ancient aspects by Kepler; and, as he says, from meteorological observations.

SEMINICILICUS, a word used by some pharmacutic writers to express a drachm.

SEMINOSERATUS, a word used by some for a perfon struck with a hemiplegia.

SEMISOPHROLO, in the Italian Myth, a little paufe, or the eighth part of a bar in common tune.

SEMISPINALIS DORSI, in Anatomy, a portion of the muscular mass, which fills the hollow of the spine between the transversa and the spinous processes. It arises from the transversa processes of four, five, six, or seven of the inferior dorsal vertebrae, beginning with the second from the lains, and is covered in the spinous processes of the two lowest cervical, and of the two, three, or four first dorsal vertebrae. It lies on the multifidus fponge, with which it is much connected; and it is covered by the longissimus and complexus. It is described as a distinct muscle by Albinus and Soemmerring; Boyer and Bichat include it with the multifidus sponge under the name of transversa fagineus. See MULTIFIDUS, under which article its action is described.

SEMITA LUMINOÃ, a name given to a kind of lucid tract in the heavens, which a little before the vernal equinox, or after the autumnal, may be seen about six o’clock at night, extending from the western edge of the horizon, up towards the Pleiades.

The phenomenon has been taken notice of by Caffini and Fatio, who both evince, that this light comes diffused from both sides of the sun. Its brightness is much the same with that of the via lactea, or the tail of a comet: it is seen plainest with us about the beginning of October, or the latter part of February.

Fatio conjectures, that the bodies, or rather the congeries or aggregate of bodies, which occasion this light, conforms to the fun like a lens, and takes it to have ever been the same; but Caffini thinks it arises from a vast number of small planets, which compass the sun, and give this light by reflection; effecting it also not to have existed long before he observed it. See ZODIAL LIGHT.

SEMITALAE, among the Romans, a name given to the gods who were the protectors of roads.

SEMITENTINS. See TRANTS.

SEMITEENSUS, feminervous; ifchio-pre-tibien, in Anatomy, a long muscle at the back of the thigh, thicker above and very flender below, extending from the tuberosity of the ischium to the tibia. It arises from the ischium by a tendon, which, for the space of three inches, is common to it with the long head of the biceps flexor erulis. The muscular fibres arising from this tendon form a fasciculus, which is first flender, then larger, and then again diminished, and interfected in its middle by an aponeurosis very obliquely directed. The femitendinosus passes along the inner and posterior edge of the thigh, and terminates below in a tendon, which first constitutes...
constitutes the sharp edge of the inner ham-string, then goes behind the internal condyle and the knee-joint, fends off an expansion, which contributes to the formation of the aponeuroles of the leg, turns round the head of the tibia, and spreads into a flat form to terminate on the anterior surface of that bone, a little below the knee, behind the tendon of the fasci- torius, and in company with that of the gracili. Between this tendon, and the internal lateral ligament of the knee-joint, there is a bursa mucofa. The mufcle is covered by the fascia of the thigh, and at its origin by the gluteus magnus: it covers the feminembranous and the adductor longus. The feminendentous acts on the knee, the hip, and the pelvis, in the fame way as the feminembranous does. See the description of that mufcle.

**SEMITERTIAN FEVER.** See Fever, Semiterian.

**SEMITONE,** in Music, one of the degrees, or concinuous intervals, of concords.

There are three degrees, or lefs 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, feveral voices and instruments are capable of the neceffary variety in passing from concord to concord. These degrees are the greater and lefis tone, and the femitone. The ratio of the firft is 8 : 9; that of the feeond 9 : 10.

The ratio of the femitone is 15 : 16; its compafs is five comans; which interval is called a femitone, not that it is geometrically the half of either of the tones, for it is more; but becaufe it comes somewhat near it. It is also called the natural femitone, and the greater femitone, becaufe greater than the part it leaves behind, or its complement to a tone, which is four comans. The Italians also call it seconda minore, or a leffer second.

There are feveral fpecies of femitones; but thofe that usually occur in practice are of two kinds, diftinguifhod by the addition of greater and lefs. The firft is expreffed by the ratio of 16 to 15, or 100/9; and the fecond by 25 to 24, or 25/24. The octave contains ten femitones major, and two dieses, nearly; for the meafeure of the octave being expreffed by the logarithm 1.000000, the femitone major will be meafeured by 0.0931909; and the octave contains seventeen femi- tones minor, nearly. If the meafeure of the octave be the logarithm 1.000000, the meafeure of the femitone minor will be 0.058894. These two differ by a whole harmonic diefs, which is an interval practicable by the voice, and was much in use among the ancients, and not unknown even among the modern practitioners. Euler, Tent. Nov. Theor. Muf. p. 107. See Interval.

These femitones are called fictitious notes; and with refeft to the natural tones, are expreffed by characters called flats and sharps.

Their ufe is to remedy the defects of instruments, which, having their sounds fixed, cannot always be made to answer to the diatonic fcale.

By means of these we have a new kind of fcale, called the Semitonic Scale; which fee.

In practical music, on keyed and fretted instruments, it is a nominal half-tone; though mathematicians, in theory, find it imposfible to divide a tone into halves. Rouffeau, after explaining the scientific and nominal difference between the major and minor femitone; the major changing its place, as to f, and b to e; and the minor remaining on the fame line, as f♯, f♭, b♭, b♭; observes, that though the imaginary change of tone is expreffed by the accident of a sharp or a flat, yet there is no difference in the found of E♭ and F♭, or in A♭ and D♭, on the organ or harpichord, the fame tones being sometimes major and sometimes minor, sometimes diatonic and sometimes chromatic, according to the key we are in.

For the importance of the femitone in music, fee Mattheson's Organiftn-preb. or Treatife on Thorough-bafe, where he has bfeftowed many pages on this interval. Zarlinho calls it il fale, the falt, or lefioning of music.

The ufe of femitones 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 fundament- al, and productive of modulation; but the quick chiefly confifts of appoggiaturas, and mere notes of taille, unnoticed in the bafe and the accompaniments. See Modern Chromatic.

For the fober ufe of thefelfe femitones with good taife and effect, see Mozart's Theme, No. 5. Var. 4. fefian thraim.

**SEMITONIC Scale,** or the Scale of Semitones; a fcale or fystem of music, confifting of 12 degrees, or 13 notes, in the octave, being an improvement on the natural or diatonic fcale, by inferting between each two notes of it another note, which divides the interval or tone into two unequal parts, called femitone.

The ufe of this fcale is for instruments that have fixed founds, as the organ, harpichord, &c. which are exceedingly defective on the foot of the natural or diatonic fcale. For the degrees of the fcale being equal, from every note to its octave, there is a different order of degrees; fo that from any note we cannot find any interval in a feries of fixed founds; which yet is neceffary, that all the notes of a piece of music, carried through feveral keys, may be found in their just tone, or that the fame fong may be begun indifferently at any note, as may be neceffary for accommodating some instrument to others, or to the human voice, when they are to accompany each other in unison.

The diatonic fcale, beginning at the lowest note, being firft fettled on an instrument, and the notes thereof diftinguifhed by their names, a, b, c, d, f, g; the inferted notes, or femitones, are called fictitious notes, and take the name or letter below, with e, as c♯, called c sharp; signifying that it is a femitone higher than the found of c in the natural feries; or this mark ♯, called a flat, with the name of the note above, signifying it to be a femitone lower.

Now 15, and 16 being the two femitones the greater tone is divided into; and 15 and 16, the femitones the lefs tone is divided into, the whole octave will fland as 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>
<th>d</th>
<th>d♯</th>
<th>e</th>
<th>f</th>
<th>f♯</th>
<th>g</th>
<th>g♯</th>
<th>ab</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>15/16</td>
<td>16/15</td>
<td>15/14</td>
<td>14/15</td>
<td>14/13</td>
<td>13/14</td>
<td>14/13</td>
<td>13/12</td>
<td>12/13</td>
<td>13/12</td>
<td>12/11</td>
<td>11/12</td>
</tr>
</tbody>
</table>

For the names of the intervals in this fcale, it may be confidered, that as the notes added to the natural fcale are not designed to alter the fpecies of melody, but to alter it to a greater and lefs, the fixing and limiting the founds; we fee the reafeon why the names of the natural fcale are continued, only making a diftinution of each into a greater and lefs. Thus an interval of one femitone is called a left fecond; of two femitones, a greater fecond; of three femitones, a left third; of four, a greater third, &c.

A fefion kind of femitone fcale we have from another division of the octave into femitones which is performed by taking an harmonical mean between the extremes of the greater
greater and less tone of the natural scale, which divides it into two femitones nearly equal. Thus, the greater tone
8 : 9 is divided into two femitones, which are 16 : 17, and
17 : 18; where 16 : 17 : 18, is an arithmetical division, the
numbers representing the lengths of the chords; but if
they represent the vibrations, the lengths of the chords are
reciprocals, viz. as 2 : 3; which puts the greater femi-
tone 16 next the lower part of the tone, and the lesser 17
next the upper, which is the property of the harmonical
division.
And after the same manner the less tone 9 : 10 is divided
into the two femitones 18 : 19, and 19 : 20; and the whole octave
flats thus:
\[ e^\# e^\# d^\# f^\# g^\# a^b^c^d^e^f^g^h^i^j^k^l^m^n^o^p^q^r^s^t^u^v^w^x^y^z
\]
This scale, Mr. Salmon tells us, in the Philosophical
Transactions, he made an experiment of, before the Royal
Society, on chords, exactly in these proportions, which
yielded a perfect concert with other instruments, touched by
the bell hands. Mr. Malcolm adds, that, having calculated
the ratios thereof, for his own satisfaction, he found more
of them false than in the preceding scale; but then their
errors were considerably less, which made amendments.
Malcolm's Music, chap. x. § 2.

SEMIWOWELS, in Grammar. See CONSONANTS.

SEMIULPA, in Zoology, a name by which Gesner,
and some others, have called the opolium.

SEMIUS, in Ancient Geography, a town of Lefter Ar-
menia, in Melitene. Ptolomy.

SEMILIN, in Geography. See ZELMIN.

SEMILYO, a town of Hungary; 12 miles W.N.W. of
Stuhl Weissenburg.

SEMMARA, a town of Naples, in Calabria Ultra; 10
miles W. of Oppido.

SEMMYA, a town of Hindoostan, in Bahar; 14 miles
N. of Bahar.

SEMNAN, a town of Persia, in the province of Comis;
40 miles S.W. of Damagan.

SEMLEON, in Ancient Geography, a town and episco-
pal see of Asia, in Pamphylia.

SEMNI, a race of philosophers in India.

SENO, in Geography, a river of Albania, which runs
into the Adriatic; 4 miles W. of Canovia.

SEMONES, a people of Germany, who, according to
Tacitus, boasted of being the most noble among the Suevi.

SEMIDOMUS, among the Romans, a measure equal to
half the modus, or the fifth part of the amphora.

SEMONES, among the Ancients, a clas of gods that
were of a middle nature between the celestial and terrestri-
al gods. Justin Martyr has mistaken one of these for Simon

SEMOVNIE, in Geography, a town of European Tur-
key, in Bulgaria; 12 miles W. of Nicopol.

SEMOMY, a town of France, in the department of the
Forelts; 5 miles N.W. of Chiny.

SEMOMY, a river of France, which rises near Arlon, and
enters the Meuse near Chateau Renard, in the department of
the Ardennes.

SEMPACH, a town of Switzerland, and capital of a
bailiwick, situated on a lake to which it gives name; 7
miles N.W. of Lucern.-Alfo, a lake of Switzerland, in
the canton of Lucerne, six miles long and two wide; 8 miles
N.W. of Lucerne.

SEMPERVIVAE, in Botany, a natural order of plants,
so termed from one of the principal genera; as also per-
haps, more especially, in allusion to the tenaciousness of the
living principle, common to the whole order, and to which
the said genus owes its name. See SEMPERVIVUM.

Vol. XXXII.

This is the 83d of Jullieu's orders, the first of his 14th
clafs, whose characters may be found at length under the
article Ficoidae. 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 corolla is monocotyledonous, either
rubular, or deeply divided. Stamens either as many as the petals,
and alternate therewith; or twice as numerous, inserted alter-
nately into the claws of the petals, and the bottom of the
segments of the calyx; anthers roundish. Germinse se-
veral, 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, assuming the form of scales;
styles and ligmas as many as the germins. Caffulae as many,
of one cell, with many seeds, separating at the inner margin
into two valves, whole edges bear the seeds. Caruncle in-
curved, surrounding a farinaceous mass. Stem herbaceous,
or somewhat shrubby. Leaves opposite or alternate, fuculent.

The genera are Tilia, Craflula, Cagyledon, Rodhia, Se-
dum, Semperivivum, and Septis; to which Penthorus is sub-
joined, as akin to the rest, but differing in habit, (as being
not fuculent,) and in the mode in which the capsule bursts;
see PENTHORUS, where Jullieu's mistake is recti-
tified, and this genus referred to the order in question, with-
out any exception or doubt.

SEMPERVIVUM, a name which immediately beseak
its own derivation, jnper vivum, ever-living, or evergreen;
the plants which compose this genus being from their very
fuculent nature so extremely tenacious of life.—Linn. Gen.
mareck Illustrator. t. 413. Garthn. t. 65.—Clafs and order,
Sempervivae, Jull.

Gen. Ch. Cal. Perianth inferior, permanent, deeply
cloven into about twelve, concave, acute segments. Cor.
Petals twelve, oblong, lanceolate, acute, concave, a little
larger than the calyx. Neftaries usuallu wanting. Stam.
Filaments twelve, slenderly awl-shaped; anthers roundish.
Pfl. Germins twelve, superior, placed in a circle, erect,
terminating in the same number of spreading stiles; ligmas
acute. Peric. Capsules twelve, oblong, compressed, short,
ranged circularly, pointed outwardly, opening inwardly.
Seeds numerous, roundish, small.

Eff. Ch. Calyx inferior, in twelve deep segments. Petals
twelve. Capsules twelve, with many seeds.

Ofb. Linnaeus in a remark under the natural character
in his Gen. Pl. makes the greater number of petals the
essential distinction between this genus and Sedum, but in the
Syfl. Veg. the nectariferous scales are properly made charac-
teristic of the latter. According to this principle, Sem-
perivum sedifolium, 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 Semper-
ivum, except in number of petals, &c. a circumstance
known, in this case, to be uncertain. Nevertheless, there
being in Semperivum hirtum, according to Schmidel's figure
at left, a minute indication of a scale, or tooth, at the bafe
of each germin, the learned editor of Hort. Kew, was in-
duced, on that ground alone, to prefer the character de-
duced from number, in the above plant of Jacquin. Both
Willdenow and Martyn enumerate fourteen species of this
handsome genus, including Sedifolium; 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.
S. tectorum. Common Houseleek. Linn. Sp. Pl. 664. f. 3. 1720. Curt. Lond. f. 3. 29. Fl. Dan. t. 681. — Leaves fringed. Offsets spreading. Common on old walls and decayed thatched roofs, where it forms large, dense tufts, flowering, though sparingly, in July. — Roots perennial, fibrous, throwing out numerous, roseaceous, leafy runners. Stems erect, nearly a foot high, round, flabby, 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 rustic surgeons used as a cooling external application, but their virtues are inconsiderable.”


S. arachnoidea. Cobweb Houseleek. Linn. Sp. Pl. 665. Curt. Mag. t. 68. Jacq. Ann. v. 5. t. 42. App. — Leaves interwoven with hairs. Offsets globular. — Native of the Alps of Italy and Switzerland, flowering in the summer. — This very elegant species, commonly known by the name of Cobweb Sceum, reffembles all the other species in habit, but is exceedingly remarkable for a woolly fubftance on the top of its globular offsets, which, as the leaves expand, is extended with them, and affumes the appearance of a cobweb, whence the specific name. Flower-flafts about six inches high, of a bright pink colour, like the flem-leaves. Flowers terminal, corymbose, pink or reddish.


The remaining species are S. arboresum, canarijea, glutinum, glandulorum, villosum, flaccidum, and hiermum.

Semperivium, in Gardening, contains plants of the fuculent, hardy, herbaceous, evergreen, and flabby perennial kinds, of which the species cultivated are; the common houseleek (S. tectorum); the globular houseleek (S. globiferum); the cobweb houseleek (S. arachnoidea); the mountain houseleek (S. montanum); the tree houseleek (S. arboresum); and the Canary houseleek (S. canarijea).

In the sixth fort a variety with variegated leaves was obtained from a branch accidentally broken by a plant of the plain fort, at Badminton, the seat of the duke of Beaufort.

Method of Culture.—The different herbaceous:forts are all capable of being increased without difficulty, by planting their off-fet heads, which should be flipped with a few root-fibres to them, and planted in the spring seafon on rubbish, rock-works, or other places, or in pots for variety; and the tender greenhouse forts 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: where 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 hot 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 strength, they should be removed into small pots and placed in the greenhouse.

The first forts are ornamental on walls, buildings, and rock-works, as well as in pots; and the last two kinds among other potted greenhouse plants.

Semphiropolis, in Geography, a town of Ruffia, 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.

Sempt, a river of Bavaria, which runs into the Ifer, 5 miles above Landhut.

Semrah, a town of Hindooftan, in Bahar; 38 miles N. of Chuprah. N. lat. 26° 45'. E. long. 84° 51'.

Semsat. See Samisat.

Semshin, or Sempcshin, a town of Little Bucharia; 18 miles E.S.E. of Tourfan. N. lat. 44° 50'. E. long. 80° 40'.

Sempciarsko, a fortrefs of Ruffia, on the Itfich. N. lat. 51°. E. long. 73° 10'.

Semur, or Semur en Auvergne, a town of France, and principal place of a district, in the department of the Côte d'Or, feated on a rock, near the river Armançon; 10 miles N.W. of Dijon. The place contains 4205; and the canton 14,852 inhabitants, on a territory of 277 square kilometres, in 28 communes. Its principal commerce consists in woollen cloth of its own manufacture. N. lat. 47° 29'. E. long. 4° 25'.

Semur en Brionne, a town of France, in the department of the Saône et Loire, and chief place of a canton, in the district of Charolles; 12 miles S. of Charolles. The place contains 598, and the canton 11,106 inhabitants, on a territory of 182 square kilometres, in 16 communes. N. lat. 46° 16'. E. long. 4° 10'.

Seminssyr, one of the Kurlitko Islands, 30 versts from Ketai, another of the same islands. Its length is 150 versts, and its breadth not more than 10. This island has four mountains, one of which exhibits effident traces of
its having been formerly burnt; in other respects it has the fame properties with those of Ketosterin.; which see. The passage from this island to Thirrio O is 200 versts.

SEMYDA, in Botany, the name of a tree, mentioned by Theophrastus, and by some supposed to be the same with the betula, or birch-tree, but very erroneously.

SEMYSTA, in Ancient Geography, an island of the British ocean, near the coast of the Offinini, in which the Gauls had a celebrated oracle, according to Pomponius Mela.

SEMZA, in Geography, a town of Ruffia, in the government of Archangel; 16 miles N.E. of Mezen.

SENA, or Marzali, a town of Africa, in the country of Mocaranga, on the river Zambeza, where the Portuguese have a factory. S. lat. 17° 35'. E. long. 35° 20'.

SENA, or Egyptian Caffia, in the Materia Medica, a purgative leaf much used in draughts and compositions of that intention.

The thyrus which bears it is a species of caffia; which see. There is also a kind of fena growing about Florence; but it is inferior to that of the Levant, as is owned by the Italians themselves. Father Plumer 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 of apolo, that is, cyfum fena, by reason of the custom 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 belt of which is laid to grow in the valley of Baiabras, 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 fenna.

The belt fena, named in Nubia "gubbelly," 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 caffia: the one the C. fena of Forkkal, with obtuse leaves; the other probably the C. angulifolia of Wildenow, 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 colutea, bladder-fena, 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 sea-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 Saïde 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 Hallequin 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 sickly; the taste 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 taste of the leaves. This infusion, when exposed to the atmosphere, deposits a lemon yellow-coloured insuble matter; and a similar precipitate is produced by oxyymuriatic acid, and several other substanstes. Alcohol and sulphuric ether, digested on the powdered leaves, acquire a deep olive-green colour. When the ethereal tincture is poured on the surface of pure water, a dark olive pellicle remains after the evaporation of the ether, which is almost inipid, and has all the properties of resin; and a golden colour is communicated to the water. This colour may be produced by some extractive being taken up by the ether, closely united to the resin. The alcoholic tincture is rendered only slightly milky by the addition of water, and scarcely any precipitate is produced; but a copious one is thrown down by oxyymuriatic acid. The active principle of fena appears to be a very oxidizable extractive, resin, and a peculiar volatile matter; and it contains also mucus, and some tallow ingredients. According to Buillon Lagrange, the residue of the watery infusion evaporated to dryness, and burnt, yields potas, sulphate of potas, carbonate of lime, magnesia, and fihra.

It is in common use as a purgative, generally operating under four hours after it is taken; and is well adapted for all cafes, in which the bowels require certain, but moderate, evacuation (see Cassia Sena); and though it be not easily accounted for, its bitternes aids its operation. To this purpose Dr. Cullen remarks, that when fena was infused in the infusion amarum, a lefs 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 draehm of the leaves to four ounces of water, rarely occasioned 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 substance, is from a scruple to a draehm; in infusion, from one draehm to three or four. It gives out its virtue both to watery and spirtuous menstrua; 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 confections, to occasion gripes, and its being accompanied with an ill flavour, which is apt to nauseate the stomach and palate. The gripping fena to be occasioned by the refining matter, as the infusion made with cold water does not grip, although it purges. The fira may be greatly obviated by dilution; the latter by aromatic and other additions; x. gr. cinnamon, or a draehm or two of its distilled water, or carraway, or cardamon seeds. The decoction is a bad form in which to administer this drug, as its activity is much impaired by boiling; owing, according to Grew, to the total dissipation of the NSA and volatile principles; but, as Thomson conceives, to the oxydement of the extractive, which also accounts for the severe gripings occasioned by the decoction.

Several compositions of this kind are prepared in the shops, sufficiently palatable, and which operate for the most part with ease and mildness. Such are the following: viz. confecition of fena, the electuary of fena of the Londo. Ph. of 1787, and the leventic eleuctuary of P. L. 1745 and 1750. (See Electuary of Sena.) The Dublin pharmacopeia directs the electuary of fena to be prepared by taking of fena leaves, in very fine powder, 4 ounces; pulp of prunes, 1 pound; pulp of tamarinds, 2 ounces; molasses, 1/8 pint; and cinnamal 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 is finally mixed, the whole thoroughly together.

These electuaries furnish a mild and pleasant purgative, and well adapted for those who are afflicted with habitual colic, and also for pregnant women. The dose is from 1/2 to 3/4, or more, taken at bedtime.
**Extract of Sena.** See Cassia.

As the activity of fena 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 mord, and a bitterish tinge. 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 next calculations showing, that 24 grains of the extract, some part of which may be supposed to be earth, or other accidental or unfledged matter, polish the virtues of a drachm in infusione. Mem. de l'Acad. des Scienc. Paris, 1738.

**Infusion of Sena.** See Cassia.

The Dublin pharmacopeia directs this infusion to be prepared by taking 3 drachms of fenam leaves, half a drachm of lefser 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 oxized extractive, that griplens violently, but is not purgative; on which account they should be preferred in a well-closeted vessel, and made only when wanted. They are also precipitated by the stronger acids, the alkaline carbonates, lime-water, solutions of nitre of silver, oxymurcate of mercury, superacetate of lead, tartarized antimony, and infusion of yellow cinchona bark, which are consequently incompatible in formula with these 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 herbs and manna. The dose of the infusions will be from f 3/ij to f 1/iv; and will g of the farr of potas, or 3/ij of the fulphate of magnesia, which are the usual adjuncts, f 5/9 are sufficient.

**Infusion of Tamarind and Sena is prepared, according to the Edinburgh Ph., by taking of preferred tamarinds, 1 ounce; fenam 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 may be made with double or triple the proportion of fenam. This infusion is made, according to the directions of the Dublin Ph., in the same manner as the infusion of fenam, except that 5/9 of tamarinds is added, before straining the liquor.

In these infusions, the nauseous taint 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 faults having potas for their base.

**Compound Powder of Sena.** See Cassia, and Powder of Sena.

**Tincture of Sena** is prepared, according to the London Ph. of 1809, by taking of fenam leaves, 3, oz., caraway seeds bruised, 1/2 oz., cardamom seeds bruised, 1 dr., raisins stoned, 4 oz., and proof spirit, 2 pints. Macerate for 14 days and filter. The Dubl. Ph. directs to take of fenam leaves 1 lb., caraway seeds bruised, 1/2 oz., lefser cardamom seeds hulked and bruised, 1/2 oz., and proof spirit, a gallon. Digest for 14 days, then filter.

**Compound Tincture of Sena, formerly called Elixir salutaris, or Elixir of health, is prepared by taking of the leaves of fenam, 2 oz., jalap root bruised, 1 oz., coriander seeds bruised, 1/2 oz., proof spirit, 33 lb. Digest for 7 days, and to the filtered tincture add of refined sugar, 4 oz.**

These tinctures are efficacious 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 5/ij to 5/ij in any appropriate vehicle.

**Syrup of Sena**, according to the London Ph., is prepared by taking of fenam leaves, 1 oz., fennel seeds bruised, 1 dr., manna, refined sugar, of each 1 lb., and boiling water, a pint. Macerate the fenam leaves and the fennel seeds in the water for 12 hours; strain the liquor and mix with it the manna and the fugar. The Dubl. Ph. directs to take of manna, refined sugar, of each 1 lb., fenam leaves, 1/2 oz., and boiling water, a pint. Let the fenam leaves be macerated in the water in a covered vessel for 12 hours; then disolve the manna and the fugar in the strained liquor.

This syrup contains the purgative properties of the fenam, and is chiefly intended for children; but the fimple infusion of fenam, sweetened with fugar, 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. Thom. Sena, Safflard, in Botany. See Cassia.

**Sena, Bladder.** See Colutea.

**Sena, Puddled.** See Cornuilla.

**Sena, Scorpius, Eimurus, a species of cornuilla; which see.** The leaves of this plant are used, but Boerhaave has unacquainted with any medicinal virtue in them. Rupinus writes, that the common people substitute the leaves instead of those of fenam; and Buxbaum tells us, that old women who pretend to medicine, call it fenes blater, and use it instead of fenam 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 339. Sena, of which was 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 Sifilin. It is now the Isle of Sein or of Saints, on the coast of Bretagne.**

**Sena Julia, Sienne, a town of Italy, in Etruria, E. of Volaterra, 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 Etruria. The Romans established a colony in this place in the year of Rome 466, or as others say, 471. A new colony was established in this place in the time of Julius Caesar, who gave it the name of Julia. In 1730 it was subject to Charles IV.; it suffered much in the wars of the Guelfs and Gibelines. Charles V. gave the墅titude of it to Philip II. his son, who sold it to Cofino, duke of Florence, in 1558.**

**SENABA, in Geography, a town of Egypt, on the left bank of the Nile; 13 miles S. of Melauti.**

**SENAC, John, in Biography, a distinguished French physician, was born in Gafo, about the close of the 15th century. Little is recorded respecting the progress of his education and life; but he is stated to have been a doctor of the faculty of physic of Rheims, and a bachelor of that of Paris; which last degree he obtained in the year 1724 or 1725. He was a man of profound erudition, united**
united with great modelly, and becamepossess'd, by hisindustry in the practice of his profession, of muchfound medical knowledge. His merits obtained for him thefavour of the court, and he was appointed consultingphysician to Louis XV.; and subsequently succeeded Chevonnay 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 theking appointed no physician as his successor, as long as he lived.

This able physician left some works, which will probablymaintain a reputation as long as medicine is studied. Weallude more especially to his treatise on the heart and itsdiseases, "Traité de la Structure du Coeur, de fon Action,et de fes Maladies," Paris, 1740, in two volumes, 4to,which is still a standard work upon this interesting subject.An essay "De reconditâ febrorum intermittentium et remitentiumnaturâ," Amst. 1759, is generally ascribed to Senac. Healso published, when young, an edition of Heister's Anatomy, with some interesting comments andobservations of his own, entitled, "Anatomie d’Heister,avec des Élairs de Phystique fur l'Ufage des Parties duCorps Humain," Paris 1724, and afterwards "Difcour furla Méthode du Françoîs, et fur celle de M. Rau touchant l'Opération de la Taille," 1727. "Traité des Caufes, desAccidents, et de la Cure de la Pelle," 1744. A workunder the affumed name of Julien Morillon, entitled "Letteres fur la Choisie des Saignées," 1730, was from his pen; aswell as a paper in the Memoirs of the Academy ofSciences for 1725, on the title of "Reflexions fur lesNoyâes," in which he combatted some erroneous opinionsrespecting the cause of death by drowning, and thetreatment founded upon them. A work, entitled "NouveauCours de Chymie suivant les Principes de Newton et deStahl," Paris, 1722 and 1723, has been attributed bymit-take to Senac; it was in fact a compilation of notes takenat the lectures of Geoffroy by some students, and isunworthy of his pen. See Eloy, Dict. Hilt de la Médecine.

SENACIA, in Botany, a genus of Commeron's,apparently named by him in honour of the French physician Senac, (see the preceding article,) who might perhapshave patronized the expedition of Commeron, but of wholebotanical merits we find nothing recorded. Vulcain, Gen. Pl.378, merely mentions this genus under Celastrus, as differingfrom that in having a longer style, oblong anthers, and a fruitwith generally two cells, two valves, and six seeds. Ourpredecessor, the Rev. Mr. Wood, seems to have intended toadopt Senacia; see Celastrus, at the end. We do nothowever find that any other writer has done so, nor do weknow of what species the genus in question ought toconsist, except those mentioned in the place just cited. Theprecise structure of the capsule, and the number of the seeds,are so little ascertained in some reputed species of Celastrus, andthe variable forms of these characters, in others, is so wellknown, that while Gartner himself has even doubted the distinctionbetween Euonymus, (see that article,) and Celastrus itself, wefeel some inclination to subdivide the latter. The comparativelength of the styles in these plants, variable in differentstates of the flowers, can afford no certain mark of genericdistinction.

SENAILLEE, John Baptisté, in Biography, aFrench musician, born about 1688. He was a greatperformer on the violin for his time. Having travelled intoItaly, the manager of the Opera at Modena engaged himtoperform in his orchestra, and did him the honour to preparefor his reception a feast more elevated than what was allowedto the rest of the band. The duke desired him to play somefolks between the acts of the opera, and he obeyed hisferene highness, to the great joy of the whole audience. Heset five books of folks, which had great reputation, till those of Le Claire appeared; which are now as littleknown as those of Senaillee, though infinitely superior tothem. What a fluctuating art is music, and how transfigurethe fame of its professors! since we may be certain, thatthe works of him who now enjoys the highest reputation,will be for ever plunged into oblivion, at the latest, in aperiod of 25 years; or appear as ridiculous to our children,as our ancient music now does to us!

SENAMARIBO, 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 provinceof Koei-tcheou, surrounded on all sides by mountains; 845 miles S.S.W. of Peking. N. lat. 27° 56'. E. long. 107°.

SEAN, a town of Algiers; 20 miles S. of Oran.

SEANLUS, a town of Alifat Turkey, in Caramania;30 miles N.W. of Seleckhe.

SENAPE, a town of Egypt, on the left bank of the Nile; 17 miles W. of Dendera.

SEANPONT, a town of France, in the department of the Somme; 22 miles W. of Amiens.

SENEAT, Senatus, an assembly or council of senatort hat is, of the principal inhabitants of a state, whohave a share in the government.

Such were the senates of Rome, of Carthage, &c. amongthe ancients; and such are the senates of Venice, of Genoa, &c. among the moderns.

The senate of ancient Rome was, of all senates, themost celebrated, during the splendor of the republic. Cicero in his oration for Milo, defines it, tempum junctissitatem, amplitudinis, potestatis, civilisque publici Romani, caput orbis, arius fociarum, portuque omnium gentium. The Roman senate exercised no contentious jurisdiction; it appointed judges either out of the senate, or among the knights; but itnever bowed to judge any proceedings in a body. The senateconcer ted matters of war, appointed who should commandthe armies, sent governors into the provinces, took order,and dispensed of the revenues of the commonwealth. Yetdid not the whole sovereign power reside in the senate; itcould not alone elect magistrates, make laws, nor decree ofwar and peace; but in all these cases, the senators wereto consult the people. Under the emperors, when the senatebecame despoiled of most of its other offices, they began tohear causes. For those of less consequence theyappointed particular judges; the rest, principally criminalcauses, they referred for their own cognizance, to be judgedby them in a body, and that frequently in the emperor'spresence. This was put in their way to keep their headsfrom litigant affairs. Nero farther committed to the senatethe judgment of all appeals; but this did not hold long;nor do we find any footsteps of it anywhere but in thesixty-second Novel.

With regard to the jurisdiction of the senate, Dr. Middle ton observes, that the supreme power at home was in thecollective body of the people; yet where haife, perhaps, orsecrecy was required, and where the determinations of thesenate were so just and equitable, that the consent of thepeople might be presumed, and granted for granted, thesenate would naturally omit the trouble of calling themfrom their private affairs to an unnecessary attendance on thepublic; till by repeated omissions of this kind, begun atfirst in trivial matters, and proceeding insensibly to moreserious,
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 Sibylline
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 an-
ually assigned to the magistrates, and to declare which of
them should be confarlar, and which praetorian provinces.

3. They had the distribution of the public treafure, and
all the expences of the government; the appointment of
tribunes to their generals, with the number of their lieu-
tenants 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 discharged all who came
from foreign states, with such answers as they thought
proper.

5. They had the right of decreeing all supplications, or
public thanksgiving, for victories obtained, and of con-
ferring 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
treason, either in Rome, or the other parts of Italy; and to
hear and determine all disputes among the allied and de-
pendent cities.

7. They exercized 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 ex-
iting them.

9. They had a power to prorogue, or postpone the assem-
yblies of the people; to decree the title of king to any prince
whom they pleased; thanks and praise to those who had de-
ferred them; pardon and reward to enemies, or the di-
coverers 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 snatched 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 curiæ and the cen-
turies, 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 dissolved the senate at
once, by transferring to the equilibrar order the right of
judicature in all criminal causes, which the senate had pos-
fessed from the time of the kings.

It has been a question among the learned, how sena-
tors 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 questor, tribune of the people, adile,
praetor, and consul; 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 tri-
bundle, or the edileship, at his own choice, without a neces-
osity of passing through them both. See Questor, Tri-
burse, &c.

But though these offices gave both an immediate right,
and actual entrance into the senate, yet the senatorial cha-
acter was not esteemed complete, till the new senators had
been enrolled by the cenfers at the next bullrum, 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 necessity of some crime, or in-
famy upon their characters; for which the same cenfers
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 confuls, who
succeeded to the kingly power, enjoyed the same pre-
rogative, till the creation of the cenfers, who ever after pos-
fessed the sole and absolute right of making and unmaking
senators. But Dr. Middleton is of opinion, that the kings,
the confuls, and the cenfers, acted in this affair but min-
isterially and subordinately to the supreme will of the people,
in whom the proper and absolute power of creating senators
always relied. And the doctor assures 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 bellic historians, the concurrence
of similar facts, and the probability of the thing itself, that
the right ofchoosing senators was originally and constitutionally

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 Feltus, Eutropius, and Livy, represent the senate, but
even Dionysius himself. It is therefore highly probable, his
lordhip 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 author
whatever, except Dionysius, that during the whole regal
government, the people had, directly or indirectly, actu-
ally, or virtually, any share or concern at all in the choice of
the senators. The first institution, in a word, every augmenta-
tion, 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 repub-
lican 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 affectation of tracing
its origin from some familiar practice in the Grecian states,
in order, from his partiality to that country, to give Greece
the honour of having furnished the sketch of every plan, on
which the Roman government was framed, and the Roman
greatness raised.

Soon after the expulsion of Tarquin, and the establishment
of the confular 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 pro-
bability, his lordship says, by the sole power of the confuls,
since no author relates otherwise, and all authors agree that
the confular power at first differed from the regal powers
in no particulars but that of being annual, instead of per-
petual, and divided between two persons, instead of being
veiled in a single one.

Till the time of the cenfors 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 con-
fusion 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 magis-
trates to enter the senate, with the power of the cenfors.
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 first was obtained by virtue of exercising any public office,
from the quaeftorship to the confullship; and was con-
sequently conveyed by the people; whereas the last was a digi-
nity conferrable only by the cenfors. Feltus 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 cenfors. And Aulus Gellius, in his chapter
upon the "Pedarii Senators," says the same thing.

These two offices 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 cenfors,
and all those who had a right to vote in the senate.

Nor was the difference, according to Aulus Gellius, bet-
tween the voters in the senate, and the confirmed cenfors, so
uneffential, as it may at first appear; for, those, who had only
a right to vote in the senate, and were not enrolled cen-
sors, 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 Craflus, relat-
ed by Valerius Maximus, book ii. chap. 2. there appears to
have been another very effential difference between a cen-
sor, and a voter in the senate; for by that Rome one muft imagine
that those who were enrolled cenfors, 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 pre-
viously 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 cenforship, when
the office itself was disjoined from that of the confullship,
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 cenfors was not transferred from the confuls to the
censores till near a hundred years afterwards, in the tribune-
ship of Ovainius; and it was then given to the cenfors by the
people, to revenge the breach of the Licinian law (which
law ordained that one of the cenfors should always be chosen
out of the plebeians) for both the cenfors being that year
patricians, and one of the cenfors that year, for the first time,
being a plebeian, the tribune Ovainius 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 cenfors 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 va-
cancies must be made in to large a body as three hundred
men, by natural deaths, the change of perpetual war, and
the purging made by the reforming authority of the cenfors.

The filling up of the senate then from the Ovainius tribune-
ship till the time of the Gracchi, lord Hervey thinks, de-
dpended entirely on the cenfors; for though he allows that
the annual magistrates, at the expiration of their office, had
a fort of claim and pretension to be put on the roll of fe-
nators, by the cenfors; yet as the cenfors, under the pre-
tence of reformation, had an uncontrollable power to re-
move senators already enrolled, so on the same pretence they
could, if they pleased, refuse to enroll, and even without
giving any reason; since their manner both of expelling or
admitting senators was merely by omitting or inferting a
name in the ceremony of calling over the roll.

Though the cenforship, therefore, at its original institu-
tion by Servius Tullius, was nothing more than the offi-
ce of numbering the people, and taking the valuation of their
estates and an office annexed first to the royal authority,
and afterwards to the confular power; yet when it was
detached from the confular power, and erected into a sepa-
rate 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 cenfors to have been full as aboul-
te in the city and the civil government, with regard to all pro-
motions and degradations, from the senate down to the
lower tribe, curia, or century, as the confuls 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 lord-
ship thinks there was no regular method at all observed in
filling up the senate, or any justice in purging it. Who-
ever had the sovereign power in his hand, under what title
soever he feized or possessed it, 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 hypo-
thetical of lord Hervey has the advantage of his own,
and will be thought the more solid or plausible by the gene-
rality of readers. See Letters between Lord Hervey and
Dr. Middleton, concerning the Roman Senate; published
by Dr. Knowles, quarto, 1778.

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 confular power, and to
the decemviri, created for regulating the laws; and to
other magistrates chosen upon some unusual occasion.

In the early ages of the republic, when the precepts of
the city were small, the cenfors were perfonally summoned
by an appanator; 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 ap-
pointing the time and place, and published several days
before,
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 consul could oblige him to give surety 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 seat apart, and solemnly consecrated to that use by the rites of augury.

The senate frequently met in certain curiae. See CURIA.

But their meetings were more commonly held in certain temples, dedicated to particular deities; as in that of Jupiter, Apollo, Mars, Vulcan, Cæsart, 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 curiae, 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 Belona, or of Apollo. 1st. For the reception of foreign ambassadors, and especially of those who came from enemies, who were not permitted to enter the city. 2dly. 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 reserved entirely to the orders of business which were of the most importance. In all months, universally, there were three days, which seem to have been more especially defined to the senate, the kalends, new moons, 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 censure. 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 consisted 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 sat the dictator and consuls, in chairs of flax. Manutius thinks that the other magistrates sat next to the consular chair, each according to his rank; the praetors, censors, ædiles, tribunes, quaestors. But Dr. Middleton rather thinks that the consular senators, 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 ædiles, the tribunes, and the quaestors, on distinct benches; and on the same bench with each, all who had borne the same offices; but the eunuch magistrates, as the praetors and ædiles, were perhaps distinguished, at the head of their several benches, by seats some what raised, or separated at least from the rest, in the form of our fettees, or of that longa cathedra, which Juvenal mentions, to denote the eunuch 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 praetors, ædilships, tribunions, and quaestions; in which order, and by which titles, they are all enumerated by Cicero. And as this was their order in fitting, so it was the same also in delivering their opinions when it came to their turn. Cic. Phil. 14, 14.

The senate being assembled, the consuls, or the magistrates, 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 them to 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 dispatched preferably 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 praetors, &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 consul, 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 purified the same through the recess of the year.

Julius Cæsar, indeed, broke through this rule; for though he had asked Cæcilius 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 seldom 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 elect, preferably to all others, till they entered into their office, on the 1st day of January following.

As the consuls elect had this preference given in speaking before all the consuls, so the praetors, and tribunes elect, seem to have had the same, before the recess 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 consul,
The decrees of the senate were usually published, and openly read to the people soon after they were passed; and an authentic copy of them was always deposited in the public treasury of the city, or otherwise they 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 considered as laws, but seem to have been designed originally as the ground-work, or preparatory step to a law, with a sort of provisional force, till a law of the same tenor should be enacted in form by the people; for in all ages of the republic, no law was ever made, but by the general suffrage of the people.

Even under the kings, the collective body of the people was the real soveraign of Rome, and the dernier resort in all cases. But their power, though supreme and final, was yet qualified by this check, that they could not regularly enact any thing, which had not been previously considered and approved of by the senate. This indeed continued 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 perished in the field of battle, or in the prostration. The door of the assembly had been designedly 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, strangers, and half-barbarians into the senate; and this abuse, recorded by Sue- tonius, became still more scandalous after his death. Augustus, soon after his accession, set about the reformation of it. 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 whole obliquity required a public example; persuaded near two hundred to prevent the flame of an expulsian by a voluntary retreat; raised 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 always been bellowed, by the censors, on the citizen most eminent for his honours and services. But in thus renewing 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 recompened 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 semed to refer to its decision the most important concerns of peace and war. Rome, Italy, and the internal provinces, were 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, constituted 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 exercice of the judicial power became the most frequent and serious occupation of the senate; and the important causes that were pleaded before them afforded a lait refuge to the spirit of ancient eloquence. As a council of state, and as a court of justice, the senate protected
senate.

feiled 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 function. Their regular meetings were held, as we have already said, on three fated days in every month; their debates were conducted with decet freedom; and the emperors themselves, who gloried in the name of senators, sat, 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 respectuefully assured, that they still enjoyed their ancient freedom; a feeble senate and an enervated 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-prevention, 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 realize 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 praetorian guards had resolved: the dream of liberty was at an end; and the senate awoke to all the horrors of inevitable servitude. Defeated by the people, and threatened by a military force, that feeble assembly was compelled to ratify the choice of the praetorians, and to embrace the benefit of an armistice, which Claudius had the prudence to offer, and the generosity to observe. To censure, to deplore, 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 observes, *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 sense of the emperors, 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 despotic of military command, disdain'd to profess himself the servant of an assembly that detected his perfons, and trembled at his power: he assumed the conduct and style of a sovereign and a conqueror, and exercised, without disguise, 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, refted its declining authority on the frail and crumbling bafts of ancient opinion. The fine theory of a republic inenfibly vanished, and made way for the more natural and substantial feelings of monarchy. The pulished and eloquent slaves from the eastern provinces, by whom the senate was filled, justified personal flattery by speculative principles of servitude. The lawyers and the historians concurred in teaching, that the imperial authority was held, not by the delegated commission, but by the irrevocable renunciation 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 dispose of the empire as of his private patrimony. Popularity, who experienced the fatal effects of the maxims and example of Severus, justly 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 repulsing the Alemanni 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 praetorian guards. By this election the senate regained several important prerogatives, the principal of which were the following: 1. To invite 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 confuls. 3. To appoint the praefults and presidents 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 former reign of Aureliian, it was in their power to divert a part of the revenue from the public service. Diocletian expressed his dislike of Rome and Roman freedom, by framing a new system of imperial government, which was afterwards completed by the family of Constantine; 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 continued with honour till the last period of the empire; the vanity of its members was still flattered with honorary distinctions; and the assembly which had been so long the source, and so long the instrument of power, was respectfully 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 subsequent traces can be discovered of a public council, or constitutional order. Ascend one hundred and contem plate the kings of the earth soliciting an audience, as the slaves or freemen of the Roman senate. From the year 1144 the senate was restored, and its establishment is dated as a glorious era in the acts of the city. After its revival, the conscript fathers, if the expression may be used, were inviolate with the legislative and executive power; but their views seldom reached beyond the present day, and that day was most frequently disturbed by violence and tumult. In its utmost plentitude, the order or assembly consisted of fifty-six senators, the most eminent of whom were distinguished by the title of counsellors; they were nominated, perhaps annually, by the people; and a previous choice of their electors, ten persons in each region or parish, might afford a basis for a free and permanent constitution. The popes confirmed by treaty the establishment and privileges of the senate, and expected from time, peace, and religion, the restoration of their government. The motives of public and private interest might sometimes draw from the Romans an occasional and temporary sacrifice of their claims; and they renewed their oaths of allegiance to the successors of St. Peter and Constantine, the lawful head of the church and republic. At length the union and vigour of a public council were dissolved in a lawless city; and the Roman fee adopted a more strong and simple mode of administration. They changed the name and authority of the senate in a single magistrate, or two colleagues; and as they were changed at the end of a year,
a year, or six months, the greatness of the senator was compensated by the shortness of the term. The senators of Rome indulged their avarice and ambition; their justice was perverted by the interest of their families and faction; and as they punished only their enemies, they were obeyed only by their adherents. In this state of anarchy, most of the Italian republics chose, in some foreign but friendly city, an impartial magistrate of noble birth and unblemished character, a soldier and a statesman, recommended by the voice of the Senate and his country, to whom they delegated for a time the supreme administration of peace and war. See Gibbon's Hist. of the Decline and Fall of the Roman Empire.

**Senate of four hundred,** an ancient senate of Athens, when the city was divided into four tribes, each of which chose a hundred men. This lasted till Solon instituted the senate of five hundred, after the city was divided into five tribes.

**Senate of Venice.** See PREGADI.

**SENIOR,** 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, Tullius, 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 thereabout, 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 supplied 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 Caesar augmented that number to nine hundred; the triumvirs added a thousand; and Augustus reduced them to six 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 censors, 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 SENATE.

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 eftate, left their dignity should become debased by poverty. To hold the senatorial dignity, a yearly revenue of eight hundred thousand pounds was required, which amounts to between six and seven thousand pounds of our money. Half as much was required for the qualification of the knights. The senators who sunk below this revenue, were disinherited, and expelled out of the city by the censors; and this was increased by Augustus to twelve hundred thousand.

This qualification must not be taken, as it is borne, for an annual income, but the whole estate of a senator, real and personal, as estimated by the survey and valuation of the censors.

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 lowest to which they could be reduced; for whenever they sunk below it, 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, though none of them have expressly signified what it was. The legal age for entering into the military service was fifteen, by Servius Tullius, at seventeen years; and they were obliged, as Polybius tells us, to serve ten years in the wars, before they could pretend to any civil magistracy. This fixes the proper age of being for the senatorship, or the first step of honour, to the twenty-eighth year; and as this office gave an admission into the senate, so the generality of the learned seem to have been 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 there as a regulation only proposed to Augustus by his favourite Macenas. Dr. Middleton takes the senatorial age, which was the same with the senatorial, to have been thirty years complete.

The laws concerning the age of magistrates were not very ancient: 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 Annalian. 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 *feminary of all dignities:* but after the people had been admitted to magistratures, 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 ingenuous; and as their morals were to be clear from all vice, to be born with a face 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.

These are some of the laws by which the censors were obliged to act, in the enrolment of the new, or the omission of old senators; 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 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 assign them a number of lifers, or messengers, to march before them in state, 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 festival days, when sacrifices were offered to Jupiter by the magistrates, they had the full right of feasting 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 Latitia vium), 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 fancies; the form of them was somewhat like to a short boot, reaching up to the middle of the leg, as they were sometimes seen in ancient statues and bas-reliefs; and the proper ornament of them was a half moon sewed, or fastened upon the forepart of them, near the ankle.

Confins, praetors, ædiles, 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 appear at the public festivals and solemnities.

The senators carried their children with them to the senate, to inform them betimes of affairs of state; though their 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. Gallus gives us another notion of the pedarii, and fays, 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 senator, qa. d. old men, given them in imitation of the Greeks, who called their senate ἂγεμενος. 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 Lacedæmonians and Carthaginians received none but such as were sixty years of age. See SUN.

As to other matters relating to Roman senators, see the article SENATE, supra.

SENATUS ACTORITAS. See Senate.

SENATUS-CONSULTUM. A vote, or resolution, of the Roman senate, pronounced on some question, or point of law, proposed to it. See Senate.

The senatus-consultum made a part of the Roman law: when passed, they were deposited in the temple of Ceres, under the custody of the ædiles; and at last they were carried, by the censor, to the temple of Liberty, and put up in an armory called tabularia.

Julius Capitolinus speaks of a sort of senatus-consulta ta- tua, 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 se- crecy, till their designs should be effected.

The narrative of the famous senatus-consultum, or rather decree, against the musician Timotheus, at Sparta, for augmenting the number of strings on his lyre, is confirmed by Paufanius and Suidas.

This curious piece of antiquity is preserved at full length by Boethius (De Music, cap. i.) Mr. Stillingfleet (Prin. and Power of Harm. § 135.) has given an extract from it, in proof of the simplicity of the ancient Spartan music. The fact is mentioned in Athenæus and Cæsennius, in his notes on that author (Animad. in Athen. p. 386.), has interpolated the 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 Mileian, coming to our city, has dishonoured our ancient music, and, despoiling the lyre of seven strings, has, by the introduction of a greater variety of notes, corrupted the ears of our youth; and by the number of his strings, and the novelty of his melody, has given to our music an effeminate and artificial dress, 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, resolved to pass censure upon Timotheus for these things: and, further, to oblige him to cut all the superfluous strings of his lyre, 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 Athenæus, 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 flax in the same place, with a lyre in his hand, of as many strings as that which had given the offence, and shewing 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 Lacedæmonians; but does not prove that the rest of Greece had confined their music within the compass of seven notes: nor, consequently, ascertain 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 Life of Ajax, where he gives a list of the innovators who had corrupted and enervated the good old melody, by additional notes both upon the flute and lyre.

"Latus of Hermione," says he, "by changing musical rhythms to the dithyrambic irregularity of movement, and, at the same time, emulating the compass 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 fellow Philocles, or Timotheus."

The same thing also appears from the bitter invectives to which the comic poets at Athens, especially Pherecrates and Aristophanes, gave a loofe; not, perhaps, from underlining 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 farriors, and witted wits, constantly 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
SEN

and was not that a sufficient reason for hungry authors to rail?

Plutarch tells us, that the comic poet Pherecrates introduced Music on the stage, under the figure of a woman, whose body was terribly torn and mangled. She is asked by Justus, under the figure of another woman, the cause of her ill-treatment? when she relates her story in the following words: "The first source of all my misfortunes was Melanippides, who began to enrave and debilitate me by his twelve songs. However, this would not have reduced me to the deplorable condition in which I now appear, if Cineas, that cursed Athenian, had not contributed to ruin and disguise me in his diithyrambic frolics, by his falfe and untameable inflexions of voice. In short, his cruelty to me was beyond all description; and next to him, Phrynis took it into his head to abuse me by these divisions and flourishes, as if I were ever thought of before, making me subservient to all his whims, twirling and turning me a thousand ways, in order to produce from five songs, the twelve different modes. But still, the freaks of such a man would not have been sufficient to complete my ruin, for he was able to make me some amends. Nothing was now wanting but the cruelty of one Timotheus to send me to the grave, after maiming and mangling me in the most inhuman manner."

"Who is this Timotheus?" says Justus.

Music.

"O o'ers that vile Midian blade:
Who treats me like an arrant jade:
Rob me of all my former fame;
And lends me with contempt and shame:
Contriving tell, where'er he goes,
New ways to multiply my woes:
Nay more, the wretch I never meet,
De it in palace, house, or street,
But straight he tries to clip my wings,
And ties me with a dozen strings."

SENAURA, in Geography, a town of Hindooftan, in the circuit of Bickaneer; 5 miles E. of Jellemere.

SENCE, a river of England, which rises in Leicetershire, and runs into the Anker, near Atherstone, in Warwickshire.

SEND, is used by seamen, when a ship, either at 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 sends 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 Smemund.

SENDELBACH, Langen, a town of Germany, in the bishopric of Bamberg; 5 miles S. E. of Forchem.

SENDEN, a town of Germany, in the bishopric of Munster; 7 miles S. W. of Munster.

SENDENHORST, a town of Germany, in the bishopric of Munster; 10 miles S. E. of Paderborn.

SENDSE, a town of Egypt, on the Kalis il Menh; 3 miles N. of Behene.

SENDGEAN, a town of Asiatic Turkey, in Natolia; 13 miles S. E. of Balikefri.

SENDGISCHOW, a town of Poland, in the palatinate of Sandomir; 36 miles S. S. W. of Sandomir.

SENDI, or Sindi, in Ancient Geography, a people of Scythia, in the country called Sendica, in the vicinity of the country of the Tauro-Scythians. Purtyn.

SENDA, in Geography, a town of New Mexico, on the Bravo; 50 miles S. of Santa Fé.

SENDUARY, a town of Hindooftan, in Bahar; 45 miles S. S. W. of Patna.

SENEBLERIA, in Botany, a genus of Decandolle's, dedicated to Mr. John Senebie, a Genevan naturalist, who published a work upon Vegetable Physiology, in 1791.


SENICA, Lucius Annæus, in Biography, a celebrated philosopher, was born at Corduba, near the commencement of the Christian era. His father was a man of eques- trian rank, and an eminent orator, of whom some declamations and controversies are extant. His mother was Helvia, a Spanish lady of distinction. Being educated at Rome, he was early initiated in the study of eloquence by his father, and other masters; but his own propensity led him to devote his talents to the study of philosophy. He first joined the Pythagoreans, whom he soon left for the Stoics; he, however, confided himself to no sect, but extended his inquiries to all the syllems of Grecian philosophy. In conformity to the wishes of his father, he pleaded some time in the courts of justice, and acquired by the practice a considerable reputation; but it is thought he relinquished the bar, through fear of the jealousy of Caligula, who was ambitious of oratorical fame. Entering into public life, he obtained the office of queller, and had riven to some consequence in the court of Claudius, when, at the instigation of Menalina, he was accused of an adulterous commerce with Julia, the daughter of Germanicus, and was banished to the island of Corfu. In that island he remained in exile eight years, confounding himself with the maxims of philosophy, though never refrained to the severity of his lot, as may be inferred from his complaints, and his abject application to the emperor for pardon.

Upon the marriage of Claudius to his second wife Agrippina, Seneca was, through her influence, recalled, and, after being raised to the praetorship, was appointed preceptor to her son, the afterwards most infamous Nero; while Burrhus was made his governor and military instructor. They are said to have acted with the most perfect unanimity in restraining him from those vices, to which his situation and inclination prompted him; and obtained an ascendancy over him, to which is attributed the flattering promise of the first years of his reign.

When Nero began to display his real character, his quarrels with his mother, who was as violent and wicked as her son, laid his governors under great difficulties. Once they were the means of reconciling them, but at length the breach was irreparable, and Nero determined to free himself from one whom he regarded as a dangerous competitor, by the horrid crime of matricide. Seneca and Burrhus were apprized of his intention, and did not oppose it, as they ought to have done; and after the deed was perpetrated, Seneca wrote to the senate, in the name of the emperor, to justify it. Burrhus died very soon, and the influence of Seneca over his pupil was entirely lost; nevertheless the tyrant leaped upon his preceptor unbounded wealth, which not only exalted the character of the philosopher to severe cenure, but was in the end the principal caufe of his destruction. Finding that he was an object of envy to the favourites of the prince, he requested permission to retire from court, and refund all that he had received from the imperial liberality. Nero allured him of his continued regard, and would not hear of the professed restitution of rewards, which he had so well merited. Seneca, however, knew him too well to place any confidence in his declarations,
tions, and kept himself out of fight 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 cenfor 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 shew his gratitude to them in any other way, he would leave them the image of his life, as the bell 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 she 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 least 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 moralist could not easily be found; for their constant tenor is that of solid virtue, tempered with humanity, and exalted by the noblest principles of theirm. They are indeed marked with the timid pride inculcated by the Stoical sect, 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, consisting of epitaphs, 124 in number, and of distinct treatises on Anger, Contemplation, 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 Leipziger, 2 vols. 8vo.; and the Bipontine. Of the tragedies, are the Variorum; that by Heinius, 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 streets and squares, on the north side of Seneca Falls. The inhabitants have erected, at a great expense, 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 15 miles N.W. of the mouth of Rock creek, which separates George-town from Washington city.
of a canton, in the district of Chalons sur Saône; 8 miles S. of Chalons sur Saône. The place contains 2345, and the canton 13,612 inhabitants, on a territory of 222½ kilometres, in 18 communes.


Gen. Ch. Commum calyx calyptrate, conical, truncated; scales awl-shaped, numerous, parallel and contracted into a cylinder at the upper part, contiguous, equal; not so numerous at the base, but imbricated, withering at the tip. Core, compound, higher than the calyx; florets of the distinct perfect, tubular, numerous, funnel-shaped, with five-lobed, reflexed limb; those of the radius, if any, female, ligulate, oblong, slightly three-toothed. Stem, (in the perfect florets) Filaments five, capillary, very small; anthers cylindrical, tubular. Petal, (in all the florets) Germen ovate; fyle thread-shaped, the length of the filaments; stigmas two, oblong, revolute. Pericarp, none, except the conical, converging calyx. Seeds in both kinds of florets alike, follicular, ovate, crowned with capillary long down. Receptacle, naked, flat.

Obf. Senece of Tournefert and others, is delivered of a common radius to the corolla, whereas their Jacobea is furnished with one. This, however, is by no means a sufficient generic distinction. Mott authors have accordingly united them into one genus.

Eff. Ch. Receptacle naked. Down simple. Calyx cylindrical, many-leaved, falcate at the base; scales dead at the tip.

In the Species Plantarum of Linnaeus we meet with only forty species of Senece, (to which however many others are added in his Supplementum 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.


S. purpurascens. Purple Groundsel. Linn. Sp. Pl. 1215. Willd. n. 6. (Cacilia villosa; Jacq. t. 1. Rar. v. 3. t. 586.)—Corolla naked. Leaves lyrate, hairy; the upper ones lanceolate, toothed. Native of the Cape, and flowering from June to September. Root perennial, thick. Stems numerous, erect, a foot high, foliariated. Leaves alternate, lyrate, obtuse, thickish; the lower ones on long flanks; all beautifully veined. Flowers terminal, corymbose, purple, rather small.


A common weed, flowering throughout the year, in any kind of soil or situation. Seeds annual, fibrous. Stem erect, branched, leafy, somewhat panicked, round, angular, either smooth or clothed with a cottony down like the back of the foliage. Leaves alternate, bright green; radical ones stalked, those of the stem feeble, auriculate. Flowers terminal, panicked or panicked, yellow. Seeds furred, pubescent. Seed-down fefile, rough. The great peculiarity of Senece in having the scales of the calyx withered, and black at the tip, is a very conspicuous in the present species, whole flower-buds and young tops are the food of many small birds, and especially domestic Canary-birds. In several parts of England it is called Simson, apparently a corruption of the generic name, perhaps through the medium of the French Senson.

The remaining species of this section, described by Wildenow, are S. angustifolius, mucronatis, nivios, bicaulis, cerudeis, perpendiculatus, llyratus, paniculatus, bilacinus, scalaris, wightii, vittatus, davisianus, colour, japonicus, paulificus, arabicus, and herbicribus.

Sec. 2. Floribus radialis, radio flaum revolventes. Flowers with a revolute radius.

S. villosus. Stinking Groundsel. Linn. Sp. Pl. 1217. Engl. Bot. t. 32.—Radius revolute. Leaves pinnatifid, viscid. Scales of the calyx lax, and nearly as long as the calyx itself, which is hairy. Not uncommon in many parts of Britain, in a chalky or sandy soil; flowering from July to October. The whole herb is hairy and viscid, with a very fetid smell. Root annual. Stem a foot high, much branched, spreading, furrowed, leafy. Leaves alternate, falcate, very finely embracing the stem, pinnatifid, somewhat toothed. Flower-flalks solitary, terminal, each bearing a flower of a bright gold colour.

ton, &q. in Yorkshire. It flowers in October. “This new British species,” says the author of English Botany, “is most like S. involucrata, but the essential and all-sufficient marks of distinction are the dilated base of the leaves which embrace
SENECIO.

embrace 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.

tate. Leaves pinnatifid, lobed, toothed. Scales of the
calyx short. Stem erect, bright, corymbose. —Common
in bushy spots upon gravely or sandy heaths, flower-
ing in July. Root annual. Stem three feet high, leafy, fur-
rowed, rather hairy, many-flowered.

Leaves numerous, scattered, with an unpleasing smell, and slightly viscid.
Flowers yellow, but paler and smaller than in falcatus, of
which some authors have considered this as a variety, but
from which it is perfectly distinct.

The remaining species of Willdenow in this section are,
S. triflorus, egojmus, angulata, latus, crysifolius, humitus, leu-
canthemifolius, auritns, giganteus, telepholius, trilobus, cimicif-
cens, javanicus, Coronopus, multiflorus, nebrodenius, subvirgus,
and variojus.

Sect. 3. Floribus radiatis, radice patente; foliis pinnati-
fatis. Flowers with a spreading radius and pinnatifid leaves.
(Jacobaea atra Peterm. viscosa.) Lutea, aplenis foliis; Dill.
Ethl. 183. t. 152. f. 184.) —Radius spreading. Leaf-
stalks embracing the stem. Flower-stalk thrice as long as
the leaf. Leaves hialate, serrate. —Native of the Cape of
Good Hope, flowering most part of the summer. Stem
herbaceous, perennial, about two feet high, branched at the
bottom. Leaves stalked, narrow, seven or eight inches
long, very gluttonous. Flowers terminal, yellow, two or
three on each stalk.

S. elegans. Elegant Groundsel, or Purple Jacobaea.
Radius spreading. Leaves hairy, viscid, pinnatifid, equal,
much-spreading. Common stalk narrow below. Calyx
hairy. —Native also of the Cape, flowering from June to
autumn. Linn. designated this annual the name of elegans,
because of the beauty of its flowers, their being a lot
of most brilliant purple, and their disk bright yellow; colours
peculiar to this and S. venetus. Willd. n. 57. —The stem
is about eighteen inches high, erect, branched, furrowed.

Leaves at the stem-joints, 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.

Engl. Bot. t. 660.—Radius spreading, longer than the
calyx; its florets elliptical and entire. Leaves pinnatifid;
their segments distant, 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 subfoli
deeply pinnatifid, narrow, smooth, flat, rather fleshy, often
purplish beneath. Flowers solitary, of a bright golden
yellow, on terminal, solitary, bracteated, corymbose stalks.
The whole herb has a peculiar smell, somewhat like Tansy
or Mugwort.

S. obnexitus. Southern-wood-leaved Groundsel.
Leaves pinnatifid, jagged; leaves linear, naked, acute.
Stalks mostly two-flowered. —Native of the Auffrian Alps,
flowering from July to October. Root perennial, com-
posed of many, long, slender fibres, striking deep, and
spreading on all sides. Stem from one to two feet high,
the base, smooth above, paler and downy beneath. *Flowers*
above an inch in diameter, bright yellow; in a kind of ter-
mary corolla, the lowermost petals arising from the bo-
oms of the upper leaves.


Native of Austria and Switzerland; flowering in July and Aug.

*Root* perennial, fibrous, not creeping. *Stems* gen-
erally single, two or three feet high, erect, slightly an-
gular or grooved towards the top, pale green, pubescent here and there. *Leaves* alternate or scattered, five or fix inches long, pointed, smooth above, hairy beneath. *Flowers* very numerous, yellow, in terminal compound corymbs.


*Root* perennial, creeping. *Stems* erect, from three to five feet high, angular, leafy, smooth, corymbose at the top. *Leaves* alternate, sessile, lanceolate, slightly downy. *Flowers* bright yellow, in a large, terminal corymb, with narrow, lanceolate, pointed bracts, and rather downy flanks. —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 astringent, with considerable acrimony.


*Root* perennial, caespitose, bitter, with long white fibres. *Stems* from two to five feet in height, much branched upwards, flattened. *Leaves* alternate, lower ones flaked; upper sessile; all of them extremely glaucescent and ribbed. *Flowers* rather small, numerous, palish yellow, in terminal, compound corymbs.


*Root* perennial, fibrous. *Stems* perfectly simple, hairy. *Radical leaves* flaked, thickish, plain or hispid on either side of the mid-rib; *stem-leaves* small, lanceolate, nearly awl-shaped. *Flowers* large, terminal, mostly solitary, of a deep yellow or orange-colour, on longish, thick, hairy flanks.


*Root* perennial, fibrous. *Stems* numerous, annual, round, smooth; from four to six feet high, branched with purple. *Leaves* alternate, somewhat leathery, smooth, glaucescent, pointed, veined with purple. *Flowers* in terminal, thick, compound corymbs, bright yellow; the *dijk* turning brown.

The remaining species of this last and fourth section described by Willdenow are the following.—*S. linifolius*, juniperinus, rofmarinifolius, aper,niestus, cruciatus, rigefens, pinnaetus, hadniius, ovatus, coriaceus, orientalis, Barrellieri, arenarius, glabifolius, epianus, longifolius, undulatus, byzan-
tinus, heterophyllum, balanifolius, marginatus, lanatus, mollis, quercifolius, ilicifolius, crispus, crenatus, angustus, cardifolius, repandus, rigidus, and foliadosinodes.

*Senecio*, in Gardening, contains plants of the herbaceous, annual, and perennial kinds, of which the species cultivated are; the hieracium-leaved groundsel (*S. hieraciifolius*); the Chinese groundsel (*S. pseudo-china*); the spleenwort-leaved groundsel (*S. haftatus*); and the elegant groundsel, or purple Jacobean (*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 first 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 approaches, removing them under the protection of the greenhouse, where they should remain till May, when they may be planted out in the borders or clumps. They may likewise 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 flower, 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 collections.

**SENECTA Anguium**, the exuviae, or sloughs of ser-
pents. The snakes cast their whole skin, and with it were supposed to call off their age, and be born anew; while the name of the call skins. A decoction, or infusion of these, is recommended by medical writers against pains of the ears and eyes, and some superstitious people recommended it to women to tie about their waists, to prevent miscarriages, and about their thighs, in time of labour to hasten 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 2,531, and the canton 12,063 inhabitants, on a territory of 167 ½ square miles, in 18 communes.

**SENEGA.** See *Gum Senega*.

**SENEGAL** or *SENEGAMBA*, 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 extending from Cape Blanco to the mountains to the N. of Senegal, has been called Upper Senegambia. It is frequented 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 Europeans trade with these people in gum; and the establishment of Portenbeek, formed by the Dutch, and that of Arguin, have been disputed by several European nations, with inconceivable eagerness. The dreadful portrait which Mungo Park has given us of the foolhardy pride, perfidy, and barbarity of the Moors of the environs of Tombuctoo, perfectly agrees with that given by Brillon of those who inhabit the coasts. The whole country watered by the rivers of Senegal and Gambia has been called Senegambia, and extends, according to Bruns, from the northern shores of Senegal to the northern shores of Sierra Leone.
SENEGAL.

Senegal, a river of Africa, which rises 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 6th 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 thence 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 wilderness, in which no habitations are to be seen during nine days of forced marching. The head of the principal branch of the Senegal is about 80 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 Fflee, as Labat calls it, was about the bulk of the Tweed at Melrose in summer; but this was in the dry season, or Christmastide; and as the river does not swell periodically, till many months after that, Mr. Park did not fee it at its lowest pitch. And yet this was the Allamblage 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 confluent 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 time. The Senegal river is then by no means a very capital stream, except in the rainy season; when, like all the 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 Kokaro, or eastern 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-fing, 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 Falemé 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, Jallonkadda, Foulaadu, Kallon, Gadon, and some other smaller stems, to the intermediate one; thus forming the falls of Gouvina. The intermediate level contains Bambouk, Konkado, Satalado, Dentilla, and some others, and is bounded on the S.W. by the great slope of country at Kerwanney, when the waters first begin to flow towards the W. On the N.W. it is bounded by the great defcent which forms the second or lower fall of the Senegal river, named F'low. This fall is about 30 miles below Gouvina, 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 Falemé river, of course, must run on a far lower level than the other heads of the Senegal river. The distance between Koonia-karry in Kallon, lat. 14° 34', and the Senegal river, 13 miles, points to a W.N.W. course, or reabounds, 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 Jallonkadda, it is highly probable that the two great branches unite at no great distance above the upper fall; the same ridge of mountains that occasion the fall, may, perhaps, occasion a junction of the different streams above it. These falls are said by Labat to be from 30 to 40 toises perpendicular, or 180 to 240 French feet. The Senegal, in its course, separates the two countries of Kajaaga and Kallon.

Within six miles of the sea, the river in its course takes a sudden turn to the south, and for the remainder of its passage is divided from the sea only by a natural ridge of sand, sometimes not 100 toises over. By this curve it prolongs its course for 75 miles farther, from north to south, 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 Defert, stretching by a number of windings to a prodigious length, from east to west. The extreme rapidity of this river is attributed to the spae passed through by fo large a body of water, confined within so narrow a channel; the mouth of it being no more than a mile and a half over, and that chocked up with sand, called a bar, which renders the passage exceedingly difficult and dangerous. This bar is doubly dangerous, on account not only of the shallowest 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 lost, and new foundings requisite to discover them; indeed the Senegal would be quite shut up, but for one channel of 200 toises in breadth, and two fathoms depth, which has long kept its situation immovable, amidst the floods and overflows 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 vellest 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 clashing resembles the shock of mountains, and so 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 frith present themselves to the shipping. All around it lie a great number of islands, pleasantly flopped with trees, fruits, herbage, and birds, but appropriated to no ufe, except the island of Senegal.

Fort St. Louis, at the mouth of the Senegal river, according to the observations and refuits of M. D'Anville and M. Fleurius, is placed in lat. 16° 5' (by D'Anville), long. 16° 8' by Fleurius: and Cape Verd in lat. 14° 48', long. 17° 34', W. of Greenwich. By the treaty of 1783, the river of Senegal and its dependencies were left in the possession of the French, who had extended their factories above 500 miles from the shore. In 1784 was founded the company of the gum of Senegal, which obtained an exclusive privilege of trading in gum, slaves, gold-dust, ivory, wax, and other products of the river Senegal, and dependencies, from Cape Blanco to Cape Verde. Goree was chosen as the residence of the adminiftrators. 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,
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 east to west. It is composed of a bed of loose sand, productive of nothing but what is forced by art and the richest manure, notwithstanding which it contains 3000 inhabitants, whose principal food is fish and maize. This fort of corn grows in great plenty all over the whole country. It may seem surprising, 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 fix, 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'.

SENEKAL, or SENEGALLUS, in Ornithology, the Loxia orif. See Loxia. See also Fringilla Senega. 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 fimple tattle, 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 fine fibres, and with a membranaceous rim 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 tattles, all simple, and without branches; some lie on the ground, others stand erect. There are ten or twelve inches high, when fully grown. The leaves stand alternately on the tattles, 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 subtile, pungent, penetrating tattle. 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, prais'd it very largely as a diuretic, a diaphoretic, and an alexipharmic, and a very powerful attenuant 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 rattle-snake; and Dr. Tennent assures us, that he saw two persons, who had been bitten by this creature in the month of July, when its poison is 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 in pleurises and peripneumonia with great success, and in all other cases where the blood is inflamed. The effect of this medicine was found to be, that it made the fizzly fluid, (which is contradicted by a strong fact adduced by De Haen,) procure a plentiful spitting, increased perspiration 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 tattleaceous powders with it.

In pleurises 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 pleurises 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 rheumatism, dropsy, and gout, in which last disease, he says, he has given it with success. See his Letter concerning the Seneca, or rattlesnake-root. The extract of it in combination with carbonate of ammonia has been found by Mr. Brandreth, of Liverpool, to be efficacious in some cases of lethargy; and in America the decoction given in divided doses, at short intervals till it vomits or purges, has been employed with benefit and success in group; 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 Maregrave to the Lacerta iguana. See Lizard.

SENECHAL, SENEGALLUS, a name anciently used for a flavel or majordomo; formed from the German, Land, house, or family, and saddle, servant.

Thus the fenechal of a lord, or a baron, is his steward or bailiff, who holds his courts, and manages his demesne lands; and the sub-fnechal, his under-steward.

High fenechal of England is the high-steward of England; high fenechal del hotel du roi, is the fenechal of the king's household.

The office of fenechal was at all times a great office; but the jurisdiction it increased much, when the grand
The ancients used the term *fenecaffus* indifferently with that of *dapipef*; whence we are sure it signifies household.

*Seneschallo et marechallo quod non tenant placita de libero tenemento,* in Lex, a writ directed to the freedherd and marshall of England, inhibiting them to take cognizance of an action in their court that concerns freehold.

*Senesino,* Francesco Bernardo, Detto, in Biography, called Seneafino, from being a native of Siena, one of the greatest fingers 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 conveyed with several good judges of music, who had been frequent in their attendance at the operas of those times, who always spoke of Seneafino'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 descended into the fullfet, most melodious, and most flexible contralto, that was ever heard in this country. He had not more than five or seven notes in his compass; but these were so mellow and powerful, and his execution of divisions to *granito,* or distinct, that, without the rapidity of a bravura finger, he seemed possessed of every solid and faulting charm of a great performer. Quantz, who heard him at Dresden in 1719, gives him the following character: "Francesco Bernardo, called Seneafino, had a powerful, clear, equal, and sweet *contralto* voice, with a perfect intonation, and an excellent shake; his manner of singing was mellowly, and his eloquence unrivalled; though he never loaded *adagios* with too many ornaments, yet he delivered the original and effential notes with the utmost refinement. He sung *allegros* with great fire, and marked rapid divisions, from the chief, in an articulate and pleasing manner; his countenance was well calculated for the illustration, and his action was natural and noble: to thefe 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 manfion, called there a palazzo, and ended his days in splendid tranquility.

*Senetoso,* in Geography, a cape on the S.W. coast of the island of Corfica; 35 miles W. of Sarcena.

*Senex,* a town of France, in the department of the Lower Alps, and chief place of a canton, in the district of Cattellane, before the revolution the seat of a bishop, suffragan of Embrun; 6 miles N.W. of Caftellane. The place contains 758, and the canton 2681 inhabitants, on a territory of 180 kilometres, in 4 communes.

*Senentenberg,* a town of Mullria; 3 miles N. of Staia.—Allo, a town of Bohemia, in the circle of Koniggratz; 3 miles N. of Geyerberg.—Allo, a town of Saxony, in the margravate of Meiffen, containing about 300 houses, surrounded with ramparts and ditches; 32 miles N.E. of Meiffen. N. lat. 51° 31'. E. long. 14° 1'.

*Sengana,* a town of Hindoostan, in the Mewat country; 95 miles S.W. of Delhi.

*Sengbost,* a town of Perfsia, in the province of Khorasan; 25 miles S.E. of Meffghid.

*Sengen,* or *Sens,* a river of Switzerland, which joins the Sanen river, near Laufen, in the canton of Berne.

*Sengen,* or *Sengen,* a city of China, of the first rank, in Quang-fu; N. lat. 23° 24'. E. long. 107° 34'.

*Sengershasara,* a town of Perfsia, in the province of Ghilan; 69 miles N.W. of Rehfd.

*Sengin,* or *Sengen,* a town of China, of the third rank, in Quang-fo; 25 miles N.W. of King-yuen.

*Senglea,* a town of the island of Malta, divided by a channel from Vittoriofa; and containing about 4200 inhabitants.

*Sengma,* a town of Africa, in the country of Cal-bari; 5 miles N. of Cape Formosa.

*Sengo,* a town of Perfsia, in the province of Adribiztan or Azerbeijan; 48 miles S.E. of Tauris or Tifftet.

*Sengreen,* in Botany. See *Sanifraga.*

*Sengwarden,* in Geography, a town of Germany, in the lordship of Kniphausen; 6 miles E. of Jever.

*Senz,* a small island in the North sea, near the coast of Norway. N. lat. 60° 15'.

*Senigaglia.* See *Sangaglia.*

*Seningham,* a town of France, in the department of the Straits of Calais; 9 miles W. of St. Omer.

*Senitenitz,* a town of Bohemia, in the circle of Konigingratz; 6 miles N. of Konigingratz.

*Senore,* a town of Algiers; 22 miles W. of Tifftet.

*Senito,* a river of Naples, which runs into the Sibari.

*Senitz,* a town of Hungary; 25 miles W. of Toppolttan.

*Senke,* a town of Tibet; 46 miles E. of Toudfong.

*Senlis,* a town of France, and principal place of a district, in the department of the Oise, before the revolution the seat of a bishop, suffragan of Rheims; 55' N. E. of Paris. The place contains 4312, and the canton 11690 inhabitants, on a territory of 2225 kilometres, in 18 communes. N. lat. 49° 12'. E. long. 2° 40'.

*Senne,* a town of Asiatic Turkey, in the government of Moful, on the Tigris; 80 miles S.S.E. of Moful.

*Senra,* or *Senra,* a most romantic and flourishing little town of Perfsia, in the province of Ardelen, seceded in the bosom of a deep valley, well cultivated and inhabited with orchards of peach, apricot, pear, apple, and cherry trees. Its population amounts to about 6000 perons, of which number 2000 are Jews, Armenians, and Neltrians, who trade to Moful, Baghdad, and Ifpahan. The Walles, who seldom quits this place, resides in a magnificent palace, built on the top of a small hill in the centre of the town, where he maintains a degree of ftele and splendour superior to any thing in Perfsia, except at court. His house is ever open for the entertainmef of strangers, and he always retails about his person a body of horfe. The mountains to the W. of Senra are covered with fores of oak, which produce fine timber and abundance of gall-nuts. The former is made into rafts and floated down the Tigris to the Tigris; 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 Tabezze by way of Maraga to Senna is 223 miles; that from Senna by Kermez to Baghdad is 303 miles; and that from Senna to Hamadan is 89 miles.
SENNAAR, in Geography, a kingdom of Africa, in the country of Nubia, situated on the banks of the Nile, between Egypt and Abyssinia. At the beginning of the 16th century, the whole country from the sources of Egypt to those of Abyssinia, though nominally subject to Egypt for the sake of trade, had its own prince of the race of Beni Koré, whose title was Wëlëd Ageob, son of the good; and he was also called Ali, or Mahomet Wëlëd Ageob. This prince was, nevertheless, only the sheik of all the Arabs, to whom they paid a tribute for the support of his dignity and authority. The residence of this Arab prince was at Geri, a town situated on the ferry which leads across the Nile to the desert of Bakiyouda, and the road to Dongola and Egypt, joining the great desert of Selima. In the year 1504, a black nation, hitherto unknown, inhabiting the western banks of the Bahar El Abiad, in about lat. 13°, made a descent, in a multitude of canoes or boats, upon the Arab provinces, and in a battle near Herbag, defeated Wëlëd Ageob, and forced him to a capitulation, in consequence of which the Arabs became tributaries to their conquerors, and Wëlëd Ageob was allowed to retain his place and dignity, on condition that he should be always ready to use coercion in favour of the victors, in case any of the Arabs, who were to enjoy their former privileges unmolested, refused payment; and thus he became, as it were, their lieutenant. This race of Negroes are called in their own country Shillook. It was in the year 1564 that Amru, son of Adlän, the first of their sovereigns on the E. side of the Nile, founded this monarchy, and built Sennaar, which has ever since been the capital. From this period to that in which Bruce visited the country, 266 years had elapsed, and 20 kings had reigned, that is, from Amru the first to Ilman, who was king at the time of Bruce's being at Sennaar. At the establishment of this monarchy, the king, and the whole nation of Shillook, were Pagans. But they were soon after converted to Mahometanism, for the sake of trading with Cairo, and took the name of Funge, which they interpret sometimes lords, or conquerors, and at other times, free citizens; though Bruce says, that titles and dignities are under-valued, and that slavery in Sennaar is the only true nobility. Mr. Bruce has given a list of the kings, with their names and the years of their reign, from 1564 to 1772. Upon the death of a king of Sennaar, his eldest son succeeds by right; and immediately afterwards, as many of the brothers of the reigning prince as can be apprehended are put to death. This practice of murdering all the collaterals of the royal family is similar to that which prevails in Abyssinia, of confining the princes all their lives upon a mountain. In Sennaar, as is also the case in Abyssinia, women do not succeed to sovereignty. The royal family were originally Negroes, and remain so still, when their mothers have been black like themselves; but when the king has happened to marry an Arab woman, as he often does, the black colour of the father cedes to the white of the mother, and the child is white. In and near the metropolis of Sennaar there is a conflagrant mortality among the children, so that the people would probably be extinct, if they were not supplied by a number of slaves, brought from all the different countries to the southward. Hence it is concluded, that the climate must have undergone a strange revolution, as Sennaar is but a small distance from the territory where the ancients placed the Macrobis, so called from the remarkable length of their lives. Although 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 Baady, the countryman or peasant; and this name is common to the whole race of kings, as Cesar was among the Romans.

No horde, mule, ass, or any beast of burden, will breed or ever live at Sennaar, or many miles about it. Poultry does not live there. Neither dog nor cat, fowc or bullock, can be preferred there for a fea lion. All of them must be removed every half-year to the sands. 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 Sennaar is very unfavourable both to man and beast, and particularly adverse to their propagation. This circumstance is ascribed by Bruce to some noxious quality of the fat earth; for this noxious quality is not known in the sands. Aira, between three and four miles from Sennaar, which has no water near it but the Nile, surrounded with white barren land, agrees perfectly with all animals. Nevertheless, this soil contributes very abundantly to the nourishment of man and beast. It is said to render 350 for 1: though this must be an exaggeration; it is town with dora or millet, which is the principal food of the natives. The falt used at Sennaar is wholly extracted from the earth about it, especially at Halfaia, in lat. 15° 45' 54". E.long. 32° 45' 15", is strongly is the soil impregnated with this useful folli. Halfaia 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 300 houses, and derives its principal gain from a manufacture of very coarse cotton cloth, called Dernour, 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 Sennaar, nearly to the N.W. is a collection of villages called Shaddly, from a great fawn, who in his time directed large pits to be dug, and plaited closely within with clay, into which a quantity of grain was put when it was at the cheapest, and tliee were covered up, and plaited again at the top, which they call felling, and the hole itself matamore. These matamas 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 Shaddly, about twenty-four miles, is another foundation of this fort, called Web Abond, still greater than Shaddly. Upon these two charities 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 these granaries.

The small villages of foldiers are scattered up and down through this immense plain to watch the grain that is tourn, 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 passage be-
between the cultivated country and the sands. The fly, that inexorable peræcutor 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 their vast excavations for corn and water. This is the first resting-place the Arabs find, where, having all things necessary for subsistence, they can at leisure transact 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 station for camels. As Shaddly is not above three hours ride on horseback from Sennaar, there could not be chosen a situation more convenient for levying the tribute; for though Gerri, from the favourable situation of the ground, being mountainous and rocky, and just on the extremity of the rains, was a place properly chosen for this purpose 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 consequently without any necessity of advancing so far north as Gerri, and there subjecting themselves to contribution.

In this extensive plain, near Shaddly, arise two mountainous districts, the one called Jebel Moia, or the Mountain of Water, which is a ridge of considerable hills nearly of the same height, closely united; and the other Jebel Segou, or the Golden Mountain, a broken ridge composed 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 considerable extent. They serve for a protection to the Dabaera, or farms of Shaddly and Wed Aboud. They are also fortresses 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 Athara. Each of these districts is governed by the descendant of their ancient and native princes, who long refilled all the power of the Arabs, having both horse and foot. They continued to be Pagans till the conquest of the Funge. Bloody and unnatural sacrifices were said to have been in use in these mountainous states, with horrid circumstances of cruelty, till Abdelcader, son of Amru, the third of the kings of Sennaar, about the year 1554, befiegéd Shaddly and then the other of these princes in their mountain, and forced them to surrender; and, having fastened a chain of gold to each of their ears, he expoed them in the public market-place at Sennaar in that situation, and sold them to the highest bidder, at the vile price of something like a farthing each. After this degradation, being circumcised, and converted to the Mahometan religion, they were restored each to their government, as slaves of Sennaar, upon very easy conditions of tribute, and have been faithful ever since.

Nothing is more pleasant than the country around Sennaar, in the end of August and beginning of September, I mean (says Bruce) for as the eye is concerned; instead of that barren, bare, walls, which it appeared on our arrival in May, the corn now sprang up, and covering the ground, made the whole of this immense plain appear a level, green land, interpersed with great lakes of water, and ornamented at certain intervals with groups of villages, the conical tops of the houses present, at a distance, the appearance of small encampments. Through this immense, extensive plain, winds the Nile, a delightful river there, above a mile broad, full to the very brim, but never overflowing. Everywhere on these banks are seen numerous herds of the most 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, as at great a distance from the town, country, and their oppressors, as they possibly can.

The banks of the Nile about Sennaar resemble the pleasant parts of Holland in the summer season; but soon after, when the rains cease, and the sun exerts its utmost influence, the dora begins to ripen, the leaves to turn yellow and to rot, the lakes to putrefy, smell, and be full of vermin, all this beauty suddenly disappears; bare, scorched Nabia returns, and all its terrors of poisonous winds and moving sands, glowing and rentinated with fultry blasts, which are followed by a troop of terrible attendants, epileptics, appoxelles, violent fevers, obtinate aces, and lingering, painful dysenteries, still more obtinate and mortal. War and treafon seem to be the only employment of this horrid people, whom heaven has separated, by almost impassable deserts, from the rest of mankind, confining them to an accursed spot, seemingly to give them earneft in time (as Mr. Bruce forebodes) of the only other worfe which he has referred to them for an eternal hereafter.

The drefs of Sennaar is very simple. It consists of a long skirt of blue Surat cloth called Marouty, 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 dress; that of the women covers their neck altogether, being buttoned like ours. The men have sometimes a fah tied about their middle; and both men and women go bare-footed in the house, even those of the better sort of people. Their floors are covered with Perlian carpets, especially the women's apartments. In fair weather, they wear sandals; and without doors they use a kind of wooden patten, very neatly ornamented with shells. In the great heat at noon, they order buckets of water to be thrown upon them instead of bathing. Both men and women anoint themselves, at least once a day, with camels' grease mixed with ivy, which they imagine softens their skin, and preserves them from cutaneous eruptions, of which they are too fearful, that the smallest pimple in any visible part of their body keeps them in the house till it disappears; for the same reason, though they have a clean shirt every day, they use one dipt in grease to lie in all night, as they have no covering but this, and lie upon a bull's hide, tanned, and very much fastened by this constant greasing, and at the same time very cool, though it occasions a smell that no washing can free them from.

The principal diet of the poorer is millet, made into bread or flour. The rich make a pudding of this, toasting the flour before the fire, and pouring milk and butter into it; besides which, they eat beef, partly roasted and partly raw. Their horned cattle are the largest and fattest in the world, and are exceedingly fine; but the common meat sold in the market is camel's flesh. The liver of the animal, and the spare rib, are always eaten raw through the whole country. Bruce never saw one instance where it was dressed with fire; it is not then true that eating raw flesh is peculiar to Abyssinia; it is practiced in this instance of camels' flesh in all the black countries to the westward. Hogs' flesh is not sold 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 first is at El-ace, the capital of that country, from which the Shillook came. The Bahar el Abiad spreads...
fpreads 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-aiace. The inhabitants are all fishermen, and have a number of boats, like canoes, in which they sail 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 Denguis-Sibber. It must be a relation of the Mek of Sennaar that commands at El-aiace; and he is never suffered to leave that post, 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 feems 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 Abou Kalee 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 nearest to Dar-Fowr, 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-aiace 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 feems 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 case with Dongola, whose Mek they continue; also with Wed Ageeb, prince of the Arabs, whom they subdued; and such was the case with Fazuelo, Wed Abood, Jibbel Moia, 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 light naked, having no other armour but a short javelin and a round shield, very bad troops, as Bruce lappees; about 1800 horse, all black, mounted by black slaves, armed with coats of mail, and without any other weapon but a broad Sclavonian sword. These, he lappees, 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 mulek 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 dyentery, 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. Intermittent 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 this it does almost without exception. Epilepsies and feverish livers are likewise very frequent, owing, as is supposed, to their defeating or diminishing perspiration, oroppersing the pores by constant unctun, as also by the quantity of water they deluge themselves with at the time it 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 likewise said this disease never broke out in Sennaar, unless 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-aiace, those of the Nuba and Guha, that live in mountains, all the various species of slaves that come from Dyre and Tegla, and from time immemorial have known a species of inoculation which they call Tiftberee el Jidderee, 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 many the is to tell 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 pulules 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 manufactures, 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, ostritch feathers, and, above all, in slaves or glads, more of which was exported from Sennaar than all the sail of Africa together. But this trade is almost destroyed, so is that of the gold and ivory. However, the gold still keeps up its reputation of being the purest and finest in Africa, and therefore bought at Mocha to be carried to India, where it all at half centers. If the wakea 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-slaves, at a medium, may be about a wakea per head at Sennaar. There are women, however, who sell for 15 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 caravan
caravan comes now from Sudan (Nigritia) to Sennaar, nor from Abyfimia or Cairo. The violence of the Arabs, and the faithless deeds of the government of Sennaar, have hurl them up on every side but that of Jidda, whether they go once a-year by Suakem.

The wakas of Sennaar, by which they fell gold, civet, scented o ils, &c. consigns of 10 drachms; 10 of these wakas make a Rotol. This waka at Sennaar is accounted the fame as that of Mafuah and Cairo. It is equal to 7 drachms 57 grains troy weight.

1 Rotol = 10 Wakeas.
1 Wakea = 10 Drachms.

But there is another waka used by the merchants called the Atareyas.

1 Rotol = 12 Wakeas.
1 Wakea = 12 Drachms.

But this is only used for coarse goods. There is but one long measure in Sennaar, called the Draa, 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. Ponset 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 upon the situation given it by Ponset, 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 masters.

The town of Sennaar is very populous, there being in it many good houses after the fashion of the country. Ponset 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 Ponset was there, a week of conflagrant rain happened, and on the 30th of July the Nile increased violently, after loud thunder, and a great darkens to the south. The whole stream was covered with wrecks of houses, canoes, wooden bowls, and platters, living camels and cattle, and several dead ones pulled Sennaar, hurried along by the current with great velocity. A hymen, 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 riving several feet high, the walls melted, being clay, which occasioned several of them to fall. It seemed, by the floating wreck of houses that appeared in the stream, to have destroyed a great many villages to the southward towards Fazuola.

It will not be thought surprising, considering the latitude of Sennaar, that the heats should be excessive. The thermometer rises in the shade to 119°. 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' 50'. E. long. 33° 20' 30". For further particulars relating to this city see the preceding article.

SENNERAT, an island near the W. coast of West Greeneland. N. lat. 61° 28'. W. long. 47° 35'.

SENNERUS, Daniel, in Biography, an able and learned physician, was born at Breilaw, 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 Leipzic, Jena, 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 affirn it 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 assistance 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 poor sick. George I., elector of Saxony, whom he had cured of a dangerous illness in 1626, 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 Consequenti et Diffusii Galenicorum et Peripeteticorum cum Chymicis," 1619, may be said to have introduced a new field 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;"

SENNIT, (of senn and spin,) a sort of flat, braided corset, formed by plaiting five or seven rope-yarns together. This is beaten smooth and flat with a hammer, and serves to keep the ropes to which it is applied from getting out.

SENNONE, in Geography, a small island in the Mediterranean, near the coast of Naples. N. lat. 41° 3'. E. long. 11°.

SENO, 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.S.E. of Cama Grande.

SENONALY, a town of Bohemia, in the circle of Rakonitz; 5 miles W.S.W. of Rakonitz.

SENONCA, a town of Naples, in Lavora; 43 miles W. of Cuma.

SENONCHES, 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 Chateauneuf. The place contains 1856, and the canton 7541 inhabitants, on a territory of 205 kilometres, in 12 communes.

SENONE, a river of France, which runs into the Meuret, 5 miles S.E. of Nancy.

SENOVES, a town of France, in the department of the Voges, and chief place of a canton, in the district of St. Die; 9 miles S.W. of Salem. The place contains 1589, and the canton 10997 inhabitants, on a territory of 215 kilometres, in 19 communes.

SENOSES, in Ancient Geography, a people of Gallia Celica, who occupied nearly the whole extent of the diocese of Sens and that of Auxerre, according to the ancient divisions of France. According to Caesar, they were confined to Belgica. This author lays of them: "eit civitas in primis firma, et magne apud Gallos autoritatis."—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 Leuconeans in Etruria, they passed the Alps in a numerous body, and traversed the plains watered by the Po, where other Gauls were already established, and arrived on the other side of the river, in Umbria, still occupied by its ancient inhabitants. They established themselves from the Utii as far as the Ætii, 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 Clusium, to besiege that place, where his wife and her relations were. The Romans, whose mediation was refused, took part with the inhabitants of Clusium, and joined the troops of that city. The Senones were indignant, and determined to do themselves justice. Accordingly they marched towards Rome, and penetrated into the city, in defiance 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 100 years after this expedition they engaged in a war, and were overpowered in the year 485 B.C., by M. Curios Gentialis and P. Cornelius Rufinus. They were afterwards driven from the whole country which they occupied, from the Ætii to the Rubicon. A colony was sent into their country, which affirmed the name of "Sena Gallia." Seven years afterwards they were almost entirely exterminated by Dola-bella.

SENOPOLE. See SinoPole.

SENONAE, in Geography. See Sona.

SENONIAE, in Botany, a name by which some authors have called the banana-tree, or mufa frutus brevire.

SENOSEZ, in Geography, a town of Bohemia, in the circle of Czaffau; 20 miles S.S.W. of Czaffau.

SENOSECZ, or Sennoesch, a town of Carniola; 8 miles S.W. of Cirkuitz.

SENRa:A, SENRæA, or Serra, in Botany, a genus of Cavanilles, upon which different authors have bestowed the above appellations. None of these, however, seem satisfactory, for it has been suggested, that SERRA would be a preferable name to any of the foregoing. We are ignorant of its derivation.—Cavan. Diff. 2. 83. "Wild. Sp. Pl. v. 3. 695. Juff. 274.—Clafis and order, Monandphilia Decandria. Nat. Ord. Malvaceae, Juff."


Described by Cavanilles from a dried specimen, which was communicated to him by Sir Joseph Banks. It appears to be allied both to Malva and Gephyrum.

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 archbishop, 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 pofts N.N.W. of Dijon. The place contains 16,500, and the canton 21,847 inhabitants, on a territory of 2573 kilometres, in 33 communes. N. lat. 48° 1'. E. long. 4° 28'.—Alfo, a town of France, in the department of the Ile and Vilaine; 14 miles N.E. of Rennes.—Alfo, a town of France, in the department of the Saone and Loire; 7 miles N.N.E. of Loutham.

SENSABARY, a town of Bengal; 20 miles N. of Nulli.

SENSAON,
SENSAON, 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 sickness, 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 points poising nerves cause pains of all kinds and degrees. Thus seeing, hearing, smelling, tasting, and touching; hunger and thirst, sickness, feeling, &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 five senses, 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 dependance 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, 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 conceptions 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 distinguished 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 signification, 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 the word feeling, taken in this last sense, and sensation, there may be this small difference; that sensation is most 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 affections, our moral judgments, and our determinations in matters of taste, to which the word sensation is least 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 cause is the same 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 conjunct with them. Sensation, says this author, to 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 accompanied 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 signified 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 Ideas, 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 Raftenburg. N. lat. 52° 44'. E. long. 21° 23'.

SENSE. Senses, in Physiology and Anatomy, the or-
SIE.

gons 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 five in number, viz. the eyes, ears, nose, tongue, and skin; for the anatomical and physiological account of which, we refer to these articles. These are often called the external senses; while the internal organs, the parts of the brain which are concerned in knowing and reflecting, have sometimes been called the internal senses. 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 raised in the mind, he calls sensations.

Senses, 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 reasons, 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; as 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, feeling and hearing denote the different powers of receiving the ideas of colours and sounds. And though colours, as well as sounds, have vast differences amongst 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. 8vo. 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 classes are these five forts: viz. colours, sounds, tastes, smells, cold, or heat. Some ingenuous authors reckon more: these we may call the proper ideas of sensation. System of Moral Philosophy, vol. 1. 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. pleasant or beautiful forms of natural things, and pleasant 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 imagine they should; the presence of some objects necessarily pleases us, and the presence of others as necessarily displeases us; nor can we by our will any otherwise procure pleasure, or avoid pain, than by procuring the former kind of objects, and avoiding the latter. By the very frame of our nature, the one is made the occasion of delight, and the other of dissatisfaction. In effect, our sensitive perceptions are pleasant, and painful, immediately, and without any knowledge of the cause of this pleasure and pain, or of the manner how they arise, or of the circumstances of it, or without our seeing to what farther advantage, or detriment, the use of such objects might tend. Nor would the most accurate knowledge of these things vary either the pleasure, or the pain, of the perception; however it might give a rational pleasure, distinct from the sensible; or might raise a distinct joy, from prospect of farther advantage in the object, or another aversion, from apprehension of evil. There is scarcely any object which our minds are employed about, but is conjoined the necessary occasion of some pleasure or pain. Thus, we shall find ourselves pleased with a regular form, a piece of architecture, or painting, a composition of notes, 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, 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, perceivable by the other senses, without relation to the ideas 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 not for the convenience of distinguishing them from other sensations of seeing and hearing, which men may have without perception of beauty and harmony. Huchefon'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, miniflering to the several manners of sensation, see Eye, Ear, Nose, &c.

Pliny observes, that of all the senses, feeling and tasting are those which man enjoys in the greatest perfection. As to seeing, he says, he is excelled by the eagle, &c.; as to smelling, by the vulture, &c.; and as to hearing, by the mole, even when hid under ground.
The senses have been sometimes found greatly sharpened and improved by diseases. Mr. Boyle mentions a gentleman, who, during a distemper he had in his eyes, had his organs of sight brought to be so sensible, that when he waked in the night, he could, for a while, plainly see and distinguish colours, and other objects; and the same author gives an instance of another person, who, after getting half-fuddled with claret, if he waked in the night, could see for some time to read a moderate print.

Grimaldi tells us, that some women of Megara were able by their eyes alone to distinguish between eggs laid by black hens, and those by white ones. Grimald. de Lum. & Col.

In the Philosophical Transactions, No. 312, we have an account of Dan. Frazer, who continued deaf and dumb from his birth to the seventeenth 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 speak.

Dr. Reid, in his second Essay, suggests a variety of methods, by which our senses may be improved, as they give us information of things that concern us. Our original powers of perceiving objects by our senses admit of great improvement by use and habit; but, besides, there are various ways in which our senses may be improved, or their defects remedied by art; as by a due care of the organs of sense, that they be in a sound and natural state; by accurate attention to the objects of sense; by additional organs or instruments contrived by art; and by discovering the connection which nature has established between the sensible qualities of objects, and their more latent qualities.

Dr. Reid suggests, that the fallacy of the senses has been a common complaint among philosophers, both ancient and modern; and this, he thinks, is founded on a common error, to which another has been added, that our use of reason is to detect the fallacies of sense. In his opinion, there is no more reason to account our senses fallacious, than our reason, our memory, or any other faculty of judging which nature hath given us. They are all limited and imperfect, but wisely suited to the present condition of man. We are liable to error and wrong judgment in the use of them all, but as little in the information of sense as in the deductions of reasoning; and the errors we fall into, with regard to objects of sense, are not corrected by reason, but by more accurate attention to the information we may receive by our senses themselves.

Sense, Moral, is a determination of the mind to be pleased with the contemplation of those affections, actions, or characters, of rational agents, which we call good or virtuous.

This moral sense of beauty in actions and affections, may appear strange at first view; some of our moralists themselves are offended at it in Lord Shaftesbury, as being accustomed to deduce every approbation, or aversion, from rational views of interest. Our gentlemen of good taste can tell us of a great many senses, tastes, and relishes for beauty, harmony, imitation in painting and poetry; and yet we do not find, too, in mankind a relish for a beauty in characters, in manners? The truth is, human nature does not seem to have been left quite indifferent in the affair of virtues, to form to itself observations concerning the advantage of each, and disadvantage of actions, and accordingly to regulate its conduct. The weakness of our reason, and the avocations arising from the infirmities and neceties of our nature, are so great, that very few of mankind could have framed those long deductions of reason, which may shew some actions to be, in the whole, advantageous, and their contraries pernicious.

The Author of nature has much better furnished us for a virtuous conduct than our moralists seem to imagine; by almost as quick and powerful instructions, as we have for the preservation of our bodies; he has made virtue a lovely form, to excite our pursuit of it; and has given us strong affections, to be the springs of each virtuous action. Hutcheron's Inquiry, &c. See Mental and Moral Philosophy, and also Virtue.

Sense, Public, is defined by the same author to be our determination to be pleased with the happiness of others, and to be uneasy at their miseries. Thus, he says, is found in some degree in all men, and was sometimes called san- vero, or sensus communis, by some of the ancients.

Sense, Common, is a term that has been variously used both by ancient and modern writers. With sense it has been synonymous with public sense; with others it has denoted prudence; in certain instances it has been confounded with some of the powers of taste; and, accordingly, those who commit egregious blunders with regard to decorum, laying and doing what is offensive to their company, and ineffectual with their own character, have been charged with a defect in common sense. Some men are distinguished by an uncommon acuteness in discovering the characters of others; and this talent has been sometimes called common sense; similar to which is that use of the term, which makes it to signify that experience and knowledge of life which is acquired by living in society. Hor. lib. i. sat. 3. lin. 66. To this meaning Quintilian refers, speaking of the advantages of a public education: "Senfum ipsum qui communis dicitur, ubi dicit, etiam, qui non hominibus folum, fed mutis quoque animulis naturalis est, segregat?" Lib. i. cap. 1.

Dr. Reid observes, in his 6th Essay, "of Common Sense," that, in common language, sense always implies judgment, nor is the popular meaning of the word sense peculiar to the English language: the corresponding words in Greek, Latin, and probably in all the European languages, have the same latitude. The Latin words sensere, sententia, sensus, sensus, from the fall of which the English word sense is borrowed, express judgment or opinion, and are applied indiscriminately to objects of external sense, of taste, of morals, and of understanding.

Thus is the meaning which Mr. Pope has given to it; and in his epistle to the Earl of Burlington he has thus delicately upon it:

"'Tis sense that feeth, in its most common, and therefore most proper meaning, signifies judgment, our author infers that common sense should mean common judgment; as it really does.

Lord Shaftesbury has given to one of his treatises the title of "Sensus Communis," and he has introduced some criticism upon this word in Juvenal, Horace, and Seneca; after shewing in his facetious manner, that the fundamental principles of morals, of politics, of criticism, and of every branch of knowledge, are the dictates of common sense, he sums up the whole in these words: "that some moral and philosophical truths are so evident in themselves, that it
would be easier to imagine half mankind run mad, and joined
precisely in the same species of folly, than to admit any
thing as truth, which should be advanced against such natural
knowledge, fundamental reason, and common sense; and
on taking leave he adds; "and now, my friend, should you
find I had moralised in any tolerable manner, according to
common sense, and without caution, I shall be satisfied with
my performance." After citing other numerous testimonies
in vindication of common sense, as a principle of knowledge,
our author concludes with observing, that it is absurd to
conceive that there can be any opposition between reason
and common sense. To reason we ascribe two offices, or
two degrees. The first is to judge of things self-evident; the
second to draw conclusions that are not self-evident from
those that are; the first of these is the province, and the
sole province, of common sense; and therefore it coincides
with reason in its whole extent, and is only another name for
one branch or degree of reason. The first is purely the gift
of heaven; the second is learned by practice and rules, when
the first is not wanting.

Our author further observes, that the province of com-
mon sense is more extensive in refutation than in confirmation.
A conclusion drawn by a train of full reasoning from true
principles, cannot possibly contradict any decision of com-
mon sense, because truth will always be consistent with itself.
Neither can such a conclusion receive any confirmation from
common sense, because it is not within its jurisdiction.
But it is possible that, by setting out from false principles, or by
an error in reasoning, a man may be led to a conclusion that
contradicts the decisions of common sense. In this case, the
conclusion is within the jurisdiction of common sense, though
the reasoning on which it was grounded be not; and a man
of common sense may fairly reject the conclusion, without
being able to shew the error of the reasoning that led to it.

After these preliminary remarks, we observe that the term
common sense hath in modern times been used to signify
that power of the mind which perceives truth, or com-
mans belief, not by progressive argumentation, but by an
instantaneous, intuitive, and irresistible impulse; derived
neither from education nor from habit, but from nature;
acting independently of our will, whenever its object is pre-
fented, according to an established law, and, therefore,
called sense; and acting in a similar manner upon all, or at
least upon a great majority of mankind, and, therefore,
called common sense. The first among the moderns who took
notice of this principle as one of the springs of our know-
ledge, was Buffier, a French philosopher of the last cen-
tury, in a book entitled "Traité des Premières Vertez,"
and this doctrine hath lately, in our own country, been illus-
trated and maintained by Drs. Reid, Beattie, Olufuald,
and Campbell.

In order to evince that there is a real and essential
difference between this faculty and that of reason, it is ob-
erved, that we are conscious, from internal feelings, that the
energy of understanding, which perceives intuitive truth,
is different from that other energy which unites a conclu-
sion with a first principle, by a gradual chain of intermediate
relations; that we cannot discern any necessary connection
between reason and common sense; that the one is more in
our power than the other; the faculty of reasoning being
improvable by culture, whereas common sense, like other
influences, arrives at maturity with almost no care of ours,
and it is impossible to teach common sense to one who wants
it; though this, like other influences, may languish for want
of exercise; and that a distinction, similar 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 science. All sound reasonings,
it is said, must ultimately rely on the principles of com-
mon sense; that is, on principles intuitively certain, or intuitively
probable; and, consequently, common sense is the ultimate
judge of truth, to which reason must continually act in
subordination. Thus the advocates for this faculty, as an
original and distinct power of the human mind, align to it
a very extensive empire, and an authority that is suprême and
absolute. And they have proceeded so far as to sublimate,
in the room of Mr. Locke's abstraction, this faculty as the
characteristic of rationality. To this they refer the evidence
of mathematical truth, of external and internal sense, of
memory, of reasoning from the effect to the cause, of prob-
able or experimental reasoning, of analogical reasoning,
of faith in testimony, and, indeed, of all primary truths.

To common sense, therefore, all truth must be conformable;
this, they say, is its fixed and invariable standard. And
whatever contradicts common sense, or is inconsistent with
that standard, though supported by arguments that are
deemed unanswerable, and by names that are celebrated by
all the critics, academics, and potentates on earth, is not
truth, but falsehood. In a word, the dictates of common
sense are, in respect to human knowledge in general, what
the axioms of geometry are in respect to mathematics: on
the supposition that these axioms are false or dubious, all
mathematical reasoning falls to the ground; and on the
supposition that the dictates of common sense are erroneous
or deceitful, all truth, virtue, and science, are vain.

And hence it appears, that, according to this system, common
sense is not only the test of truth, but the standard of moral
obligation.

Dr. Priestley, in his attack upon this system, has charged
the abettors of it with an unnecessary innovation in the re-
ceived use of a term; as no person ever denied that there are
self-evident truths, and that these must be assumed as the
foundation of all reasoning. But they also recommend par-
ticular positions as axioms, not as being founded on the per-
ception of the agreement or disaffection of any ideas,
which is the great doctrine of Mr. Locke, and which makes
truth to depend upon the necessary nature of things, to be
absolute, unchangeable, and everlasting; but merely some
unaccountable instinctive persuasions, depending upon the
arbitrary constitution of our nature, which makes all truth
to be a thing that is relative to ourselves only, and conse-
quentially to be infinitely vague and precarious. This system,
he says, admits of no appeal to reason, properly considered,
which any person might be at liberty to examine and dispro-
but, on the contrary, every man is taught to think himself
authorized to pronounce decisively upon every question,
according to his present feeling and persuation; under the
notion of its being something original, instinctive, ultimate,
and incontrovertible, though, if freely analyzed, it might
appear to be a mere prejudice, the offspring of mistake.
Some of the maxims which they have adopted as self-evident
truths, and which they have multiplied without necessity,
are so far from being self-evident, that, in the judgment of
many sober and candid enquirers after truth, they are not
true, but capable of a satisfactory refutation.

At the same time, since no man can pretend to any natural
right to fix the principles of faith for another, they teach un-
believers, and by their example authorize them, to reject
the principles of religion by the same summary and super-
ficial processes, as what appear to them to be, at first sight,
too absurd and ridiculous to be admitted as true and divine.

Dr. Priestley apprehends, that the inconveniences above-
mentioned, may attend even the calling of that faculty by
which we discern truth by the name of sense. By this term,
philosophers
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 determi-
nations of this new principle of common sense be fo instanta-
neous, irresistible, and infallible, as Dr. Reid, Dr. Beattie, and
Dr. Ofwald represent, how can we account for all the
error there is in the world? Not to add, that this syllem,
in its practical influence, tends to prevent the exercise of
free and unrestricted enquiry, with regard either to truth or
duty; and to promote, in many cases, the extravaganties 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 un-
noticed by the writers above cited, by maintaining that the
understanding is the source of many of our most important
fimple ideas (see IDEA), has secured all the flattering ad-
vantages of the new doctrine of common sense, without the
capital inconveniences attending it. Like this syllem, 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 fubjeft, which is
maintained to be as evident as the truth of the geometrical
axioms, 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 feme, 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 fuch, the principles of morality become
part of this fyllem of neceflary, 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 whatever; as much fo as the truth of the
axiom above-mentioned, or of the proposition, that two
and two make four.

It is added, that thefe writers feem even to have bor-
rowed their language, as well as their ideas, from Dr. Price,
who also ufed the term common feme, though applied in a
different manner. Reid's Enquiry into the Human Mind
on the Principles of Common Senfe, 8vo. ed. 2. 1765.
Reid's Eflays, above cited. Beattie's Eflay on the Nature
and Immortality of Truth, 8vo. ed. 2. 1771. Ofwald's
Appeal to Common Senfe in behalf of Religion, 8vo. ed. 2.
1768. Campbell's Philosophy of Rhetoric, 8vo. 1776,
vol. i. p. 109. &c. Priestley's Examination of Reid,
Beattie, and Ofwald, &c. 8vo. 1774. For a farther ac-
count of this fyllem, see ABSTRACTION and IDEA.

SENSE, in Geography. See SENSE.

SENSIBILITY, in Phvsiology, the power of receiving
an impression, and transmitting it to the brain, fo as to cause
fenfation or feeling. The queftion whether any part be fen-
sible is, therefore, whether by acting on it in any way, feel-
ing can be excited. Sensibility in this, its common accepta-
ton, obviously refers to the internal feeling or act of con-
ciounfefs resulting from its exercise. Some physiologists
have ufed the word in a more extenfive fense, to denote all
impressions produced on our organ, even thofe which are not
felt; as that of the blood on the heart, the food on the
alimentary canal, &c. They call the former animal sen-
sibility, becaufe it is peculiar to living beings; and they dif-
tinguifh the latter by the name organic, as it belongs to thofe
parts where motions are involuntary, and which confiftute
the automatic or organic life. See LIFE.

Roufseau has given the word fenfibibility a place among
French medical feiences. The foul of the companion fhould
furnifh ideas, the performer fhould be gifted with feeling in
their expr effion, and the audience fhould be capable of being
impressed with the beauties and defcfs of the music which is
executed for their amufement.

SENSIBLE Horizon, Point, and Qualities. See the
Subfubtatives.

SENSIBLE Note. See Note, Sensible.

SENSIBLE Fluid. Some have imagined a fensitive
fluid as the principle that ferves animals from corruption,
and to which we owe our fenfation and motion. This animal
fluid paffes 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 fenfation. This fenfitive fluid is,
according to M. Le Cat, capable of thinking, and is so mo-
dified 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 moft operations, which are
Abridg. vol. ii. p. 481.) But all thefe attempts to account
for fenfation and thought, from the properties of matter,
feem to be very desperate undertakings, not to fay absurd.

SENSITIVE Plant, in Botany. See Mimoso.

The fensitive plant is sufficiently known to the world for
its remarkable property of refting 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
caufe. See LEAF.

Mr. Hook, indeed, has made fome conjectures about it;
but the greateft light that has been given into the thing, is
from the inquiries which Meffrs. Du Fay and Du Hamel,
gentlemen of the Academy of Sciences at Paris, concerted
and afterwards made separately on different plants, or at diftrent times, that each might be able to correct the
errors of the other.

Botanic writers mention many kinds of fensitive plants,
some of which contract at a touch, others with heat, others
with cold. The truth is, many, if not moft, vegetables ex-
and their flowers, down, &c. in warm fun-thiny weather,
and again clofe them towards evening, or in rain, &c. espe-
cially 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 doun of dandelion, &c. and in the fower of
the pimpernel, the opening and fluttering of which are the
countryman's weather-wifer; by which, Gerard fays, he
foretels what weather shall follow the next day; for if the
flowers be clofe shut up, it betokens rain and foul weather;
if they be spread abroad, fair weather.

The structure of the fensitive plant is this; from the large
leaves, or main branches of the whole, there part off several
other leafer ones, and from these there go off others ftilf lefs,
which, by way of dilinition, may be called the ribs of the
leaves, as they serve to support a number of leaves arranged
on each fide, and fanding on fhort pedicles in pairs, over
againft one another. Several other plants have this fort of
compound leaves, as the caflia, colutea, and the like; and
all these fliut their leaves together at night, and open them
again in the morning, in the fame manner as the fensitive
plant does. This periodical opening and futting of the
leaves are therefore common to many plants, not peculiar to
the fensitive plant; but the wonder in this is, that behind
having this motion periodical and regular, it is to be brought
on
on at other times, and by accidents, there requiring no more
than the touching of the plant to make it close its leaves at any
time of the day, which it soon afterwards naturally opens
again. This is peculiar to this plant, and resembles the
action of an animal which had been injured or frightened. A
close observation of the manner in which this is per-
formed, will give many hints towards the finding of its cause.

It is a very difficult thing to touch the leaf of a vigorous
sensitive plant so lightly, as not to make it close; its sensa-
tion is extremely delicate, and its large rib or nerve, which runs
along its middle, turns it into a hinge, on which the two
halves of the leaf move when they turn upon being touched,
till they stand 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 the leaves to-
gether; and if the touch has been a very little rougher, the
opposite leaf on the same rib receives the impulsion, and
closes up in the same manner with that which was actually
touched.

Nor is this all, for when the two sides of each of these
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 angles
of their pedicles with the main rib, or stalk of the composite
leaf, less than before; and the total motion of each leaf is
composed 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
instance: 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
leaf be yet more hard and rough, the very branches have the
sensation propagated to them, and apply themselves to the
main stem, or trunk of the throb, 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 complexly
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 three 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 pedicel 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 per-
formed in a similar manner, and by a similar articulation;
this, however, is much less visible than the others.

These motions are wholly independent of another, as
may be proved by experiment. It should appear, that if the
stalks are moved, and the plant towards the branches, or
these towards the trunk, that the leaf's whole motion is
usually primary to these; it should be affected also: yet ex-
periment 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-
pposed, as that they can fall to the trunk without suffering
their leaves to touch any other part of the plant in their
passage, because, if they do, they immediately become affected.

Winds and heavy rains cause the sensitive plants to shut
up their leaves, while easy showers do not at all affect them;
it is plain hence, that the agitation of the plant by the wind,
and the frosts given by the large and heavy drops of rain,
are what cause the contraction.

By whatever accident the plant has been made to close its
leaves, it always regularly opens them again afterwards.
This, however, requires different times, according to several
circumstances, as the time of the day, the season of the year,
and the manner and degree of its vigor and healthy state of the
plant; sometimes this is done in ten minutes, sometimes it requires
half an hour; and the manner is not less different than the
time, for sometimes the leaves unfold themselves first, and
sometimes the branches, whereas sometimes all is done at
once, and the whole plant seems in motion at a time.

In endeavouring to account for the motions of this plant,
the gentlemen above named have conjectured that they are
performed by means of a figure of very nice and fine hinges,
which communicate one with another by means of very
minute and slender cords, which occasion them to act as we
see when the plant is sufficiently disturbed, and these cords
shaken; and what gives a strong probability to this con-
jecture is, that the decayed and drying leaves of the plant
perform this motion as regularly and vigorously, as those
which are fresh and full of juice.

It seems plain, that while the juices are evaporating, and
the parenchymatous substance of the leaves drying up, these
more solid parts, the lines and cordages, retain their figure;
and consequently, if it is by means of these that the motion
is always performed, it will be as well performed in these
as in the former leaves, which could not be the case were it
owing to the juices.

The natural opening and shutting of the leaves of this plant
at night and morning, are not so fixed but that they are
variable also, according to circumstances of place, tempera-
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 be-
came 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-
ing 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 affected
with the touch that when abroad in the open air.

Repeated experiments have proved, lay these philosophers,
that it is not the light of the day that opens these leaves of this
plant, nor the darkenss of the night that closes them: neither
is it the alternate warmth and cold of the day, nor the heat
on the night, that have this effect, since it fluts in nights which are much
warmer than the days, or in days which are much colder than the
nights; and the increasing heat of the plant in which it is kept, and
marking the increase or decrease of the thermometer, have been
found to have not the least effect, as to its sooner or later
opening or shutting of 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, and the bell 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
more observable in summer, and much less so when it is kept
in a close close 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

But
Mr. Ellis has described a sensitive plant, which is a native of the swamps in North Carolina, called Dionaea muscipula, or Venus's fly-trap, (see Dionaea,) and which, from his account of it, appears to be the most animated of the whole sensible tribe of vegetables. Its sensibility exists in its leaves, each of which exhibits, in miniature, the figure of a rat-trap with teeth closing on every fly or other insect that is tempted to taste 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 taste it, the leaves rise up, and incline and grasp the invader, and he is soon 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 blow or pin.

Mr. Ellis conjectures, that in the construction and modes of 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 depredations of insects. Ellis's Directions for bringing over Seeds and Plants, &c. 1770.

**Sensitive Plant, Biflard:** See Eschynomene.

**Sensitive Power.** See Mental Philosophy.

**Sensitive or Sensible Soul,** 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 sensibility; or, perhaps, because it is supposed to be material, and to come under our senses.

Lord Bacon affirms, that the sensible 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 inclosed 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 Prussia, in the palatinate of Culm; 15 miles N.E. of Thorn.

**SENSORIUM,** in Physics, 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 sensorium; of sensorial power and influence, &c. Sensoria 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 asumed 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 considers the universe as the fenforium of the godhead.

**SENTELIUS, LUDOVICUS,** in Biography, a disciple of Henry Isaac, and in 1530 appointed chapel-matuer to the duke of Bavaria. Many of his compositions are inserted in the Dodecachordon of Glareanus, with great encomiums.
He was in high favour with Martin Luther, a good judge of music; and Sebaldus Hayden, in 1540, calls him the prince of German musicians.

**SENTENCE**, in Law, a judgment passed in court by the judge upon some proofs either civil or criminal.

Sentences are either **definitive**, which put an end to the suit and controversy, and regard the principal matter in question; or **interlocutory**, which determine only some incidental matter; **contradictory**, &c.

There are sentences of abolition, excommunication, &c. Superior judges may either confirm or annul the sentences of inferior ones.

Every sentence must be in writing, on a seal, and it must be pronounced in the presence of both parties; other wise sentence given in absence of one of the parties is void.

**Sentences.** Three conformable, tres sententiae conformes. In the Roman *Ecclesiastical 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 primate, or immediately to the pope. If the appeal come from the metropolitan to the pope, the pope is obliged to delegate judges in *partibus*; and then if the three sentences palled in these three stages be conformable, there is no farther appeal; but if one of them annull 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 vexatious to private persons.

**Sentence.** In Grammar, denotes a period, or a set of words expressing some perfect sense or sentiment of mind.

Every sentence comprehends at least two words.

Mr. Harris, in his Hermes, p. 17, &c., considering that the leading powers of the soul are those of perception and volition, observes, that every sentence, in reference to those powers, will be either a sentence of assertion, 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 clearest, aptest, and fullest possible. See **Punctuation**.

In 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 subject 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, contains 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 division, 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 the rest? And if all be, the sentence will be minced into almost as many parts as there are words.

But if several adjuncts be attributed in the same manner either to the subject, or 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, Catilina, abitis, exceptis, egoquis, crate. The reason of which pointing 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; hence, 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 kinds of sentences which may be ranked amongst the conjunct kind, particularly the absolute ablative, as it is called. Thus, *Physicians, the diseafe once discovered, think the cure half wrought;* where the words, diseafe once discovered, are equivalent to, *when the cause of the diseafe is discovered.*—So also in nouns added by apposition, as, *The Scots, an hardy people, endured it all;* to also in vocative cafes and interjections, as, *This, my friend, you must allow me;* and, *What, for heaven's sake! would it 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, *Your voice, countenance, gesture, terrified him,* the several nominative cases do not 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 adject, as, *I saw a man loaded with age, sicknels, 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 are *Diffeito jutitiam monitit, & non tamere divos*; or, *A teuisa affigisere multum si, &c.*

Sentences, father Bolitó observes, render poems useful; and, besides, add I know not what luflre 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 less fit for the majesty of a poem than the study of a learned man, and the quaintness of a dogmatist. Such thoughts not only contain, but inspire a certain calm wisdom, which is directly opposite to the passions, and cools.
them both in the hearers and in the speaker. Lastly, the affection of speaking sentences leads a person to trifling and impertinent ones, inferences of which we have an abundance in Seneca's tragedies. Petronius recommends it to authors to disguise their sentences, that they may not fland glaring above the thread or ground of the discourse.

SE T E R N A R B A U R, in Geography, a cove in the N.W. part of lake Winnipiccogee.

S E N T H E N H E I M, a town of France, in the department of the Upper Rhine; 10 miles N.E. of Befort.

S E N T I C A, in Ancient Geography, a town of Spain, in the Tarragonensis, assigned by Ptolemy to the Vescavens.

S E N T I C E, a country of Macedonia, according to Livy.

S E N T I I, a people of the Maritime Alps, S.E. of the Bodanetc, mentioned by Ptolemy, who assigns to them the town of Dina.

S E N T I M E N T S, in Poetry, and particularly dramatic, are the thoughts which the several perors express, whether they relate to matters of opinion, passion, buffeur, 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 those are to the fable. In the sentiments, regard is to be had to nature and probability; a madman, for instance, must speak as a madman; a lover, as a lover; a hero, as a hero. The sentiments, in great measure, are to fulfill 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.

S E N T I N E L, G R E AT, in Geography, an island in the Eait Indian sea, about 10 miles in circumference; 20 miles S.W. from the Greater Andaman. N. lat. 11° 36'. E. long. 92° 40'.

S E N T I N E L, L I T T L E, a small island in the Eait Indian sea, about 8 miles from the Little Andaman. N. lat. 10° 59'. E. long. 92° 23'.

S E N T I N E L, C E N T R Y, or S E N T R Y, in War, a private solder placed in some post to watch any approach of the enemy, to prevent surprizes, and to stop such 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 generals officers, colonels of regiments, &c.

The word is modern; it is not long since they said, To be on the scout, in the same sense as we now say, To stand sentry, &c. Menage derives the word a fentieudo, from perceiving.

S e n t i e d pe r d u s, is a sentinel placed at some very advanced and dangerous post, whence it is odds that he never returns.

S e t i n s, in Ancient Geography, a river of Italy, in Umbria, according to Strabo and Ptolemy. Alto, a town of Italy, belonging to the Senones, S.W. of Suafa.

S E N T I N U S, a river of Italy, in Picenum.

S E N T O, in Geography, a river of Naples, which runs into the Adriatic; 3 miles S.E. of Lanciano.

S E N T O U, a town of China, of the third rank, in Se-chuen, on the river Kincha; 22 miles N.E. of Pei.

S E N T U R, a town of Egypt; 9 miles N.W. of Fayoum.

S E N U R I S, a town of Egypt, near the Birket il Kerum; 9 miles N.W. of Fayoum.

S E N U S, in Ancient Geography, a river of Hibernia, according to Ptolemy, who places its mouth on the western coast, between the mouths of the Asina and of the Dar.-Allo, a river of India, in the country of the Sinus, according to Ptolemy, who says, that it was connected with the Cetaria, at a great distance from its mouth.

S E N Z A, an Italian preposition, implying, in Music, without; as in Handel's organ concertos, when passages are to be wholly left to the violins, fensa organo implies, without the organ; fenza viola, without the tenor; fenza buffo, without the bafe, &c.

S E N Z A R S K A I , in Geography, a fortress of Russia, in the government of Tobolsk; 80 miles S. of Yalutorovsk.

S E O D A, a sea-port of Japan, on the S. coast of the island of Nippon; 105 miles E. of Mexico. N. lat. 35° 20'. E. long. 139° 10'.

S E O N, in Ancient Geography, a town of Palestine, in the tribe of Issachar, according to Joshua. Euebflus says, that in his time there was a place of this name at the foot of mount Tabor.

S E O N St. Henry, in Geography, a town of France, in the department of the Mouths of the Rhone; 4 miles N. of Narrelles.

S E Q U I I K I A N E S, a poft of Chinese Tartary, in the country of the Mongols; 23 miles S.W. of Kara Hotun.

S E P A R A B L E M O D E S. See Mode.

S E P A R A T E A F F E C T I O N. See Affection.

S E P A R A T E, Penultimate of the. See Penultimate.

S E P A R A T E I S L A N D, in Geography, a small island in the Chinise sea. N. lat. 3° 6'. E. long. 107° 45'.

S E P A R A T E D F L O W E R S, in Botany, are so called when the flumes and pistils are situated in different flowers of the same species. Hence it appears that separated flowers are conjoined to such plants as are either monocious, dioecious, or polygamous. They are termed by Luninus, Diclines. S E P A R A T O R S, among Horsethe, the teeth usually called incisors, by which the animal separates or bites off a portion of his food for chewing. See Teeth.

S E P E R A T I O N, in Navigation, the fame with what we more usually call departure.

S E P E R A T I O N, of Man and Wife. See Divorce.

S E P E R A T I O N, Waters of. See Water.

S E P E R A T I O N B a y, in Geography, a bay in the Straits of Magellan, on the coast of Terra del Fuego; 10 miles S.E. of Cape Pillar.

S E P E R A T I S T S, in Ecclesiastical History, a religious sect in England, so denominated from their setting up a separate church, different from that established by law. See Dissenters, &c.

At present, 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 served them all.

Their division into Presbyterians, Anabaptists, Independents, &c. is a more modern thing.

The Separatists, Horns us tells us, Hift. Eccl. are such as under Edward VI. Elizabeth, and James I. refused to conform to the church of England, and who were called Puritans, then Separatists, and latterly, Nonconformists.

The first leader of the Separatists was Bolton, who, upon quitting the party he had formed, was succeeded by Robert Browne, from whom the Separatists were called Brownists.

S E P E R A T O R I U M, the name of a surgical instrument used for separating the pericranium from the skull.

S E P E R A T R A X I S, in Arithmetics, denotes the point, or comma, which separates and distinguishes decimals from integers; thus, 465.32 or 465.32.
SEPAPRI, in Ancient Geography, a people who inhabited an island on the coast of Liburnia, according to Pliny.

SEPAUNAGUR, in Geography, a town of Hindoo-istan, in the circc of Bopal; 30 miles W. of Hufingabad.

SEPAUX, a town of France, in the department of the Yonne; 9 miles W. of Joigny.

SEPHELACUS, in Ancient Geography, a place of Spain, upon the route from Tarragon to Carthage, between Idlau and Saguntum, according to the Itinerary of Antoninus.

SEPHAAT, or SEPHA, a town of Palestine, in the tribe of Simeon, according to the book of Judges.

SEPHALITES. See MATZALITES.

SEPHAMA, in Ancient Geography, a town of Asia, in Syria, which served as a limit to the land of promisc, according to the book of Numbers.

SEPHAR, a mountain of the East, probably about Armenia. (See Gen. x. 30.) This mountain seems to have been the habituation of the Sepharvain and of the Suftipus, mentioned by geographers.

SEPHARVAIN, a people were brought by Shalmaneser into Palestine, to supply the place of the Israelites, whom he carried away from Samaria to a country beyond the Euphrates (2 Kings, xvii. 24. 31.) A.M. 3283. B. C. 1731. Their former habitations seem to be on the mountains of Sephar, and the Suftipus or Suftipus, who, according to Herodotus (lib. i. iii. vii.) were the only people that inhabited between the Cohelians and the Medes, were probably the Sepharvains. The Scripture speaks (Ifalal, xxxvii. 13. 2 Kings, xix. 13.) of the city of Sepharvain, which was probably the capital of these people, and the king of Sepharvain was the god of these people. See 2 Kings, xviii. 34. If. xxxvii. 13. 2 Kings, xix. 13.

SEPHIROIS, a word used by Paracelus and his followers, to express a sort of dry and hard hippomethne, or kind of fpurious ficirrhus.

SEPHIROTH, a Hebrew word signifying brightenues ; and the cabalists give the name of sephirot to the most secret parts of their science.

SEPHORIS, in Ancient Geography, a famous city of Zebulon, and the capital of Galilee; afterwards named Dioecetara; 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 bett city in Judea, and states, 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, 1. ii. c. 23. i. iii. c. 1.

SEPHOURY, or SAPPURE, 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 Dioceetaraa. Here was held one of the five judicature of Palestine. It was fortified by Herod, and destroyed in the time of Constanin, on an infurrection of the Jews. It was once much venerated as the habitation of Joachim and Anna, parents of the blessed Virgin; 12 miles N.W. of Tabarion.

SEPUL, 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 sting of a serpent, and where he was buried, according to Paulainius.

SEPUL, in Natural History, the Cuttle-fish, a genus of the Vermes-Mollufica clafs and order, of which the generic charaer is as follows; the body is fvelvy, receiving the breath in a sheath, with a tubular aperture at its base; it has eight arms, fetet with numerous warts or fuckers, and in molt species two pedunculated tentacula; the head is short; the eyes large; the mouth resembling a parrot's beak.

These animals 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 bone in the back is converted into pouche; the eggs are deposited upon sea-weed, and exactly resemble a bunch of grapes; at the moment the female deposits them they are white, but the males pass over them to impregnate them, and 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 gela- tinous fluid. There are eight species, of which five are natives of this country.

Species.

* OCTOPUS. The specific character of this species is, that the body has no tail or appendage; it has no pedunculated tentacula, 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 hatchets in their boats, to cut off the arms, should it attempt to fallen 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 illuminate a large room.

* OFFICINALIS. Body without tail or appendage, and surrounded by a ring; it has two tentacula, or longer arms. This is found on our own coasts, and also in other oceans, and is frequently the prey of the whale tribe, and of plaice; its arms are frequently eaten by the conger-ee, and are reproduced; the body scale on the back is that which is folded in the shops; and the black matter which it squirts out to darken the waters round it, and elude the pursuit 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 tentacula are four times as long as the others; they are rounded, and the tips are very broad, and furnished within with numerous suckers.

UNGUCUTA. The body of this is without a tail or appendage; the arms are furnished with hooks, and it is found in the Pacific ocean. The body is rounded behind; the arms are furnished with hooks, which are retractile within their proper sheaths instead of suckers.

HISAPUS. The body of this is tailed, four or five-pointed; arms only fix in number. This also is found in the Pacific ocean. The body is about half a foot long, and the thickens of a finger; arms furnished with very minute suckers, whichlick 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.

* LICIUS; the Calamary. The body of this is subcy- lindrical, fubulate, and furnished with a flat broad-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.

*SEPIOLA.* The body of this species has two rounded
wings or procces 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 pellucid membrane, with two semicircular wings
or procces 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.

SEPIACE, in Italian Muse, signifies that the part it is
joined to may be repeated or not, at pleasure.

SEPIAS, in Ancient Geography, a promontory of Thes-
faly, in Magnesia, at the entrance of the Pelasgic gulf,
according to Ptolemy. Cape Sepias is now the promontory
of St. George's.

SEPIUSSA, an island situated on the coast of Asia
Minor, in the Ceramic gulf, according to Pliny.

SEPOORY, in Geography, a fortress of Hindoostan,
in the circle of Gohud; 18 miles S.W. of Narwa.

SEPOU, a town of Hindoostan; 12 miles S.W. of
Agra.

SEPR, or Sippa, a river of Hindoostan, which rises
near Indore, joins the Callilind in the circle of Kitchwara,
and, united with other streams, forms the Chumbul.

SEPRIO, 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 most singular in it is, that it has four legs, with four
divided into toes; the first pair are placed very near the
head, the other by the anus; the scales are laid in a reticu-
lated manner, they are of an oblong figure, approaching to
a rhomboid, and laid longitudinally; its belly is white,
with a flight of blue, and it has no nostrils near the end of
the snout. Colonna took five living young ones out of
the body of one of this species, some of which were in-
cluded in membranes, and others loose, as is the case in the
viviparous viviparous of the whole body.

SEPT MONCEZ, 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 persons 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 tali of the ludus Helmontii, thence called by Dr. Hill,
septaria; which see.

SEPTALIUS, or SETTALA, Louis, in Biography, an
Italian physician of celebrity, was born at Milan, in Feb-
brary, 1552. 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 surprise of the audience, among
whom was the archbishop of Milan. It was now supposing
that he would follow the steps of his ancestors, both ma-
ternal and paternal, who had been much distinguished at
the bar; but his inclination led him to the medical profes-
sion, and he accordingly repaired to Pavia, for the purpose
of commencing the study of it. Here he proceeded with
the same success, and obtained the degree of doctor in his
twenty-first year, and was even appointed to a chair in this
celebrated university in his 23d year. In his professorial
capacity, though so young, he gave so many demonstrations
of his talents and acquirements, 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 historiogra-
pher. But though fully sensible of the value of this
compliment, yet neither this, nor many other more con-
genial 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 Ingolstadt; by the grand duke of Pisa,
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 still more considerable offers of both honour and
reward, laboured assiduously to bring him to the university
of Padua. But he declined all these opportunities of eleva-
tion, 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,
consisting of seven sons and five daughters, constantly afforded
him. The only honour which he accepted was the ap-
pointment of chief physician to the state 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. Septalis 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
feized with the disease. He had fearfully recovered from
this attack, when he was suddenly surprized by a fit of
apoplexy, which left him speechless, and paralytic on one
side. From this, however, he in a great measure recovered,
and lived several years afterwards, but in a state of feeble-
ness and imperfect health. He died in September 1633, in
consequence of an attack of dysentery, at the age of 81.
Septalis was a man of acute powers, and solid judgment,
and he was esteemed 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 fol-
lowing works: "In Librum Hippocratis Cui, de Aeribus,
Aquis, et Locis, Commentari quinque," 1590; "In
Arietotellis Problematum Commentaria Latina," tom. i.
1602, ii. 1607; "De Neivis Liber," 1606. In this work Sep-
talus has not displayed his usual judgment; for he accuses
the navi, or mother-sports, to the imagination of the preg-
nant mother, and deduces from their appearances many
practical inferences, which are as unfounded as the notion
of their origin. "Animadversionum et Cautiornm Medi-
carum Libri duo, septem aliis 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 Marginatis Judicio," 1618; "De Pelle et Peteliers Af-
fectibus Libri V.," 1622; "Analyticarum et Animali-
carum Differtationum Libri II.," 1626; "De Morbis ex
mucronata
SEPTANA, a word used by the ancient physicians for a febrile fever, or one that performs its regular period in seven days.

SEPTARIÆ, in Natural History, the name of a large class of fossils, called by some Ludus Helmontii, and by others the _waxen veins_. They are defined to be fossil bodies not inflammable, nor soluble in water, naturally found in loose detached malleys of a moderately firm texture and dusky hue, divided by several septa, or thin partitions, and composed of a sappy matter greatly debased by earth, not giving fire with fuel, fermenting with acids, and in great part dissolved by them, and calcined in a moderate fire.

Of these there are two distinct orders of bodies, and under those fix genera. The septarian of the first order are those which are usually found in large masses of simple uniform construction, but divided by large septa, either into larger or more irregular portions, or into smaller and more equal ones, called _talis_.

Those of the second order are such as are usually found in smaller masses of a curriated 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 fructification, is not so constant as Linnaeus seems to have imagined; hence Thunberg was induced to refer this genus to _Cras-fula_.

Loucreio has given the name of Septas to a plant in _Dich-nania Angiopteris_, which, according to professor Martyn, is allied to _Thuernbergia_.

SEPTA, in Ancient Geography, a town of Asia Minor, in Phrygia, according to Ptolemy.

SEPTEM APER, a town of the Sabines, situated on an eminence, and commanding the Rura rorea, or the fine Rolean valley. It is suppofed by the abbe Chauzi to be the present Pont Grifpoli.

SEPTEM, _Areus_, Arronches, a place of Hifpania, between Matufarum and Budia, according to Antonine's Itinerary. It was situated towards the N.W. of Emerita Angarra.

SEPTEM Fraires, a mountain of Africa, in Mauritania Tingitana. Ptolemy calls it Heptadelphus Mons, and places it on the Northern coast, between Exiliia and Abyla.

SEPTEM Maria, a name given, according to Herodian, to the marshes which were formed by the seven branches of the Eridanus, before its discharge into the Adriatic sea.

SEPTEM Pagus, the name of a plain of Italy, on the banks of the Tiber, in the country of the Veians, according to Dionysius of Halicarnassus.

SEPTEM Pada, a town of Italy, in the Picenum, according to Strabo. Frontinus makes it a Roman colony, and gives it the title of Oppidum.

SEPTEMBER, the ninth month of the year, reckoned from January, and the seventh from March, whence its name, _vix._ from _septimus_, seventh.

The Roman senate would have given this month the name of Tiberius, but that emperor opposed it; the emperor Domitian gave it his own name Germanicus; the senate under Antoninus Pius gave it that of Antoninus; Commodus gave it his surname Herculeus, and the emperor Tacitus his own name Tacitus. But these appellations are all gone into disuse.

SEPTEMES, in Geography, a town of France, in the department of the _Ile_; 9 miles E. of Vienne.

SEPTEMVIR, in Antiquity. See Quinqueviri.

The Germans sometimes use the word _septemviratus_, for the seven electors of the empire. See _Elector_.

SEPTENA, in Ancient Geography, a town of Asia Minor, in Lydia.

SEPTENTRIO, or SEPTENTRIONES, in Astronomy, a northern constellation of stars, more usually called _Urfa Minor_, or the Little Bear; and by the people, _Charles's Wain_: though the seven stars in the Great Bear have been of late fo denominated.

The word is formed from the Latin _septem_, seven; and _triones_, bullocks, which, in the ancient constellation, were yoked to the plough.

SEPTENTRIO, in Cosmography, the fame with _north_; thus called from the ancient constellation Septentrio, one of whose stars is the pôle-star. Hence also,

SEPTENTRIONAL, _Septentronics_ something belonging to the north; as _septentrionalis_, _septentrionalis_, &c. are those on the northern side of the equator.

SEPTEORION, _Septoerion_, in Antiquity, a Delphic festival, celebrated every ninth year, in memory of Apollo's victory over Python. The chief part of the solemnity was a representation of Python pursued by Apollo.

SEPTEUILL, in Geography, a town of France, in the department of the Seine and Oise; 9 miles N.W. of Montfort.

SEPTEOIL, in Botany. See _Tormentil_.

SEPTEOAINS, in Geography, a town of France, in the department of the _Lot_; 16 miles N.E. of Montauban.

SEPTEOILS, in Ancient Geography, a name, or rather an epithet, given to the city of Rome.

SEPTICS, among Physicians, an appellation given to all such substances as promote putrefaction.

From the many curious experiments made by Dr. Pringle to ascertain the leptic and antileptic virtues of natural bodies, it appears that there are very few substances of a truly leptic nature. Those commonly reputed such by authors, as the alkaline and volatile salts, he found to be no wise leptic. However, he discovered some, where it seemed
leat likely to find any such quality: these were chalk, common salt, and teftaceous 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 teptic 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 resolved into a perfect mucus in a few days.

To try whether the teftaceous powders would also diffuse 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 four; 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 tea-falt a halfaller of putrefaction; but the fact is this: one drachm of salt prefers 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 halen 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 aliment beyond the proportion of the corrupting qualities, it would appear that it is subservient to digestion, chiefly by its teptic 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 Difeases of the Army, p. 348, seq. See Salt and Scurvy.

From some experiments of Mr. Canton, it appears like-wise, that the quantity of salt contained in sea-water hafens 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.

SEPTIEME. Fr. Septima, Lat. Setima, Ital. the seventh.

Broffard has been the guide of all subsequent musical lexicographers. He has been very awkwardly translated by Graffen鸢; Graffen鸢 has been followed in the last folio edition of Chambers; and Roufseau, who writes clearly and elegantly, has retained the mixture of theory, ratios, and the rules of jargon of major and minor tones and semi-tones, in practice, so 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 inversions 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 semitones above the base; and the extreme flat 7th, only nine half notes above the base or lowest note, as B b, B, and F. b, F.

In counterpoint and thorough-bass, the 7th is accompanied by the ♯, 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 7th of its title of fundamental.

The 7th in binding 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; but to his instructions for 7ths prepared and resolved in the base, p. 37 of the text, we cannot subscribe. See PEPSUCH, 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 sensible, till about the middle of the last century, was only used in recitative; 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 frequently indicated by a ♯, a sharp 7th; but different masters frequently use the following numerical expressions of this chord; ♯, ♯, ♯, ♯, and ♯. Its origin is an appoggiatura organized.

The extreme flat 7th gives what has been termed by Rousseau the enharmonic chord, consisting 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 ♯ ♯ ♯, ♯ ♯ ♯, B ♯ ♯ give 36 modulations. See Music Plates, and Inter vals, Chords, Modulation, and Counterpoint.

SEPTIEME, or SETTIER, 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 vell 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 boiffeaux, and 12 feptiers are a muid. The boiffeau contains 16 liters. A muid of wheat weighs about 2880 lbs. poids de marc; and a septier, 3240 lbs. But a muid of oats contains 24 septiers. The boiffeau is a cylinder 8 inches 2½ lines in height, and 10 inches in diameter; its contents are, therefore, 4.44 French cubic inches, or 780 English ditto; hence 11 septiers of Paris are = 6 English quarters, and 11 boiffeaux = 4 English bushels. A muid of salt contains also 12 septiers, and a septier, 4 minots, 16 boiffeaux, 256 liters, or 4096 meunetres, weighing about 4000 lbs. poids de marc, or 432 lbs. avoirdupois. At Abbeville 18.87 septiers are equal to 10 English quarters, and each septier is 9564 cubic inches.
SEP

inches. At Amiens, 85.79 septiers = 10 English quarters, and each septier = 2005 cubic inches. At Arles, 47.40 septiers = 10 English quarters, and each septier = 5628 cubic inches. At Boulogne, 16.52 septiers = 10 English quarters, and each septier = 10,535 cubic inches. At Calais, 16.95 septiers = 10 English quarters, and each septier = 10,144 cubic inches. At Cette, 42.98 septiers = 10 English quarters, and each septier = 4002 cubic inches. At Lige, 9.14 septiers = 10 English quarters, and each septier = 1827 cubic inches. At Montpellier, 53.21 septiers = 10 English quarters, and each septier = 3232 cubic inches. At Nantes, 19.68 septiers = 10 English quarters, and each septier = 8739 cubic inches. At Paris, 18.38 septiers = 10 English quarters, and each septier = 9350 cubic inches. At Rouen, 15.75 septiers = 10 English quarters, and each septier = 10,920 cubic inches. At St. Valery, 18.38 septiers = 10 English quarters, and each septier = 9350 cubic inches.

The septier is also a liquid measure at Paris and in other parts of France, and at Geneva. A muid of wine at Paris and in some other parts of France, contains 35 septiers, 144 quarts or pots, or 288 pints, and 280 pints without the lees. The pinte contains 2 chopes, 4 demi-septiers, or 8 poillons, in all 47½ French cubic inches, or 573 English ditto; so that a French pinte is nearly equal to an English quart; and a muid of wine contains 7½ English gallons.

At Geneva, the char, wine measure, contains 12 septiers; the septier, 24 quarters, or 48 pots; and the septier is = about 12 English gallons; 8.37 septiers are = 100 English gallons wine measure, and each septier = 2769 cubic inches.

SEPTIMANCA, SIMANCAS, in Ancient Geography, a town in the interior of Hispании Citerior, belonging to the Vassalions. In the Itinerary of Antonine it is marked on the route from Emerita to Saragossa, between Almaboba and Nivaria. It was situated on the Durias, S. of Pallentia.

SEPTIMENI. See SEPTUMI.

SEPTIMINicia, a town of Africa Propria, upon the route from Thence to Allure, between Madalama and Tabalta, 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 insulated building, with seven stages 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 name 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 Thermes of Antoninus.

SEPTUAGESIMA, in the Calendar, denotes the third Sunday before Lent, or before quadragesima; and quinquagesima is the next before quadragesima, then vexagesima and septuagesima: these were all days appropriated by the church to acts of penance and mortification, by way of preparing for the devotion of the Lent ensuing. It is supposed by some 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 Canutus ordained a vacation from justice, from septuagesima to quinquagesima. (See Quinquagesima.) From septuagesima to the octaves after Easter, marriage is forbidden by the canon law.

SEPTUAGINT, LXX, or the Seventy, a term famous among divines and critics, for a version of the Old Testament out of Hebrew into Greek, said to have been performed by seventy-two Jewish interpreters, in obedience to an order of Ptolemy Philadephus.

The ancients, till Jerom's time, univerally believed, that the Seventy were inspired persons, not mere translaters, grounding their belief on a fabulous history of this version given by Arittea; 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 six 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. Hody, "De Bibliorum Textibus Originalibus, " &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 Arittea; 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 Isiah, 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 Connex. vol. iii. p. 38, &c. Brett's Dissertation on the ancient Version of the Bible, published in Bishop Watson's Collection of Tracts; Dupin'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 the latter.

The critics are much divided as to the point of preference. Baronius prefers the account of the Seventy; and If. Vossius makes an apology for it. The two late and most intelligent advocates in this dispute, are father Pezron, a Bernardine, and father Le Quien, a Dominican; the first 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 Septum Auricularum in the heart is placed between the two auricles. See HEART.

SEPTUM Cerebri and Cerebelli, the falciform processes of the dura mater. See BRAIN.
SEPTUM Cordis or Ventricleorum, the partition between the ventricles of the heart. See Heart.

SEPTUM Lucidum, the part interposed between the two lateral ventricles of the brain. See Brain.

SEPTUM Narii, the partition between the nostrils. See Nose.

SEPTUM Penesforma Penis. See the description of the penis under Generation.

SEPTUM Serotii. See Generation.

SEPTUM Thoracis, the mediastinum, which forms the partition between the two sides of the chest. See Lung.

SEPTUM Transversum, or Musculares, the diaphragm. See Diaphragm.

SEPTUMANI, in Ancient Geography, a people of Gallia Narbonenis, who inhabited the town of Bitera, according to Pliny. In process of time a province of their territory was denominated Septimania.

SEPU, in Geography, a town of Asiatic Turkey, in the government of Sivas; 40 miles S. E. of Sivas.

SEPULCHRAL, SEPULCHRALS, something belonging to sepulchres or tombs.

SEPULCHRAL Columna. See Column.

SEPULCHRAL Inscriptions, are the funereal monuments we have of antiquity.

SEPULCHRAL Lamps. See Lamp.

SEPULCHRAL, or SEPULCHRALS, is also the appellation of a sect; thus called from their supposed principal error, which was, that by the word hell, whither the Scripture tells us Jesus Chri$t descended after his death, they understood no more than his grave or sepulchre. See Hell.

SEPULCHRALS Pecunia. See Pecunia.

SEPULCHRE, SEPULCHRAM, a tomb, or place, defined 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 superstitious opinion, that the souls 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 obelisks had generally the same intended use.

Sepulchres were held sacred 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. Those who searched or violated them, have been odious to all nations, and always severely punished.

The Egyptians call their sepulchres eternal houses, in contradistinction to their houses and palaces, which they called inner; by reason of the short sojourn we have in the one, in comparison of our long stay in the other. The Eastern pilgrimages are all made with design 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 denomination to an order of regular canons, anciently instituted in Jerusalem, in honour of the holy sepulchre.

They ascribe their institution to Godfrey of Boulogne, who, they say, upon his taking Jerusalem in the year 1099, placed canons in the patriarchal church of the Holy Sepulchre, which indeed is true, but then they were not regulars.

In effect, it was Arnoul, who, of archdeacon of the church of Jerusalem, got himself elected patriarch of that, in 1114, first 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 John, a Polish gentleman; and into Flanders by its counts.

But the order was afterwards suppressed by Innocent VIII., and its effects given to that of Our Lady of Bethlehem, which itself sealing, they were bellowed, in 1484, on that of the knights of St. John of Jerusalem; but the suppression did not take place in Poland, nor in several provinces of Germany, where they still subsist; their general is in Poland; their habit, rather Heliot observes, has been different in different places.

SEPULCHRE, St., or the Holy Sepulchre, is also the name of a military order, established in Palestine, as some say, by Godfrey of Boulogne, but according to others by his successor, Baldwin.

However, it is certain there were none but canons in the church of St. Sepulchre till the year 1114; and it is no more than probable, the knights were only instituted upon the ruins of the canons, four hundred years after, and that by pope Alexander VI. in order to excite rich and noble persons to visit the holy places, by giving them the title of knights of the Holy Sepulchre, and to this end, instituting an order under that name, of which he reserved the quality of master to himself and his successors.

Leo X. and Clement VII. granted to the guardian of the religious of St. Francis, in the Holy Land, the power of making these knights; which power, first granted vivae voce, 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 master, and afterwards his son; but the grand master of the order of Malta prevailed on him to resign; and when afterwards the duke Nevers assumed the same quality in France, the same grand master, 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 Pretium. See Pretium.

SEPULVEDA, JOHN GESMUS, in Biography, an eminent Spanish divine, born in the diocese of Cordova in 1491. He became distinguished for his knowledge of law, philosophy, and divinity, and was, on account of his great learning, nominated by the emperor Charles V. historiographer and theologian. His name 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 cause 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
the Indies. He presented his work to the royal council, and earnestly requested permission to print it. He was refused, and applied to some friends in the emperor's court. Las Cafas, who was returned from the Indies, persuaded that the book would encourage the cruelties of which he complained, opposed the printing. The royal council, regarding the subject as of a theological rather than as of a political nature, referred it to the universities of Alcalá and Salamanca, both of which pronounced that it ought not to be committed to the press. The author, determined if possible to carry his point, sent his book to Rome, where it was printed. The emperor, informed of his intention, sent express orders to prohibit its circulation, and caused the copies to be seized: some of them, however, had already reached Spain. Las Cafas thought it necessary to make a reply in defence of the poor Indians. The emperor at length cited the parties before the council of the Indies, and sent Domínic Soto to arbitrate between them. He heard the arguments on both sides, and made a report in favour of Las Cafas. The matter, however, remained undecided: and the good bishop had not the satisfaction to see the Indians freed from their tyrants. Sepulveda died at Salamanca, of which he was a canon, in 1572. Besides the works above-mentioned, he was author of various tracts, theological and controversial, which were printed collectively at Cologne in 1602.

Sepulveda, in Geography, a town of Spain, in Old Calilé, on the river Duraton; 28 miles N. E. of Seviglia.

Sepyra, in Ancient Geography, a town of Syria, upon mount Ammonus, of which Cicero made himself master.

SEQUANA, a river which separated the country of the Gauls from that of the Belgae, according to Caesar. It is the present Seine.

Sequani, a people of Gaul. In the time of Caesar they were in Celta, but Augustus places them in Belgica.

SEQUATUR sub suo periculo, in Lawo, a writ that lies, when a summam ad warrantzandum is awarded, and the sheriff returns that the party hath nothing by which he may be summoned; then goes forth an alias and a pluries; and if he comes not on the pluries, this writ shall issue.

SEQUANG, in Geography, a town of Pegu, on the Irrawaddy, 20 miles N. of Rangoon.

Sequel, Sequela, in Logic, a consequence drawn from some preceding proposition.

As if I say, The human soul is immaterial, and therefore immortal; the last member of the sentence is a sequel of the first.

Sequence, French, from sequor, I follow, in Gaming, a series or set of cards immediately following each other in the same suit or colour.

We say, a sequence of four cards, of five, &c. At piquet, there are called tierces, quarts, quintets, &c.

Sequestration, Sequestratio, in Common Law, the act of separating a thing in controversy, from the possession of both parties, till the right be determined by course of law.

This is of two sorts, voluntary and necessary: voluntary, when it is done by consent of both parties; and necessary, being that which the judge doth by his authority, whether the parties will or not.

Sequestration, in the Civil Law, is the act of the ordinary, disposing of the goods and chattels of one deceased, whose estate no man will meddle with.

A widow is also said to sequestrate, when she disclaims having any thing to do with the estate of her deceased husband.

Among the Romanists, in questions of marriage, where the wife complains of impotency in the husband, she is to be sequestrated into a convent, or into the hands of matrons, till the process be determined.

Sequestration is also used for the act of gathering the fruits of a benefice void, to the use of the next incumbent.

Sometimes a benefice is kept under sequestration for many years, when it is of so small value, that no clergyman fit to serve the cure, will be at the charge of taking it by incumbrance; in which case the sequestration is committed either to the cure alone, or to the curate and churchwardens jointly. Sometimes the profits of a living in controversy, either by the consent of the parties, or the judge's authority, are sequestrated and placed for safety in a third hand, till the suit is determined, a minister being appointed by the judge to serve the cure, and allowed a certain salary out of the profits. Sometimes the profits of a living are sequestrated for neglect of duty, for dilapidations, or for satisfying the debts of the incumbent. And this is, where a judgment hath been obtained against a clergyman, and upon a fieri facias directed to the sheriff to deny the debt and damages, he returns, that the defendant is a clerk benefited having no lay fee. Whereupon a levari facias (see Levari) is directed to the bishop to levy the fame of his ecclesiastical goods, and by virtue thereof the tithes shall be sequestrated. (Watson, c. 15.) In this case the bishop may name the sequestrators himself, or grant the sequestration to such persons as shall be named by the party who obtained the writ. If the sequestration be laid and executed before the day of the return of the writ, the mean profits may be taken by virtue of the sequestration after the writ is made returnable, otherwise not. If an appeal be made against a sentence of sequestration, and lawfully preferred, the party sequestrated shall enjoy the profits pending the appeal. (Lind. 104.) It is usual for the ecclesiastical judge to take bond of the sequestrators, well and truly to gather and receive the tithes, fruits, and other profits, and to render a just account (Watson, c. 30.); and those to whom the sequestration is committed are to cause the fame to be published in the respective churches, in the time of divine service.

The sequestrators cannot maintain an action for tithes in their own name at the common law, nor in any of the king's courts; but only in the spiritual court, or before the justices of the peace where they have power by law to take cognizance. When the sequestrators have performed the duty required, the sequestration is to be taken off, and the profits applied according to the direction of the ordinary, and they shall be allowed out of the profits a recompense for their trouble, and also for the supply of the cure, and also for the maintenance of the incumbent and his family, if they need it. Sequestrators refusing to deliver up their charge, may be compelled to do it by the ecclesiastical judge. If the incumbent be not satisfied with the conduct of the sequestrators in the execution of their charge, his proper remedy is by application to the spiritual judge; and if he be not satisfied with his determination, he may appeal to a superior jurisdiction.

In the time of the civil wars, sequestration was used for a seizing of the estates of delinquents, for the use of the commonwealth.

Sequestration, in Chancery, is a commissio usual directed to seven persons therein named, empowering them to seize the defendant's personal estate and the profits of his
his real, and to detain them, subject to the order of the court. It illus on the return of the serjeant at arms, in which it was certified that the defendant had sequestred 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 precedents and decrees: and they do not seem to be in the nature of proceed 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 no body within, and puts a padlock upon the door, &c. using these words, “I do sequestrate this warehouse, and the goods and merchandises 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 helden 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 difprobandum debitum, &c.

Sequestro, Sequestri, in Civitatis, a term used by some writers to express separation.

Sequestro Harenzo, In Lucr., a writ judicial for the discharging 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, Zecchin, Zecchino, a gold coin struck at Venice, Genoa, Rome, Milan, Piedmont, and Tuscany, and in several parts of the grand signor’s states.

Abalancourt derives the word from Cicium, or Ciceni-um; as supposing the sequin first struck at Cicium: Menna, from the Italian zecchino, of zeca, the name of the mint at Venice. At Florence, pieces of 3 sequins are called Rupioni (see Rupioni); zecchini or sequins, called Giglanti, weigh 2 dinta 23 grains, and are worth 13 lire or 20 paoli. The Roman and Genoa sequins circulated here are valued at 13 lire; Venetian sequins at 13 lire. The sequin Gigliato weighs 53/2 English grains, and the gold is 23/2 carats fine: it is therefore worth 91. 6d. sterling. At Rome 100 francene, or 50 sequins, are exchanged for 100 fudni Romani, more or less. At Genoa, the sequins are valued at 13 lire 10 foldi. In 1807 the Roman sequins were valued here at 142, and the Venetian at 143 102. The weight of the sequin at Genoa is 76 grams of gold 23/2 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 langa. At Lucera in Italy the sequins pass for 14 lire 4 sgrs.; 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 fudni; the fenuo current money being worth 20 d. sterling. At Marseilles, Italian sequins pass for 11 livres 2 sous 4 marcs. At Milan, sequins, weighing 2 denari 20 sgrs., are valued at 15 lire 4 foldi. At Parma the sequin is valued at 45 lire, the lira being worth 23/4 d. 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 21 sgrs. or 52% English grains, and the gold is 23% 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 passes for 2½ piastres, 32 alpers, 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 alloy 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. 31. 17s. 10½d. per oz. to weight 2 dwts. 5½ grs., contains in pure gold 53½ grs., and value in sterling 91. 5½d. The sequin of Milan is better than the English standard; its assay is 1 car. 3 grs., its weight 2 dwts. 5½ grs., its contents in pure gold 53½ grs., and its sterling value is 91. 5½d. The sequin, or two-ducat piece of Naples, of 1762, is worse than Engl. stand.; its assay is 1 car. 2½ grs., weight 1 dwt. 20½ grs., contents in pure gold 37.4 grs., and 7½d. sterling value 73½d. The sequin of Piedmont (and half sequin in proportion) is better than Engl. stand.; its assay is 1 car. 2½ grs., weight 2 dwts. 5½ grs., contents in pure gold 52½ grs., and value 91. 4½d. The sequin of Rome, coined before 1700, is better than Engl. stand.; its assay is 1 car. 2 grs., weight 2 dwts. 4½ grs., contents in pure gold 51.4 grs., and value 91. 1¼d. The assay of the sequin coined since 1700 is 1 car. 3½ grs., weight 2 dwts. 4½ grs., contents in pure gold 52.2 grs., and value 91. 3d.

The zecchino, or sequin of Tuscany, is better than the English standard; its assay is 1 car. 3½ grs., its weight 2 dwts. 5½ grs., its contents in pure gold 53.6 grs., and its value 91. 5½d. The zecchino or sequin (the half and quarter in proportion) of Venice is better than the English standard; its assay is 1 car. 3½ grs., its weight 2 dwts. 6 grs., its contents in pure gold 53.6 grs., and its value 91. 5½d.

The impressions on the Italian sequins are as follow: on that of Genoa, St. John the Baptist holding a croz; legend, NON SUSCRIT MAJOR, i. e. a greater has not arisen, and the date; reverse, the arms of Genoa with a crown; legend, Dux et Gub. Reg. Gen. i. e. doge and governor of the republic of Genoa. On that of Milan, the head of the reigning emperor of Germany, with name and title thus; JOSEP H. D. G. R. IMP. S. AUG. G. H. ET B. REX. A. A. i. e. Joseph the second, by the grace of God, emperor of Rome, ever august, king of Germany, Hungary, and Bohemia, archduke of Austria; reverse, arms of Milan; legend, MEDIDIANI ET MANTUE DUX, duke of Milan and Mantua. On that of Venice, a man holding a croz, and another kneeling before him with the doge’s name, as ALOY. MOC. (Aloyius Mocengo,) and the letters s. m. v. e. n. e. one above the other near the edge of the piece; i. e. Sandwier Marcus Venetus; also the letters d. v. x. Dux, duke or doge, placed in the same manner above the kneeling figure; reverse, a whole length figure of St. Mark, holding a book, and surrounded with stars; legend, SIT T. XBE. DAT. Q. TU REGIS ISTE DUCA, suppoed by Muratori in his Antiquitates Italicae Medii AEVI, to denote, Sit edit Chriflile datum, quod (vel quia) tu regis ifte ducatum, i. e. To thee, O Chrift,
O Chrift, be it (this coin) given, because thou governest (universally). He, St. Mark, governs the duchy. Muratori doubts this interpretation, and supposes that "e" might have been originally "te". The legend, however, is curious, as being both an hexameter verse and a monikih rhyme. The half and quarter sequins bear the same impressions, but the legend on the reverse is, Ego sum lux mundi, i.e. I am the light of the world.

At Cochin, on the Malabar coast, Venetian sequins are worth 72 fanams, of which 20 are reckoned for a rupee. At Goa, Venetian sequins are worth 16 pagodas, each of which is worth about 7/12d. florins. At Surat, the weight of a Venetian sequin is reckoned at 92.012, of which 82/7 make 1 oz. troy.

The gold coins of Turkey are the sequin or chequen, called the sequin funduc, coined in the year 1764; 100 of these weigh 110 Turkish drachma, or 54.15 English grains, and they are about 23 carats fine. The sequin funduc of Constaninople passed at first for 3/12 piastres, or 400 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 madhub, or zamahub, and the roubib, or one-third ditto: 100 madhubs, 200 nissi, or 300 roubibs, were to weigh 82/7 Turkish drachma, or 46.61 English grains: they were at first 22 carats fine, but in 1781 were reduced to 19.4/12 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 funduc, is worth 146 medini; that called zumahub is valued at 120 medini, 40 medini being a piastre.

At Grand Cairo in Egypt, contracts are made in funduc and madhub sequins; the former are reckoned at 146 medini, and 3 madhubs are equal to 4 patacca, so that the madhub is worth 120 medini. The only coins allowed by the Turkish government to be struck at Cairo are the madhub (or zamahub) sequins, and medini: 40 medini are valued at 193/12 florins, so that the madhub is worth 41.9/12 florins. Madhubs, 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 Períssa. The sequin funduc of Constaninople of 1773 is worse than the English standard: its afay is 2 car. 23/12 gr.; its weight 2 dwt. 53/12 gr.; its contents in pure gold 43.4 gr., and its Florin value 72.83d. The sequin funduc of 1789 is also worse than the English standard: its afay is 2 car. 33/12 gr.; its weight 2 dwt. 53/12 gr.; its contents in pure gold 42.9 gr., and its value 72.74d. The double sequin madhub of Constaninople of 1773 is better than the English standard: its afay is 1 car.; its weight 3 dwt. 42/12 gr.; its contents in pure gold 73.1 gr., and its value 12r. 113/12d. The sequin madhub of 1789 is worse than the English standard: its afay is 2 car. 5 gr.; its weight 1 dwt. 12 gr.; its contents in pure gold 28.9 gr., and its value 5s. 1d. The sequin of Cairo of 1773 is also worse than the English standard: its afay is 3 car. 1/2 gr.; its weight 1 dwt. 15/12 gr.; its contents in pure gold 31 gr., and its value 5s. 5d. The sequin of Cairo of 1789 is also worse than the English standard: its afay is 5 car. 21/2 gr.; its weight 1 dwt. 15/12 gr.; its contents in pure gold 26.9 gr., and its value 4s. 93/12d.

As the representation of men and animals is forbidden by the Mahometan law, the Turkish coins have no other impressions than inscriptions stating the names, titles, defcent, &c., of their sultans, with the date of the legisra, or Mahometan era. They are in the Arabic language, and the following translations from the principal coins of sultan Selim (1789) may serve as a specimen, as there is but little variety in the form or style of these compositions.

The sequin madhub has on one side, "Sultan Selim, fon of Mustafa Khan," and on the reverse, "Sultan of the two lands, and sovereign of the two seas, sultan by inheritance, fon of a sultan." The words, "May he be victorious, and his value be blest, struck at Constaninople in the year 1203," and on the reverse, "Sultan of the two lands, and soverign of the two seas, 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 seas," the Black sea and the Archipelago. The latter is also called here the White sea.

The sequin funduc has on one side, "Sultan Selim, son of Mustafa Khan," and on the reverse, "Struck at Constaninople in the year 1203.

The impressions of sequins of different periods modify answer to either of the foregoing descriptions; but the sequins cast 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 1187," and on the reverse, the titles as on the sequin madhub of Selim.

The pieces of two, three, four, and five sequins bear the same inscriptions as the single sequin, and they are sometimes also encircled with ornaments.

The sequins of the Barby flates are coined in the name of the grand sigior, and are only distinguished by the words, "Struck at Tunis, Tripoli," &c. They bear on the reverse the titles as on the sequin madhub of Selim.

Kelly's Un. Cambiat.

SERA, in Ancient Geography, a town of Serica, which had the title of metropolis, according to Ptolemy.

SERA, in Geography, a town of Hinduotan, and capital of a district, once a confederate sultan, conquered by Hyder Ali; taken from the dominions of his son Tipoo, 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 Hindostan, in Guzarat; 24 miles S. of Dungarpur.

SERA Capriola, a town of Naples, in the province of Capitanata; 14 miles S.S.E. of Ternola.

SERA, a district of Adirbeiztan, or Azerbaijan, and a town, 15 miles E. of Tabriz.

SERAIS, in Ancient Geography, a river of Hiþpania, in the Tarragonenses. Ptolemy.

SEARACH, in the Turkish Military Orders, an officer who holds the stagg of the cities of the janizaries in charge, attends him when he goes out on horseback, and serves him as a messenger on all occasions. After this office he has the title of chouv; and after he has passed through this, he has the same office under the age of the janizaries. Pococke's Egypt, p. 168.

SERA COYNA, in Geography, a town of Bengal; 38 miles E.S.E. of Calamabad.

SERA CORRO, a town of Africa, in Bambarra; 80 miles W.N.W. of Segu.

SERAES, or SERKAS, a town of Periza, in the province of Khorasan; 180 miles N.N.W. of Herat. The Tedzian has its source near this place.

SERA FISSINI, in Biography, an Italian singer with a fecable soprano voice, but so good an actor, that in 1754, when Metaltafio's "Attilio Regolo," set by Haffe, 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
was encored; for the addio of Regulus, returning to Carthage to certain torture and death, in spite of the prayers and intertreaties of his family and all Rome, is so characteristic and truly Roman, that it must have struck every one who had the least knowledge of the Italian language, and the inflexible virtue of Regulus.

SERAGANORE, in Geography, a town of Hindooflan, in the Carnatic; 5 miles S.S.W. of Ottotare.

SERAGE, in Ornithology, an English name for a bird of the larus, or gull-kind, more usually called the _sea-swallow_, and by authors _fervus_.

SERAGIO, in Geography, a town of the illand of Corsica; 6 miles S. of Corve.

SERAGLIO, a district of Italy, south of Mantua, in which Augustus had some poiffessions; called also "Virginian Fields.”

SERAGLIO, formed of the Turkish word _servis_, which is borrowed from the Persian _قار_ signifies a _house_ among the Levantines denotes the palace of a prince or lord. At Constantinople they fay, the seraglio of the ambassador of England, of France, &c.

The seraglio is used, by way of eminence, for the palace of the grand feignor at Constantinople, where he keeps his court, and where his concubines are lodged, and where the youth are trained up for the chief poiffors of the empire.

It is a triangle about three Italian miles round, wholly within the city, at the end of the promontory Chryfoceras, 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 paffonees, or potters; 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 faid, has ever yet been admitted to the innomt parts of the seraglio. See _Sultana_.

The old seraglio is the place where the emperor’s old military, who have died or who have been depofed, and the fultanas that have belonged to the defeased grand feignors, 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 reftoration; for it would not be decent, in the estimation of the Maffulmans, that a flaw, fuppofed to have enjoyed the favours of a fultan, should pafs into the arms of another man.

The harem is that quartar of the seraglio in which the females are kept. This is soon repleniied, because traders come from all parts to offer young slaves, and the puchaf and great men are eager to prefent beauties capable of fixing the attention of the sovereign; thus hoping to obtain iniately his good graces, and place about his perfon the women who at fome future time may be ufeful to them.

It is very difficult, and perhaps impoffible, to learn exactly the manner in which the female slaves are treated in the harem of the grand feignor: never has the eye of the obfervor penetrated into this abode of hatred, jealousy, and pride; into this abode where pleafure and love have fo seldom refided. But, according to the account of the women, whose profession calls them thither, the reader may repreffent to himself three or four hundred black eunuchs, malicious, peevifh, tormented by their impotence, curving their nullity, endeavouring to counteract the female slaves intruded to their charge; then a confiderable number of young women, whose hearts would willingly expand, whose fenses are moved by the idea of the pleasures which they wish in vain to know, jealous of the happiness which they are perfuaded that their rivals enjoy, curving the overfeers who perplex them, folely taken up with their toilet, with their drefs, and with all the nonefe which idlenefs and ignorance can fuggeft to them; racking, rather from vanity than from love, every means of pleafing a matter, too frequently difdaining. We may repreffent to ourselves, in short, a fultan young or old, fuffered 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 prelude, in which the heart has no share, and we fhall have a true idea of what paffes in the harem of the grand feignor.

The charge of the women is intruded only to black eunuchs, whose mutilation is fuch, that there remains no trace of their fex. Oriental jealousy has very rightly judged, that fuch creatures were rather capable of infpiring sentiments of hatred and contempt, than thofe of affection and friendship, which would not have failed to take birth, if the charge of the harem had been intruded to women. It was not enough to condemn these unfortunate females to long privations, never to let them know of love only what was to excite in them defires, it was even necffary to deprive them of the conftillation of opening their heart in the bofom of friendship.

The chief of the black eunuchs, called _kiflar-aga_, is one of the great pois of the empire: he is who carries to the female slaves the will of his master; he is who announces to them the fatisfactions which they have to please him. Independently of the authority which he exercises in the harem, he has the fuperintendance of all the imperial mofques; 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 flaw, he more frequently approaches his master; and more commonly enjoys his confidence. His income is very confiderable.

The _khatun-sekili_ is the second eunuch of the seraglio: he replaces the _kiflar-aga_ when he dies, or is turned out of office. He has the general administration of the interior imperial mofque, which must be dilinguished from the private treafure of the grand feignor, adminiftered by the _khatun-adora-aga_, 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 intruded, whofe converse is fentiment, whofe who ferve the royal moifque of the fultana Valide, whether the flavés of the grand feignor go to pay their prayers; he who has the particular fuperintendance of the apartment of the _bâbée_; 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 fervice of the fultan. They have the charge of the gates of the seraglio; they fuperintend and intruft the pages. Their chief is called _kapou-aga_. (See _Capi-aga_.) For an account of other officers of the seraglio, fee _Bostangi-baschi, Ichoglans, and Catog_.

Balzac obferves, 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

SERAI, in Geography, a town of Asiatic Turkey, in Natolia; 24 miles E. of Cai'tamena.—Allo, a town of the defect of Syria; 30 miles E. of Aleppo.—Allo, a town of Hindoostan, in the cirec of Naderbar; 20 miles S.S.W. of Naderbar.

SEARING, a town of France, in the department of the Ourte, and chief place of a canton, in the district of Liege. The place contains 2503, and the canton 6400 inhabitants, on a territory of 92½ square miles, in 7 communes.

SERAGO, or SOSSA SERAGO, a town of European Turkey, in Bofnia, situated on the river Bofna, and the residence of a faniqaj. It is large, rich, and commercial, and the fee of a Catholic bishop, appointed by the king of Hungary; 118 miles W. of Belgrade. N. lat. 44° 26'. E. long. 18°.

SEAKINO, a small Greek island, which, together with Drini, afford a place of shelter to navigators.

SEAMICA, a river of Surnam, which runs into the Atlantic, N. lat. 5° 54'. W. long. 55° 38'.

SEAMPUR, a town of Hindoostan, near the river Hooquy; 12 miles N. of Calcutta.—Allo, a town of Hindoostan, in the country of Bahar; 75 miles S.E. of Bahar.—Allo, a town of Bengal; 40 miles S. of Dacca. N. lat. 23° 4'. E. long. 90° 40'.—Allo, a town of Bengal; 20 miles S.E. of Curvackdeo. N. lat. 24° 0'. E. long. 86° 28'.—Allo, a town of Bengal; 37 miles N.W. of Burdwan.

SEANGAN, a cluffter of three small islands in the East Indian Sea; one of them about 15 miles long and 3 broad, and the other two smaller. N. lat. 5° 25'. E. long. 125° 26'.

SEANGODES, a word used originally as an epithet for the pumice-flone, and exprressing cavernous, spungy, or full of holes. It has been hence applied to finest ulcers, and to all sorts of things that are cavernous, or of a spungy texture.

SEAPGUNGE, in Geography, a town of Bengal; 28 miles N. of Maidulah.

SESAPH, or SERAPHIM, in the Hierarchy of Angels, a spirit supposed to be of the firit or highest rank.

The seraphs, or rather seraphim, make that clafs 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 הַרַּפִּים, to burn, inflame.

Seraph is also said to be the name of a Turkiff gold coin, worth about 5½ florins.

Seraph's Head, in Heraldry, is used to denote a child's head, with three pair of wings, viz. two in chief, two in fette, and two in bafe.

SERAPHIC, something belonging to the seraphim.

Mr. Boyle has a treatife 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 Franciscans, is called the Seraphic Father, in memory of a vision he faw on mount Alverna.

SERAPHIM. See SERAPH.

SERAPHIM, Order of, in Heraldry, otherwise furnamed of Jfus, was instituted in Sweden, in 1334, by Magnus II. king of Sweden, in memory of the fiege of the metropolis of Upfal; and not, as some authors say, by Eric the Great, called Sneek; nor by Gullavan I., as others ima-
gine. Upon the change of religion which happened in Sweden, under Charles IX., this order was abolished; but it was revived, February the 11th, in the year 1748, by Frederic I., king of Sweden. The habit of the order is a white fattin jacket, trimmed with black lace, and lined with black; with white breeches, shoes, and stockings, trimmed with black, and black ribbons; a black fattin short cloak, lined with white, the cape being white, trimmed with black lace; a hat of black fattin, bound with white, having on the left side four white orffich feathers, and in the middle of them one black feather. Upon the left breast of the cloak is a star of eight points, embroidered in silver; and upon the jacket, on the same fide, is the like star, but somewhat less in fize. The collar of the order is composed of eleven golden heads of seraphs, with wings expanded, and eleven blue patriarchal crosses, enamelled on gold, all joined with chains of the latt. To the collar is fupended the ensign of the order, viz. a star of eight points, enamelled white, the centre blue, with the arms of Sweden, and the initial letters, I.H.S.; over the H. a crofs; the arms inclosed with four seraphs' heads, as in the collar; in the arms, under the bottom crown, the paffion-nails. N.B. The seraphs' heads are between the double points of the star; and over the upward points is the royal crown of Sweden, by which it is pendant to the collar. The ensign alfo is pendant to a broad sky-blue watered ribbon, worn scarlet, and brought over the right shoulder, and under the left arm.

SERAPIAS, in Botany, one of the poetic names, derived from Serapis, the Egyptian idol. The Serapis of Pliny was evidently, from his description, a plant of the Orchis tribe, with globular roots, and supposed to have an aphrodisiacal quality. Hence Linnaeus retains the above name for a genus of the fame natural order, which, according to his characters and idea, was more ample than botanists at present make it, including many species of our Epidactylus. (See that article.)—Linn. Gen. 462. Schreb. 603. Wild. Sp. Pl. v. 4. 70. Mart. Mill. Dict. v. 4. Swartz Act. Holm. for 1800. 225. t. 3. f. H. Schrad. New Journ. v. 1. 47. t. 1. f. H. Jull. 65. Brown in Ait. Hort. Kew. v. 5. 194. Sm. Prodr. Fl. Graec. Sibth. v. 2. 218.—Clafs and order, Gynandria Monandria. Nat. Ord. Orchidace.

Gen. Ch. Cal. Perianth superior, of three ovate, pointed, concave, converging, equal leaves. Cor. Petals two, lanceolate, acute, smaller than the calyx, and concealed within it. Nercty a lip, without a spur; concave at the bafe; its terminal bome large, undivided, pointed, dependent. Stamina none; anther oblong, erect, attached in a parallel manner to the fore part of the style, of two cells, opening in front; the nucells of pollen club-shaped, attached themselves, each by its taper bafe, to a gland by the stigma, in one and the fame pouch; Brown. Pfl. Gemmen inferior, obovate, furrowed; style elongated, erect, with a taper point extended above the anther; stigma in front, below the anther, concave. Peric. Capsule obovate, of one cell, with three ribs, curviting longitudinally between the ribs. Seeds very numerous, minute, roundish, each with a chaffy tuft.

Eff. Calyx converging. Nercty a lip without a spur; concave at the bafe; its terminal bome very large, dependent, undivided. Anther parallel to the style, fur-mounted by a point.

Serapions

Rudb. Elyf. v. 2. 204. Orchidæ Etrurie; Petiv. Gaz. t. 128. f. 1—3? Tellucrii species tertia; Matth. Valgr. v. 2. 233. f. 1. Dalech. Hist. 1531.—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 affirm to the opinion of a learned German writer, in the Allgemeine Literatur-Zeitung, for June 1807, n. 133. 1060, that this plant, and not Iris tectoria, is probably the true Aegyptis of Dioscorides. The root consists of two flatted, roundish knobs, like others of this tribe, but rather smaller. Stem a foot high, clothed on the lower part with laciniolate, 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 bractea, 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, wavy, smooth. Haller justly refers both the above synonyms of Rudbeck to this species.

2. S. cordigera. Heart-lipped Serapion. Linnae., Sp. Pl. 1835. Wildl. n. 2. Ait. n. 2. Sm. Fl. Grec. Sibth. t. 932, unpublished. Andr. Rep. t. 475. (Orchis montana italic, flore ferrugineo, lingua oblonga; Rudb. Elyf. v. 2. 204. f. 18. O. Elyric, lingua ferruginea pilosa; Petiv. Gaz. 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. Orsélie, near Genoa. The whole plant, especially the bulbs 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 Matthioli.

Wildenow's S. oxyglossa, 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. SERAPIONS, in the Materia Medica, the official name of the dried root, called falep.

SERAPION, of Alexandria, in Biography, lived about the year 280 before Christ, or in the 125th Olympiad, and is affirmed by Celsus to have been the founder of the empire of phthisicians, and accused by Galen of vaunting himself, and of maltreating the character of Hippocrates. (See EMPEROR.) He was probably a contemporary of Philinus, to whom also the origin of the same sect has been attributed. See Celsus, Pref.

SERAPION, John, or John, the Son of Serapion, an Arabian physician, lived during the time of Meucc and Rhazes, and was probably the first writer on phthisic in the Arabic language; for it appears that Meucc, like his predecessor Aaron, or Ahron, wrote in the Syracague 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 diseases, 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 Iaurus, about the year 730, 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. Dicta Breviarum," and by Torinus, under that of "Therapeutica Methodus." See Freind's History of Phythe, and Sprengel Geschiche der Arzneykunde, n. 355.

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 compostis." 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 must obviously have been composed in the latter part of the eleventh century, (for Avenzoar, who wrote in that century, is quoted in it,) is the same with that which is often cited by Constantine, the African, under the name of Joannes Danacenus, a name which some authors erroneously given to the elder Serapion, instead of the subject of the present article; and some to Melus; to the latter of whom Freind has shown that it could not belong. See Freind and Sprengel, as above quoted.

SERAPIONS Portus et Promontorium, in Ancient Geography, a port and promontory of Ethiopia, between Ellinna emporium and Tomis 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.

It is impossible for us, that was worshipped as a kind of universal deity that represented Eculapius, O'iris, 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 Apis; Serapis being no other than Apis to Lacon, i.e. Apis in his coffin. Accordingly, they say, that while the sacred bull, which the Egyptians worshipped for their great god, was alive, he was called Apis; and that when he was dead and buried in his coffin, he was called Serapis, that is, Apis in feto, and thus they derive his name by corruption from saropis; 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 O'iris, the great husbandman, who had been exposed in an ark, was styled sar-apis, which signifies illustris genitor., the great father of mankind. But, he observes, that there was likewise the term sar, from whence came the σαρός of the Greeks, which signified a scar or coffin, and also a place of interment. Hence the temple where the dead Apis was deposited, had the name of Sar-apis, rendered inaccurately sarapis.

Plutarch,
Plutarch, who did not know this dilution, fancied that some people in Egypt would not allow forapis to have been a god; the dispute was about the found of a word; no Egyptian could deny the divinity of the god Serapis, but Ser-apis had another meaning; and this was the term in debate. Upon the whole he concludes, that the demon, or deified man, was Sar-apis, and that for-apis was the tomb of Apis. Analyis of Ancient Mythology, vol. ii. p. 428.

Others have maintained, that Serapis was not originally an Egyptian deity, anciently worshipped in that country, but an adventitious god brought thither from abroad. The ancient place of his institution, according to Polybius, was on the coast of the Propontis, on the Thracian side, over against Hieras; and there Jason, when he went on the Argo- nautic expedition, sacrificed to him. Thence his 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 Rhacotis, 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 Ammianus 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 altar. The most ancient temple, according to Paufanias, 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 bunchel on his head, resembling plenty, and referring, as some say, to the history of Jophiel'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 lion, and a wolf; in his left he held a measure of a cubit length, as it were, 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 Icasis table, 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 send 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 seer of embassied 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 name Serapis was not given to him till his statue was brought into Egypt. Plutarch testifies, 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 Paufanias relates, that the Alexandrians 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 so 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 Rhacotis, affirms also, that there was another smaller one, consecrated to the same god, and to Isis; which proves, not that 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 Icasis 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 face with Serapis, he might think it needful to say any thing particularly of the latter. The fame observia is applicable to the Icasis 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 some 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 s, 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 last, 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 fight, 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 increase and decrease, and holding the sistra (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 breasts, to express her prolificall 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 worshipping: for till the time of the Ptolemies, the Egyptians never offered any bloody sacrifice to their gods, but worshipped them merely with their prayers and frugality; 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 to avert these were the Egyptians to this mode of worshipping, 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. Conv. vol. iii. p. 15, &c.

The famous temple of Serapis at Alexandria was destroyed by order of Theodotus; and the celebrated statue of this deity was broken in pieces, and its limbs carried in triumph by the Christians throughout 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.

SERAPIS, in Ancient Geography, a place of Egypt, beyond the Nile, between Heracleopolis and Chifino, 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 Ramberwille, in Lorraine, in 1555. He studied at Cologne, where he entered into the society of the Jesuits, 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;" "Trilingual, feu de ceberebrum tribus, apud Judaeos, Phari
daeos, Sadduceos, et Elenorum Secetis." This last work was afterwards printed at Delft, with the addition of the treatises of Drufius 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 unction, but that he handles his quellions in too scholastic a manner, and mixes up too much controversy in them; he thus sums up the literary character of this author: "Serarius," says he, "was very learned, and well versified 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 withoutPoliticka. In treating on a subject, he often defends to impertinent and tedious tripping, and sometimes wanders from the point to attack the Protestants, and discuss controversal questions."

SERASAPOUR, in Geography, a town of Hindoostan, in Bahar; 18 miles W. of Bahar.

SERASKER, a Turkish word, composed of fer, which in Persian 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.

SERASPARLE, in Ancient Geography, a town of Aina, in the Lesser Armenia, and in the prefecture of Rhanca, according to Ptolemy.

SERAS, in Ornithology, a bird of the same genus with the Colum, which comes yearly to Surat in the Eal Indies, from Mount Cauecous, and distinguished by a plication of the aspera arteria; which is designed to answer similar purposes with that of the colum.

SERAT, SERED, or SERED, in Geography, a town of Hungary, on the river Waag; 27 miles E. of Protburg.

SERATZ, a town of Selavonia; 28 miles N.W. of Polzega.

SERAVAN, in Ornithology, the name given by Buffon to the Loxia Aetrid, which is.

SERAUCOURT, in Geography, a town of France, in the department of the Aifne; 6 miles S. of St. Quinten.

SERAVI, a town of Egypt, on the E. branch of the Nile; 21 miles N. of Cairo.

SERAUSTEH, a town of Candahar; 30 miles S.W. of Cabul.

SERAY, a town of Hindooftan, in Bahar; 12 miles N. of Chuprah. N. lat. 25° 18'. E. long. 84° 53'.—Allo, a town of Hindooftan, in Boggitund; 20 miles W. of Rewah.

SERAYA, a town of Hindooftan, on the right bank of the Jumna; 42 miles S.E. of Agra.—Allo, a town of Hindooftan, in Bahar; 20 miles S. of Bettiah. N. lat. 26° 28'. E. long. 84° 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 feignoor.

SERBAR, in Geography, a town of Peria, in the province of Meckan; 50 miles N.W. of Kidge.

SERBATIS, Yisser, in Ancient Geography, a river of Africa, in the eastern part of Mauritania Caofarien, which discharged itself into the Mediterranean, to the E. of Ruf
guinio colonia. Ptolemy places its mouth between Modunga and Ciffa.

SERBI, a people of Asian Sarmatia, who dwelled with the Orinxi and Vali, between the Ceraunian mountains and the river Rha, according to Ptolemy.—Allo, a people called likewise Scythians, who inhabited a territory towards Dalmatia.

SERBINUM, a town of Lower Pannonia, along the Danube.

SERBONIS LACUS, or Serbonis lake, a lake which was situated between Egypt and Palestine, near mount Ca
dius;
and eight from the hills, and the town consists of 250 huts, defended by a mud fort.

SEREGIPPE. See Seregipe.

SEREGNAN, a town of Tyrol; 8 miles N.N.E. of Trent.

SEREGNO, a town of Italy, in the duchy of Milan; 10 miles N. of Milan.

SUIIIL, 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 Elbaramada; 30 miles S. of Palencia.

SERENA, a, town of Spain, in the province of Elbaramada; 18 miles E.S.E. of Merida.

SERENA, a river of Chili, which runs into the South Pacific ocean, near Coguimbo; which lake.

SERNA, in Geography, the name of a mushroom.

SERNADE, an evening concert, given by a lady under the window of his mistress. It generally consists of instrumental music; sometimes, however, vocal is added. These pieces in Italy are also called serenate. The mode of serenading, 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 1770, 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 memoranda. "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 crowded, and harmony prevails in every part. If two of the common people walk together arm in arm, they seem to converse in loud; if there is company on the water, in a gondola, it is the fame; a mere melody, unaccompanied with a second part, is not to be heard in the city; all the ballads in the streets are fung in dou. Luckily for us, this night, August 7th, a barge, in which there was an excellent band of music, consisting of violins, flutes, horns, bagpipes, and a kettle-drum, with a pretty good tenor voice, was on the great canal, and floated very near the house where we lodged; it was a piece of gallantry, at the expense of an innovero in order to serenade his mistress. Shakspere says of nocturnal music,

"Methinks it sounds much sweeter than by day.
Silence beffows the virtue on it—"I think
The nightingale, if she 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, to be admirable, full of fancy, full of fire; the ballads well contrived; sometimes the graceful, sometimes the pathetic prevailed; and sometimes, however strange it may be thought, even noise and fury had their effect.

SERENE, 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 doge of Venice. The pope and the sacred college, writing to the emperor, to kings, or the doge, give them no other title but that of most serene. Indeed the Venetians let the title of serenity above that of highness.

In 1646, Wicquefort observes, there was a clashing between the courts of France and Vienna, because the emperor refuted
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refused the king of France any other title than that of
serene. Bishops also were anciently addressed under the title
of serene.

The kings of France, of the first and second race, speaking
of themselves, use no other quality but notre sérenité.
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 dition; but in treating with
them he uses électoral sérenité to the electors, and dueal sérenité
to the other princes.

SERENE, in Geography, a small island in the Red sea.

N. lat. 19° 30' E. long. 39° 50'.

SERENT, a town of France, in the department of the
Morbihan; 13 miles N.E. of Vannes.

SERENUS, Samonicus, Quintus, in Biography, a
Roman physician in the reigns of Severus and Caracalla,
who was attached at a banquet by the order of the last
mentioned emperor. He left an immense library, said to
contain twenty thousand volumes, to his son, who was pre-
ceptor 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 professed for the Semiticiis feve, which
confisted in wearing about the neck, suspended by a linen
thread, a piece of paper, on which was written the word
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, differing 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 indifferent, unacquainted with
strong liquors, inoffensive, and hospitable to strangers.

SERES, in Ancient Geography, a name given to those
people who were situated to the call of India, and who,
by the investigations and discoveries of the moderns, are sup-
poited to have inhabited Serica. They were renowned for
their justice, according to Melis, and for their longevity of
200 years, according to Strabo. They had an infect which
produced silk, says Paulus. (See Serica.) People of
the same name were also established in the northern part
of Taprobana.

SERET, in Geography. See Sibet.

SERETIUM, in Ancient Geography, a town of Dalma-
tia. Dion Cassius reports, that Tiberius was obliged to raise
the siege of this town, but that it was afterwards taken by
the Romans.

SERETKINA, in Geography, a town of Russia, in the
government of Irkutsk, on the Angara; 24 miles E.S.E.
of Balgaansko.

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.
latt. 56° 51', E. long. 45° 20'.

SERGE, in Commerce, a woollen quilted stuff, manu-
factured on a loom with four treadles, after the manner of
ra-
teens, and other fluffs that have the whale.
The goodness of serges is known by the quilting, as that
of cloths by the spinning.

SERGE, Manufacture of London. For wool, the longest
is chosen for the warp, and the shortest for the woof. Be-
fore either kind is used, it is first scour'd, by putting it in
a copper of liquor, somewhat more than lukewarm, com-
posed of three parts of fair water and one of urine. After
having laid long enough therein for the liquor to disolve,
and take off the geache, &c., it is dried briskly about
with a wooden peel; taken out of the liquor, drained, and
washed in a running water, dried in the flode, beaten with ficks
on a wooden rack, to drive out the couler dirt and filth, and
then picked clean with the hands. Thus carefully prepared, it
is greased with oil of olives, and the longest part, destined
for the warp, is combed with large combs, heated in a little
urn 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 wool, intended for the woof, it is only
carded on the knee with small cards, and then spun on the
wheel, without being scour'd 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 skeins, that of the woof is put
on poools (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 fuffed with a kind of size, of which that made
of the threads 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 reel), by
means of four treads placed under 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 croset between those of the warp,
strikes it with the frame to which the reed is fastened,
through whole teets the threads of the warp pass; and this
stroke he repeats twice or thrice, or even more, till he
judges the croset of the ferge sufficiently close; thus he
proceeds till the warp is all filled with woof.

The ferge now taken off the loom is carried to the fuller,
who fulls, or scour's it in the trough of his mill, with a kind
of fat earth, called fullers-earth, first purged of all bones
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 pryers, they
pull off all the knots, ends, straws, &c. flicking out on 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 be-
comes quite clear, and there be no suds 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, thorned, and press'd.

SERGEANT. See SERJEANT.
SERGENTIUM, in Ancient Geography, a town situated in the interior of Sicily. Ptolemy.

Sergiev, in Geography, a town of Russia, in the government of Tobolsk, on the Enisei; 72 miles N. of Eniseiik.

Sergievsk, a town of Russia, in the government of Ufa; 80 miles W. of Ufa. N. lat. 54°. E. long. 54' 44'.

Sergievskaja Nova, a fortress of Russia, in the government of Ufa, on the Samara; 56 miles N.W. of Orenburg.

Sergievskoi, a town of Russia, in the province of Uftug, on the Vim; 52 miles N.E. of Yaroslavl.—Alfo, a town of Russia, in the province of Ekaterinburg; 48 miles S.W. of Ekaterinburg.

Sergilus, in Botany, a genus formed by Gartner, v. 2. 409. t. 174. f. 6, of the Linnaean Calea fepartia, Chrysecoma n. 2. Browne Jan. 316. t. 34. f. 4, by the following character. Calyx somewhat turbinate, imbriicately or clove-prelled, unequal, slightly membranous scales. Flowers all perfect and fertile, five-cleft. Receptacle naked. Down capillary, tufted at the summit.

The above author remarks that this plant "differs in its receptacle, as well as head-down, from Calea, but from Chrysecoma in the foot-down only, so that it is nearer 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. fepartia. Native of the coldest mountains of Jamaica. Browne says it has the habit of our European broom, being the only tree of the fame appearance, observed by him in that country. Swartz has not noticed this plant. See Calea and Chrysecoma.

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 1484, and the canton 10,094 inhabitants, on a territory of 260 kilometres, in 18 communes.

Sergipe do Conde, a river of Brazil, which runs into the bay of All Saints.

Sergipe, or Sergippe, a captaincy or province of Brazil, which chiefly produces cattle, grain, and tobacco, for which last Brazil is particularly celebrated.—Alfo, the 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. 1° 32'. 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 II. On the death of Conon, 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 Paschal the archdeacon. The principal persons of Rome, not being able to bring them to an agreement, concurred in the choice of Sergius, and put him in possession by force. Theodore infantly renounced his claim, but Paschal 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 Cedwalla, 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 691 the emperor Justinian II. 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 rejected these canons, but on their account invalidated all the proceedings of this council, which on much exasperated the emperor, that he sent his sword-bearer with an order to apprehend the pope, and bring him to Constantinople. The boldness in Italy, however, standing in so much awe of his holiness, not only refused to suffer violence to be offered to him, but intimidated the sword-bearer, that he dared not execute his commission, and was glad to quit Rome in safety. In 696 Sergius consecrated Willibrord bishop of the Frisians, recommended to him by Pepin the elder, as a person every way adapted to undertake 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 repressed this seeming hostility, 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 accustomed 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 falling 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 scala-famula, or holy stairs, at Rome, was erected during the pontificate of Sergius II.

Sergius III., pope, a prebendary of the church, though elected by a party, in 898, after the death of Theodore II., 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 alliance he was enabled to expel Christoffer, who had forcibly intruded into the pontifical seat, and placed himself there in the year 904. 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 disposed of the holy see. Marozia, who had already been mistres of the marquis Adelbert, bore a son to the pope, who was afterwards raised to the papal throne under the name of John XI., and 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 refusal of the patriarch Nicholas to confirm the fourth marriage of Leo, as forbidden by the Greek church. Sergius, as there was no limitation 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 Buccapori, or in English, Hosp.
Hog's-nout, was bishop of Albano at the time of his election to the papal see in 1009, after the death of John xviii. Little is recorded of the transactions of this pontiff. He sent a legate into France to consecrate a monastic 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 archbishop of Hamburg and the bishop of Verden. He was greatly respected for the mildness of his disposition, and his liberality to the poor. He died in 112.

Sergius 1. 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 the son 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 disposed of re-uniting the perfected Nestorius to the Greek church, and having held conferences with persons of influence in that sect, was assured 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 slightest 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 issued an edict in the year 639, in favour of the doctrine of the single-will. This hope of concord was soon frustrated, by the violent opposition of Sophronius, a monk, and patriarch of the see of Jerusalem, who also endeavored to gain pope Honorius to his party, but Sergius was beforehand with him, and had persuaded his holiness to approve the doctrine in question. In order to quiet the commotions in the church, Heraclius, in 659, issued an edict composed by Sergius, which was entitled 'Euchesis,' 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 anthomized in several councils.

Serinde, in Geography, a town of Hindooftan, in Bednore; 8 miles S.W. of Sacrapatam.

Serk, a town of Hindooftan, in Baglana; 25 miles N. of Baffien.

Serkov, a town of Hindooftan, in Bednore; 25 miles W. of Sacrapatam.

Serjan. See Srian and Kerman.

Sirana, in Botany, could hardly be supposed to have been designed to commemorate a person of the name of Sergeant; yet such was the intention of Plumier. "The Rev. father Philip Sergeant, a native of Calais, of the order of Minims, in Provence, an able botanist, but more able physician, practiced 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." Plumier, from whom we take this account, named the genus Serjanja; but Linnaus, who united it to Paulina, 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 solicitous about the precise mode of spelling the name of his plant. — Pl. Gen. 34. t. 35. "Schumacher in Act. Hist. Nat. Hafn. v. 3. p. 2." Willd. Sp. Pl. v. 2. 404. (Paulinia; Lamarck Illust.)

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t. 318. f. 1. 2. 3.) — Claps and order, Olandaria Trigynis, Nat. Ord. Tribulata, Linn. Sapindi, Juf.

Gen. Ch. Cal. Perissanth inferior, of five ovate, concave, spreading, permanent, unequal leaves. Car. Petals four, obovate-oblong, twice the length of the calyx, furnished with claws; two of them more dilated than the rest. Nectaries two; 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, simple, shortish; anthers small, ovate, two-lobed. Pist. Germination superior, filiform, obovate, with three furrows; styles three, combined at the base, recurved; fligmas simple, obtuse. Peric. Capsules three, globose, combined longitudinally, each of one cell, not furrowing, dilated at the base into a half-ovate membranous wing. Seeds solitary, ovate.

Eff. Ch. Calyx of five unequal leaves. Petals four, Nectaries of four fleses and four glands. Capsules three, globose, combined, not furrowing, each with a dilated wing at the base. Seeds solitary.

Obf. The fruit sufficiently distinguishes this genus from Paulinia; see that article, however similar the flowers, and habits of the plants.

1. S. foxta. Willd. f. 1. "Schumacher, as above, t. 12. f. 1." (S. scandens, triphylles et racemosa; Plun. Gen. 34. t. 113. f. 2. Paulinia Seriana; Linn. Sp. Pl. 524. Jacq. Offic. f. 5. t. 61. f. 2.) — Wings of the capsules dilated below their inferior. Leaves ternate; leaflets ovato-lanceolate, furnished and toothed.—Native of South America. Neither this, nor any other of the genus, is known in our gardens. The stem is angular, furrowed and downy, climbing by means of tendrils. Leaves alternate, filiform; leaflets about two inches long, very, tapering at the base; roughly to the touch, though somewhat shining, above; paler beneath. Flowers small, in compound downy clusters. Wing of each capsule about an inch long.

2. S. Flueringa. Willd. f. 2. "Schumacher, t. 12. f. 2." (Paulinia dwaria; Swartz Ind. Occ. v. 2. 484.) — Leaves twice ternate; leaflets ovate, acute, entire, filiform, shining. Common footstalks without wings. — Native of the woods of Jamaica. Stem climbing to a great height, zigzag, with a few distinct flageolet prickles, an angular, smooth. Footstalks two inches long, furrowed, smooth. Leaflets filiform, the flake of the middle one winged. Tendrils axillary, divided at the extremity. Panicles from the same point, on long flake, their branches racemose, alternate, spreading. Flowers white.

3. S. racemosa. Willd. f. 2. (Paulinia caracatala; Jacq. Hort. Schonbr. v. 12. t. 99.) — Wings of the capsules not dilated below their inferior. Leaves twice ternate, leaflets oblong, acute at each end, distinctly toothed. Common flages without wings. — Native of the Caracas, from whence we presume it was sent by Dr. Merer to the Flowes at Vienna, where it flowers in the summer. The numerous stems climb by tendrils to a great height. Leaves smooth; leaflets elliptico-oblong, two or three inches in length. Flowers white, in compound cylindrical clusters, each cluster on a long flake, accompanied by two strong revolute tendrils at the top of the flake.


5. S. speculabulis. Willd. f. 5. "Schumacher, t. 12. f. 4." —Wings of the capsules dilated below their base. Leaves twice ternate; leaflets obovate; the terminal one abrupt.
Footstalks winged.—Native of the West Indies. Communicated by Sir J. Banks, from Miller's herbarium. This has much of the habit of S. caracolina, but the winged footstalks, and obtuse leaves, distinguish it essentially. We do not find any tendrils under the flowers, as Schumacher describes them, nor are the leaves, as Wildenow says, quite entire.

6. S. mexicana. Willd. n. 6. (Paulinia mexicana; Linn. Sp. Pl. 525; excluding Plummer's and Hernandez synonyms.)—"Schumach. t. 11. f. 3."—Leaves twice ternate; leaflets obovate, entire, all marginate. Footstalks winged. Clusters aggregate.—Native of Mexico. Akin to the last, but the entire leaflets, and compound inflorescence distinguish 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 in the Linnaean herbarium. With this Linnaeus at one time confounded the true Paulinia eurostis, to which the figure of Henderson better answers. The Linnaean speciments wants fruit, and yet its habit, colour, and leading characters, are so near the Seriana we have just been describing, that there can scarcely be a doubt of its belonging to this genus.

7. S. angustifolia. Willd. n. 7. (S. scandens, enneaphylla et racemosa; Plum. Gen. 34., t. 1. 112, f. i.)—Leaves twice ternate; leaflets linear-lanceolate, acute, entire. Footstalks winged.—Native of South America. Nothing can be left like the last, with which Linnaeus confounds this narrow-leaved species, whole clusters moreover are solitary. We know it only from Plummer's figure.

8. S. lapulina. Willd. n. 8. "Schumach. t. 12. f. 5."—Wings of the capsules half-oval. Leaves twice ternate, crenate, rufly toothed; the terminal leaflets nearly rhombid; the lateral ones ovate. Footstalks winged.—Native of South America. Clusters almost simple, the length of the leaves, and accompanied by two tendrils. Schumacher.

9. S. lucida. Soland, MSS. Willd. n. 9. "Schumach. as above, p. 128."—Wings of the capsules half-oval. Leaves twice ternate; leaflets ovate, acute, serrate. Footstalks scarcely winged.—Native of Santa Cruz. The upper surface of the leaves is highly polished, and strongly vened. Clusters in some measure compound, accompanied by two spiral tendrils. Communicated by Sir J. Banks, to the younger Linnaeus.

10. S. interiusata. Willd. n. 10. (S. scandens, polyphylla et racemosa; Plum. Gen. 34., t. 1. 112, Paulinia interiusata; Linn. Mant. 236., Jacq. Obs. f. 3. 11. t. 62. f. 11? Amer. 110. t. 1. 122. f. 52? P. polyphylla; Jacq. Obs. ibid. t. 61. f. 10.)—Leaves thrice ternate; leaflets ovate, obtuse, wavy. Footstalks winged. Clusters aggregate.—Native of South America, or the West Indies. The clusters are not accompanied by tendrils, but form a sort of panicles, as in S. mexicana. See PAULINIA, n. 8.

There seem to be more species, of which incomplete specimens or description 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, or essential in differentiating Seriana and Paulinia.

SERIANE, SRIKH, or ESRICH, in Ancient Geography, a town of Asia; in Syria, situated in the mountains S.E. of Chaldea, about the 43rd degree of latitude. It appears by its rains to have been formerly a large town.

SERRIE, or Striae, in Ancient Geography, a town of Italy, in the department of the Serio; 5 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 Géographiques et Historiques sur la Sérique des Anciens." M. d'Anville refutes the opinion of those who apprehended that the Serica described by Ptolemy corresponded to the northern part of China; and he adopts the opinion of M. de Guignes, in his History of the Huns, that it belonged to the conquests of the Chines towards the west. M. d'Anville adds, that with the exception of a small angular territory at the extremity of the province of Chen-fi, towards the N.W., China formed no part of Serica. In speaking of Scythia, on the other side of the Imaus, Ptolemy mentions a passage in this mountain, which was the habitation of merchants that traded with the Seres. Contiguous to this station, according to Ptolemy, is a country called Cafa, which M. d'Anville supposes to be the same with Calgarh, called by the Chinese Kin-tse. In proof of their identity it may be alleged that the tables of Nafr-Uddin and Ulugh-beigh assign to Calgarh 41° of latitude, and that Ptolemy makes the latitude of Cafa 42°, differing only by one degree. Ptolemy mentions the river Oechareds, which M. d'Anville supposes to be the Yerghien. Another river near the limits of Serica, mentioned by Ptolemy, is that called Bautes, which, in its course towards the N., is joined by the lateral branch of another river pursuing the same direction; and these circumstances correspond with those of the present Etzine. The Bautes, as M. d'Anville apprehends, is the old Serica, mentioned by Ptolemy, the metropolis of Serica. For according to the ancient geographers, this town is very near the point where the last 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 Sera of Ptolemy, and bear the name of Can-techeou. It is the first considerable town that occurs at the entrance of the Chine province of Chen-fi. This town belongs to a particular country known to the Orientals under the name of Tangu. Tangu may therefore probably be the country anciently inhabited by the Seres, of which Sera was the capital. Another decisive proof that Can-techeou is the Sera metropolis of Ptolemy, is deduced from the circumstance that this town, according to the Greek geographer, is 38° 35' of latitude, and that the latitude of Can-techeou, according to the Jesuit astronomers, is 39°, the difference being only 25'. Ptolemy places the Elfedones in Serica. But Elfedon or Elfeo, signifying a chariot, and some of the Scythians, called by the Greeks Hamaxobites, or persons living in chariots, it has been inferred, that the people who bore the name of Elfedones, in the Serica of Ptolemy, were merely those whose habitation was in chariots, and it is also added, that a part of the country of the Seres had borne the name of Eygyar, and that the nation who occupied a part of this country is called by the Chinese Kao-tech, a word which signifies high chariots.

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 Annib, which encompasses the Seres to the N.; the Auxaces, which extend to the Seres by their eastern parts; the Aimirs in the country; the eastern part of the Caffian mountains; mount Thagurus, called also Thagarius; the mountains Emodi and Sericus. The chief rivers are the Oechards or Oecharde, which rises in the Auxeian mountains, and the Bautes, which springs from Mount Carlaus. The north of Serica was inhabited by Anthro-
throphophagi; below these were the Annibi, bearing the name of these mountains; the Axacii and the Sizyges, below whom were the Danmae; the Piddax extended themselves to the river Oecarhes. The Garumae and the Nabbanze lay more to the east than the Annibi. To the S. was the country called Almira, where were the mountains of the same name; the Iffidones, or Effedones, were situated to the S. and extended themselves to mount Caffius; and these formed a powerful nation; the Throama lay to the E., and below them the Ithaguri; the Aspacerae lay to the S. of the Iffedones, and below them the Batæ; the Ottorochorrae were situated to the S. The principal towns were the Danmae, Pidax, Almira, or Almira, Tharrana or Throama, Iffedon, Sarice, Aspacerae, Drofache, Paliana, Ablagana, Thiegara, Daxata, Orofana, Ottorochorrae or Ottorocorras, Solana, and Sera Metropolis. It appears from the article Little Bocchia, to which we refer the reader, that no region but this correspond to Ptolemys Serica.

SERICH, the name of a feed used in the food of the Egyptian Coptics. It is produced by an herb called frangula, 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 eat dipped 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. Percosse's Egypt, p. 182.

SERICORA, in Geography, a town of Persia, in the province of Mazanderan; 15 miles N.E. of Aftarabat.

SERICUM, Silk. See Silk.

Sericium is also a name given by several chemical writers to the flowers of zinc reduced by sublimation in an inclined open crucible. These flowers are not reducible into zinc again, and are of a fibrous texture, and a beautiful white colour. This has made them be called also the philosophic cotton, and others have named them the aqua fissa philosophorum.

SERIDIA, in Botany, a generic name given by Jussieu to those species of Centaurea which are included under the sixth section (Stabe) of that genus. Juss. 173. See Centaurea.

SERJEANT, or SERGEANT, 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 countours, is in the Stat. of Wett. 13 Edw. I. c. 29. But M. Paris, in his life of John II. abbot of St. Alban's, which he wrote in 1255, 39 Hen. III. speaks of advocates at the common law, or countours (quos banc narratres vulgariter appellamus) as of an order of men well known; and the antiquity of the coif appears from the fame author's Hist. of England, A.D. 1259. Serjeants were anciently called servientes ad legem, and servientes narratres.

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 inferior 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 there are supposed 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 Welleminor are always admitted into this venerable order, before they are advanced to the bench; the original of which was probably to qualify the public barons of the exchequer to become justices of assize, according to the exigence 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 causes of treason; and one is usually appointed, called premier serjeant. See Counsel and Precedence.

SERJEANTS at ARMS, are officers appointed to attend the perfou of the king, to arrest traitors, and perfons of quality offending, and to attend the lord high steward when he sits in judgment on any traitor, &c.

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 same for summer robes; their pay in that of Edward II. was 12d per diem, when they attended on horseback, and 8d. when they attended without a horse. 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, constable 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 peon 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 increased 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 person kneeling before the king, his majesty lays the mace on his right shoulder, and says, Rite 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 presence-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 stand foremost, and make a lane for the king, as they also do when the king goes to the house of lords.
They have a considerable share of the fees of honour, and travelling charges allowed them when in waiting, viz. five shillings per day when the court is within ten miles of London, and ten shillings when twenty miles from London. The places are in the lord chamberlain's gift.

There are four other serjeants at arms, created in the same manner; one who attends the lord chancellor; a second, the lord treasurer; a third, the speaker of the house of commons; and a fourth, the lord mayor of London on solemn occasions.

There are also serjeants of the mace of an inferior kind, who attend the mayor, or other head officer of a corporation.

**Serjeant, Common,** an officer in the city of London, who attends the lord mayor and court of aldermen on court days, and is in council with them on all occasions, within and without the precincts, or liberties of the city. He was to take care of orphans' elates, either by taking account of them, or by signing their indentures, before their passing the lord mayor and court of aldermen; and he was likewise to let and manage the orphans' elates, according to his judgment to their best advantage. See **Recorder.**

**Serjeants of the Hooihood,** are officers who execute several functions within the king's household, mentioned in the Stat. 33 Hen. VIII. c. 12.

**Serjeant, or Serjeants, in War,** is a non-commissioned or inferior officer in a company of foot, or troop of dragoons; armed with a halberd, and appointed to see discipline observed, to teach the soldiers their exercise and other duty. He receives the orders from the adjutant, which he communicates to his officers.

Each company has generally two serjeants.

**Serjeant, Covering,** a non-commissioned officer, who, during the exercise of a battalion, regularly stands or moves behind each officer, commanding or acting with a platoon or company. When the ranks take open order, and the officers move in front, the covering serjeants replace their leaders; and when the ranks are closed they fall back in their rear.

**Serjeant, Drill,** an expert and active non-commissioned officer, who, under the immediate direction of the serjeant-major, instructs the raw recruits of a regiment in the first principles of military exercise. When awkward or ill-behaved men are sent to drill, they are usually placed under the care of the drill-serjeant.

**Serjeant, Lance,** a corporal who acts as serjeant in a company, but only receives the pay of corporal.

**Serjeant-Major.** See **Major.**

**Serjeant, Pay,** an honest, steady, non-commissioned officer, who is a good accountant, and writes well, that is selected by the captain of a company in the infantry to pay the men twice a-week, and to account weekly to him, or to his subalterns, for all disbursements. He likewise keeps a regular statement of the necessaries of the men, and affists in making up the monthly abridgment for pay, allowances, &c.

**Serjeant, Quarter-Master,** a non-commissioned officer, who acts under the quarter-master of a regiment; he ought to be steady, a good accountant, and well acquainted with the resources of a country town or village.

**SERJEANTY, or SERGEANTY,** in Law, a service anciently due to the king for lands held of him, and which could not be due to any other lord.

It is divided into grand and petit serjeanty.

**Serjeanty, Grand,** is where one holds lands of the king by serjeanty which he ought to do in his own person, as to bear the king's banner or spear, affit at his coronation, or do some office in his court.

It was in most other respects like knight-service, only he was not bound to pay aid or escheate; and when tenant by knight-service paid five pounds for a relief on every knight's fee, tenant by grand-serjeanty paid one year's value of his land, whether it were much or little. Tenure by cornage was a species of grand-serjeanty. See Cornage. Litt. § 153. 158. 2Init. 233.

**SERJEANTY, Petit,** is where a man holds land of the king to yield him yearly some small thing towards his wars, as a sword, dagger, bow, fprus, &c. in the manner of rent.

Coke, on Littleton, tells us, that Sir Richard Rockefly held lands at Seaton, by grand-serjeanty, to be vantarius regis, i.e. the king's footman, when he went into Gascony, till he had worn out a pair of shoes of the price of four-pence.

By the Statute 12 Car. II. all tenures of any honors, manors, lands, &c. are turned into free and common foggage; but the honorary services of grand-serjeanty are thereby continued.

**SERIES,** a continual succession of things in the same order, and which have some relation or connection with each other.

Medals are formed into suites or serjeanties, both with regard to the metal and to the subject. The different metals of medals constitute three different serjeanties in the cabinets of the curious, we mean, as to the order and arrangement of the several metals.

The gold series, for instance, of imperials, amounts to about 5000; that of silver may amount to 10,000; and that of brass to 30,000. See **Medals.**

With regard to the subject, the series of medals are usually formed from the side called the head; in the first class, is dispossessed the serjeanties of kings; in the second, that of Greek and Latin critics; in the third, the Roman consular families; in the fourth, the imperial; in the fifth, the deities; and to these may be added a sixth serjeanty, consisting of medals of illustrious peripius. See **Medals.**

There are also serjeanties of modern medals; that of the popes only commences from Martin V. in 1430. From that time we have a series of papal medals, tolerably complete, to the number of five or fix hundred.

We might likewise have a series of emperors from Charlemagne, provided the current coins were admitted; but in practice they commonly commence with Frederic II. in 1465.

The series of the kings of France is most numerous and most considerable of all the modern kings. See **Medals.**

**SERIES,** in **Analysis,** is a succession of terms, or progression of quantities, connected together by the signs plus and minus, and proceeding according to some law or determinate relation. Such are the following.

\[ 1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \ldots \]

\[ 1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{8} + \frac{1}{16} + \ldots \]

The former being the reciprocals of the odd numbers, and the terms of the latter a geometrical progression, of which the ratio is \(\frac{1}{2} \).

Series are of various forms, and arise in many different ways, as from the expansion of functions, the inverse method of fluxions, &c. But they very frequently arise independent of any general derivation, and the object of enquiry is then to determine that function to which they are equivalent, and from the expansion of which they may be reproduced, or the numeral value of a certain of an infinite number of their terms.

Thus, 

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**SER**
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,
\[
\frac{1}{a^n} + \frac{1}{a^{n+1}} + \frac{1}{a^{n+2}} + \frac{1}{a^{n+3}} + \&c.
\]
\[
\frac{1}{3^2} + \frac{1}{3^3} + \frac{1}{3^4} + \frac{1}{3^5} + \&c.
\]
\[
\frac{1}{3^n} + \frac{1}{3^{n+1}} + \frac{1}{3^{n+2}} + \frac{1}{3^{n+3}} + \&c.
\]
Many of these 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 function of the form to which they are reducible, &c. &c. as arithmetical, geometrical, converging, diverging, reciprocal, &c. series.

Series, Converging, are those in which the terms decrease, or become successively less and less; as
\[
1 + \frac{1}{5} + \frac{1}{5^2} + \frac{1}{5^3} + \&c.
\]
Series, Diverging, are those in which the terms continually increase; as
\[
1 + 2 + 2^2 + 2^3 + 2^4 + \&c.
\]
Series, Neutral, are those in which all the terms are equal to each other; as
\[
1 + 1 + 1 + 1 + 1 + \&c.
\]
This arises from the division of 1 by 1, and is therefore equal to 1.

Series, Indeterminate, is sometimes used to denote a series, whose terms proceed according to the powers of some indeterminate letter or quantity; as
\[
x + \frac{1}{2} x^2 + \frac{1}{3} x^3 + \frac{1}{4} x^4 + \&c.
\]
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
\[
1 + ax + bx^2 + cx^3 + dx^4 + \&c.
\]
Series, Descending, are those in which the powers decrease in the numerator, or increase in the denominator; as
\[
1 + ax^{-1} + bx^{-2} + cx^{-3} + dx^{-4} + \&c.
\]
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,
\[
1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} + \&c.
\]
\[
1 + \frac{1}{3^2} + \frac{1}{3^3} + \frac{1}{3^4} + \frac{1}{3^5} + \&c.
\]
are circular series; the former being equal to one-eighth 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
\[
(a - 1) - \frac{1}{2} (a - 1)^2 + \frac{1}{3} (a - 1)^3 - \frac{1}{4} (a - 1)^4 + \&c.
\]
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
\[
a + ra + r^2a + r^3a + r^4a + \&c.
\]
\[
a + a \frac{r}{r - 1} + \frac{a r^2}{r - 1} + \&c.
\]
Series, Fractional, are those whose terms are all fractional; as
\[
\frac{a}{b + c} + \frac{a}{(b + c)(b + 2c)} + \frac{a}{(b + 2c)(b + 3c)} + \&c.
\]
Series, Trigonometrical, are those which relate to trigonometrical lines or quantities; as
\[
\sin a + \frac{\sin 3a}{3} + \frac{\sin 5a}{5} + \frac{\sin 7a}{7} + \&c.
\]
\[
\tan a - \frac{\tan 3a}{3} + \frac{\tan 5a}{5} - \frac{\tan 7a}{7} + \&c.
\]
which are each expreisons 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 sums depend 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
\[
1 + 2 + \frac{8}{3} + \frac{16}{5} + \frac{32}{15} + \&c.
\]
may be put under the form
\[
1 + \frac{2}{3} x + \frac{2.4}{3.5} x^2 + \frac{2.4.6}{3.5.7} x^3 + \frac{2.4.6.8}{3.5.7.9} x^4 + \&c.
\]
where the law by which it may be indefinitely continued is manifest; and from which we draw the general term, viz.
\[
\frac{2.4.6 \ldots (2n - 1)}{3.5.7 \ldots (2n - 3)} x^{n-1}.
\]
Series, Interpolation of. See INTERPOLATION.

Series, Recursion 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
**Series.**

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 inversion 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 chief anchor of analysis; being our only hope and last resort, in a variety of difficult problems, which bid defiance 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 stated under the article Quadrature, 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 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 Arithmetical 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 1682, Leibnitz published in the Leipsic Acta a memoir entitled "De proportionibus ad quadraturn circumferentiam, in numeris rationalibus," in which he gave several numerical series of a very novel kind, whose sums were expressible in finite terms, without, however, accompanying them with their demonstrations; amongest the most curious of which we may reckon the following: viz.

\[
\frac{1}{3} + \frac{1}{8} + \frac{1}{15} + \frac{1}{24} + \frac{1}{35} + \frac{1}{48} + \&c. \text{ or}
\]

\[
\frac{1}{2^2} + \frac{1}{3} + \frac{1}{4} - \frac{1}{5} + \&c.
\]

The sum of an infinite number of terms of which is equal to $\frac{3}{4}$; 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

\[
\frac{1}{3} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \frac{1}{11} + \&c. = \frac{1}{2},
\]

\[
\frac{1}{2^4} + \frac{1}{4} + \frac{1}{6} + \frac{1}{8} + \frac{1}{10} + \&c. = \frac{1}{4}.
\]

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

\[
\frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{13} + \frac{1}{15} + \frac{1}{17} + \frac{1}{19},
\]

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

\[
\frac{1}{2^4} + \frac{1}{6} + \frac{1}{8} + \frac{1}{10} + \frac{1}{12} + \&c.
\]

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which is equal to the area or space included between the curve and asymptote of an equilateral hyperbola, or $\frac{1}{2}$ of the hyp. log. 2.

Leibnitz also gave in the same work for 1683, the summation of several other series of a more difficult kind, as

\[
1 - \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \&c. = \frac{1}{2}
\]

\[
1 - \frac{2}{2} + \frac{3}{2} - \frac{4}{2} + \frac{5}{2} - \&c. = \frac{2}{2}
\]

\[
1 - \frac{3}{2} + \frac{6}{2} - \frac{10}{2} + \frac{15}{2} - \&c. = \frac{2}{2}
\]

These, as we have before observed, were not demonstrated by Leibnitz, but this was soon after done, and many other series investigated, by the brothers John and James Bernoulli; the latter in a small tract "De Seriebus Infinitis," published with the "Ars Conjectandi;" and the former in vol. iv. of his "Opera Omnia."

From the preface to the former tract we learn, that James, having turned his attention to the doctrine of series, had discovered a few which were summable, and which he propounded to his brother; who having quickly demonstrated them, proposed others to James; this led to other propositions, and so on, till in a short time they were not only able to demonstrate all Leibnitz's series, but had discovered two general principles, which applied with great facility to a variety of new cases; the one of which was the resolution of an infinite series into an infinite number of other series; and the other, the method commonly called the summation by subtraction. We see here that spirit of emulation and rivalry with which these two brothers were constantly actuated, and to which they each probably owe many of their finest discoveries. It is only to be regretted that it terminated in a manner so unworthy of their talents and character; particularly with regard to John, who was doubtless at first much indebted to his brother's instruction, but who, notwithstanding, indulged his resentment against him for many years after his death, seeking every opportunity of alarming his methods, and of lessening his reputation.

The Bernoulli's Method of Series.—The principal difference between the methods of these two celebrated mathematicians consists in this, that James, in his "Trajectus de Seriesbus Infinitis," proceeds synthetically; and John, in his "Opera Omnia," analytically; but the series in both cases are nearly of the same kind, and the summation of them depends upon the same principles; we shall, therefore, by way of illustration, abstrait one or two propositions from the former work, which will be sufficient for giving the reader an idea of the spirit of the two methods above alluded to.

Prop.—To find the sum of an infinite number of fractions, whose denominators increase in any geometrical progression, but whose numerators proceed according to the natural numbers, or polygonal or figurate numbers, of any denomination.

Case 1.—When the numerators proceed according to the natural numbers, that is, when they form an arithmetical progression.

Let the proposed series, whose sum is required, be

\[
\frac{a}{b} + \frac{a+e}{b+d} + \frac{a+2e}{b+d^2} + \frac{a+3e}{b+d^3} + \&c.
\]

This
This is obviously equal to
\[
\frac{a}{b} + \frac{a}{b^2} + \frac{a}{b^3} + \frac{a}{b^4} + \&c. = \frac{ad}{b^2 - b} + \frac{c}{b^3 - b} + \frac{c}{b^3 - b^2} + \frac{c}{b^4 - b^2} + \&c.
\]

Each of which series being geometrical, are found by the known rules for such progressions; and it is obvious that the sums, except the first, are also in geometrical progression; the sum of which, viz. of
\[
\frac{cd}{b - b} + \frac{cd}{b^2 - b^1} + \frac{cd}{b^3 - b} + \frac{cd}{b^4 - b^2} + \&c. = \frac{c}{b - 1}
\]

which therefore adding \(\frac{a}{b} + \frac{a}{b^2} + \frac{a}{b^3} + \frac{a}{b^4} + \&c. = \frac{ad}{b^2 - b}\) to, we have \(\frac{ad}{b} + \frac{cd}{b - 1}\) for the sum of the proposed series.

Case 2.—When the numerators of the fractions proceed according to the triangular numbers. Let
\[
\frac{e}{b} + \frac{3e}{b^2} + \frac{6e}{b^3} + \frac{10e}{b^4} + \&c.
\]

be the proposed series. This may be resolved as follows: viz.
\[
\frac{e}{b} + \frac{3e}{b^2} + \frac{6e}{b^3} + \frac{10e}{b^4} + \&c. = \frac{cd}{b - b}
\]

which sums, with the exception of the first, constitute a series agreeing in form with that solved above, and from which we derive \(\frac{cd}{b - 1}\) 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, as \(d - 1: d^2\) \(b - (d - 1)\) \(= \frac{cd}{b - 1}\). And when the numerators proceed according to the figurate numbers of the first order, viz. 1, 4, 10, 20, 35, then the sum of this series will be to that of the latter, as \(d : d - 1\); that is, as \(d - 1: d^2\) \(b - 1: (d - 1)\) \(= \frac{cd}{b - 1}\) = the sum of the series
\[
\frac{e}{b} + \frac{4e}{b^2} + \frac{10e}{b^3} + \frac{20e}{b^4} + \frac{35e}{b^5} + \&c.
\]

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; viz.

<table>
<thead>
<tr>
<th>Series</th>
<th>Formula</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nat. Num.</td>
<td>(\frac{1}{2} + \frac{2}{2^2} + \frac{3}{2^3} + \frac{4}{2^4} + &amp;c. = 2)</td>
<td></td>
</tr>
<tr>
<td>Trian. Num.</td>
<td>(\frac{1}{2} + \frac{3}{2^2} + \frac{6}{2^3} + \frac{10}{2^4} + &amp;c. = 4)</td>
<td></td>
</tr>
<tr>
<td>Fig. 1st order</td>
<td>(\frac{1}{2} + \frac{4}{2^2} + \frac{10}{2^3} + \frac{20}{2^4} + &amp;c. = 8)</td>
<td></td>
</tr>
<tr>
<td>Squares</td>
<td>(\frac{1}{2} + \frac{4}{2^2} + \frac{9}{2^3} + \frac{16}{2^4} + &amp;c. = 6)</td>
<td></td>
</tr>
<tr>
<td>Cubes</td>
<td>(\frac{1}{2} + \frac{8}{2^2} + \frac{27}{2^3} + \frac{64}{2^4} + &amp;c. = 7)</td>
<td></td>
</tr>
</tbody>
</table>

As an illustration of the second method, that is, of summation by subtraction, we shall give an abstract of James Bernoulli's fourteenth 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 \(\frac{a}{c} + \frac{a}{2c} + \frac{a}{3c} + \frac{a}{4c} + \frac{a}{5c} + \&c. = S\)

Subtract \(\frac{a}{c} + \frac{a}{3c} + \frac{a}{4c} + \frac{a}{5c} + \&c. = S - \frac{a}{c}\)

we have \(\frac{a}{2c} + \frac{a}{2c} + \frac{a}{2c} + \frac{a}{2c} + \&c. = 2\frac{a}{c}\)

which last is a series of fractions of the form proposed, their denominators forming the series of triangular numbers, multiplied by the constant quantity \(c\). Thus in numbers; if the series
\[
1 \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \&c. = S
\]

(without regard that what may be the value of \(S\)), we take
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \&c. = S - 1
\]

we shall have
\[
\frac{1}{1} \frac{1}{2} + \frac{1}{2} \frac{1}{3} + \frac{1}{3} \frac{1}{4} + \frac{1}{4} \frac{1}{5} + \&c. = S - 1
\]

In the same way we find
\[
\frac{1}{1} \frac{1}{3} + \frac{1}{2} \frac{1}{4} + \frac{1}{3} \frac{1}{5} + \frac{1}{4} \frac{1}{6} + \&c. = 3\frac{1}{4}
\]

On the same principle, John Bernoulli demonstrated, that the sum of the reciprocals of the natural numbers is infinite. Let
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \&c.
\]

be changed into the equivalent form
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \&c.
\]
SERIES.

and let this last be resolved into the infinite series
\[
\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \text{&c.} = 1
\]
\[
\cdots + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \text{&c.} = \frac{1}{2}
\]
\[
\cdots + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \text{&c.} = \frac{1}{3}
\]
\[
\cdots + \frac{1}{30} + \text{&c.} = \frac{1}{4}
\]
\[
\cdots + \frac{1}{20} + \frac{1}{30} + \text{&c.} = \frac{1}{5}
\]
\[
\cdots + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \text{&c. ad infinitum}
\]

Whence it follows, that the sum of
\[
\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \text{&c. ad infinitum} = \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \text{&c. ad infinitum}
\]

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 scholiarm to 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, \(1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \cdots\), as 3 to 1. And generally, if we have a series of the reciprocals of any powers whatever, as \(\frac{1}{1^n} + \frac{1}{2^n} + \frac{1}{3^n} + \cdots\), 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,
\[
1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \text{&c. : } \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \text{&c. :: 7 : 1.}
\]

John Bernoulli's solution of the above problem depends upon the expression for the sine of an arc in terms of the arc, the same as that of Landen, of which we shall speak in the subsequeent part of this article, and shall, therefore, only give here the results that Bernoulli drew from his solution; viz. he proved that
\[
1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \text{&c.} = \frac{\pi^2}{6}
\]
\[
1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \text{&c.} = \frac{\pi^2}{6}
\]
\[
1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \text{&c.} = \frac{\pi^2}{6}
\]
\[
1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \text{&c.} = \frac{\pi^2}{6}
\]
\[
&c. &c. &c.
\]
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 209, tom. iii. "Histoire des Mathematiques."

We shall only further observe with regard to these authors, that we here find the first notice of continued expressions of the form
\[
\sqrt{a} + \sqrt{a} + \sqrt{a} + \cdots + \text{&c.}
\]
\[
\sqrt{a} + b \sqrt{a} + b \sqrt{a} + b \sqrt{a} + \cdots + \text{&c.}
\]

with the method of summing them by means of quadratic, cubic, and biquadratic equations. See our articles QUADRATIC, and SURDS.

3. Montmort's Method of Series.—The two methods above illustrated, by means of which the Bernoullis arrived at the summation of various series, are both indirect, 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 ad infinitum.

In 1712 another interesting correspondence took place on series of a different kind, between M. Montmort, John Bernoulli, and his nephew Nicholas 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 amongst both the English and French mathematicians. The subject 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 "Eloge 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 proposed 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 will the sum of the \(n\) terms be expressed by
\[
a + b + c + d + e + f + \cdots + n\text{ th term of the series: } D' + \frac{n}{1} \cdot \frac{n-1}{2} \cdot \frac{n-2}{3} \cdot D''
\]
\[
+ \frac{n}{1} \cdot \frac{n-1}{2} \cdot \frac{n-2}{3} \cdot \frac{n-3}{4} \cdot D'''
\]

which series will terminate in all cases, wherever 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 the natural series of the squares
\[
1 + 2^2 + 3^2 + 4^2 + 5 \cdots \cdot n^2
\]

Here \(a = 1, D' = 3, D'' = 2, D''' = 0\);

therefore
\[
n + \frac{n}{3} \cdot \frac{n-1}{2} \cdot \frac{n-2}{3} \cdot \frac{n-3}{4} \cdot \cdots \cdot \frac{n-\text{th}}{\text{number of terms}}
\]

is the sum required.

If it were the series of triangular numbers,
\[
1 + 3 + 6 + 10 \cdots \cdot n \cdot \frac{n+1}{2}
\]

then we should have
\[
a = 1, D' = 2, D'' = 1, D''' = 0;
\]

therefore the sum of \(n\) terms will be expressed by
\[
\frac{n}{1} \cdot \frac{n-1}{2} \cdot \frac{n-2}{3} \cdot \frac{n-3}{4} \cdot \cdots \cdot \frac{n-\text{th}}{\text{number of terms}}
\]

\[
\text{From.}
\]
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 + ...</td>
<td>( n )</td>
<td>( \frac{n(n+1)}{2} )</td>
</tr>
<tr>
<td>1 + 3 + 6 + 10 + ...</td>
<td>( \frac{n^2 + n}{2} )</td>
<td>( \frac{n(n+1)(n+2)}{1 \cdot 2} )</td>
</tr>
<tr>
<td>1 + 4 + 9 + 16 + ...</td>
<td>( \frac{2n^2 - 4n}{2} )</td>
<td>( \frac{n(n+1)(n+2)}{1 \cdot 2} )</td>
</tr>
<tr>
<td>1 + 5 + 12 + 22 + ...</td>
<td>( \frac{3n^2 - n}{2} )</td>
<td>( \frac{n(n+1)(n+2)}{1 \cdot 2} )</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 + ...</td>
<td>( n )</td>
<td>( \frac{n(n-1)}{1 \cdot 2} )</td>
</tr>
<tr>
<td>1 + 3 + 6 + 10 + ...</td>
<td>( \frac{n^2 + n}{2} )</td>
<td>( \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} )</td>
</tr>
<tr>
<td>1 + 4 + 9 + 16 + ...</td>
<td>( \frac{2n^2 - 4n}{2} )</td>
<td>( \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} )</td>
</tr>
<tr>
<td>1 + 5 + 12 + 22 + ...</td>
<td>( \frac{3n^2 - n}{2} )</td>
<td>( \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} + \frac{n(n-1)(n-2)}{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 + ... )</td>
<td>( \frac{n^3}{3} + \frac{n^2}{2} + \frac{n}{6} )</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 + ... )</td>
<td>( \frac{n^4}{4} + \frac{n^3}{2} + \frac{n^2}{4} )</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 + ... )</td>
<td>( \frac{n^5}{5} + \frac{n^4}{2} + \frac{n^3}{3} - \frac{n}{30} )</td>
<td>( \frac{n^5}{5} + \frac{n^4}{2} + \frac{n^3}{3} - \frac{n}{30} )</td>
</tr>
<tr>
<td>( 1^5 + 2^5 + 3^5 + 4^5 + ... )</td>
<td>( \frac{n^6}{6} + \frac{n^5}{2} + \frac{5n^4}{12} - \frac{n^3}{12} )</td>
<td>( \frac{n^6}{6} + \frac{n^5}{2} + \frac{5n^4}{12} - \frac{n^3}{12} )</td>
</tr>
</tbody>
</table>

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 −, 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

\[ D' = b - a \]
\[ D'' = a - 2b + c \]
\[ D''' = a - 3b + 3c - d \]
\[ D'' = a - 4b + 6c - 4d + e \]
\[ \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \]
\[ D^{(n)} = a - nb + \frac{n(n-1)}{1 \cdot 2} c - \frac{(n-1)(n-2)}{1 \cdot 2 \cdot 3} d + &c. \]

From which last general formula the first term of any order of differences may be found independent of all those which precede it.
Again, let \( N \) represent the \( n \)th term, and \( S \) the sum of \( n \) terms; then will
\[
N = a + \frac{\binom{n-1}{1}}{1} \text{D'} + \frac{\binom{n-1}{2}}{1 \cdot 2} \text{D''} + \frac{\binom{n-1}{3}}{1 \cdot 2 \cdot 3} \text{D'''} + \&c.
\]
\[
S = n a + \frac{n(n-1)}{1 \cdot 2} \text{D'} + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} \text{D''} + \frac{n(n-1)(n-2)(n-3)}{1 \cdot 2 \cdot 3 \cdot 4} \text{D'''} + \&c.
\]
which latter expression for the sum is, as we have above observed, due to M. Montuort. 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 INTEGRALS, for an illustration of the method of summation as depending upon those 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, on 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 assumed any series, and let this be multiplied by any binomial or trinomial factor, such that the resulting series shall have its powers of \( x \) recurring again in the same order; then, by equating the resulting series to \( c_0 \), 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
\[
1 + \frac{1}{2} x + \frac{1}{3} x^2 + \frac{1}{4} x^3 + \frac{1}{5} x^4 + \&c. = S.
\]
Multiplying this by \( x - 1 \), we have
\[
-1 + \frac{1}{1 \cdot 2} x^2 + \frac{1}{2 \cdot 3} x^3 + \frac{1}{3 \cdot 4} x^4 + \&c. = (x - 1) S.
\]
Whence, making \( x - 1 = c_0 \), or \( x = 1 \), we have
\[
\frac{1}{1 \cdot 2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \frac{1}{4 \cdot 5} + \&c. = 1.
\]
Again, assume
\[
1 + \frac{1}{2} x + \frac{1}{3} x^2 + \frac{1}{4} x^3 + \&c. = S.
\]
Multiplying by \( x^3 - 1 \), we have
\[
-1 + \frac{1}{1 \cdot 3} x^2 + \frac{2}{2 \cdot 4} x^3 + \frac{2}{3 \cdot 5} x^4 + \&c. = (x^3 - 1) S
\]
where making again \( x = 1 \), we have
\[
\frac{2}{1 \cdot 3} + \frac{2}{2 \cdot 4} + \frac{2}{3 \cdot 5} + \frac{2}{4 \cdot 6} + \frac{2}{5 \cdot 7} + \&c. = \frac{2}{3},
\]
\[
\frac{1}{1 \cdot 3} + \frac{1}{2 \cdot 4} + \frac{1}{3 \cdot 5} + \frac{1}{4 \cdot 6} + \frac{1}{5 \cdot 7} + \&c. = \frac{3}{4}.
\]
As another example, let the same series
\[
1 + \frac{1}{2} x + \frac{1}{3} x^2 + \frac{1}{4} x^3 + \frac{1}{5} x^4 + \&c. = S
\]
be multiplied by
\[
(2 x - 1) (3 x - 1) = 6 x^3 - 5 x + 1,
\]

and we have
\[
1 - \frac{9}{1 \cdot 2} x + \frac{23}{1 \cdot 2 \cdot 3} x^2 + \frac{38}{2 \cdot 3 \cdot 4} x^3 + \frac{57}{3 \cdot 4 \cdot 5} = (2 x - 1) (3 x - 1) S
\]
where, by making \( x = \frac{1}{2} \), and \( x = \frac{1}{3} \), we have the two following series:
\[
1. \quad \frac{23}{1 \cdot 2 \cdot 3} + \frac{38}{2 \cdot 3 \cdot 4} + \frac{57}{3 \cdot 4 \cdot 5} + \&c. = \frac{5}{4}
\]
\[
2. \quad \frac{23}{1 \cdot 2 \cdot 3} + \frac{38}{2 \cdot 3 \cdot 4} + \frac{57}{3 \cdot 4 \cdot 5} + \&c. = \frac{1}{2}
\]
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 Differentialis,” 1730, each term is a certain function of the number of terms from the beginning, or from some determinate 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 determinate 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 \( x^t \) is made to denote the distance of any other term from the same point, the sum to that term will be the same function of \( x^t \), 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, viz. 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
\[
a, b, c, \ldots, \&c., t, t', \&c.
\]
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 \( t \) be expressible by some function of \( x \); \( t' \) by the same function of \( x + 1 \); \( t'' \) by the same function of \( x + 2 \), &c.; by denoting therefore this function by \( f(x) \), we shall have
\[
t^0 = f(x - 1), \ t^1 = f(x), \ t'^1 = f(x + 1), \ &c.
\]
Also if \( f^0, f^1, f'^1, \&c. \) denote the sums of all the terms from the beginning to the terms \( t^0, t^1, \&c. \) respectively, these several sums will also be some function of \( x - 1, \ x, \ x + 1, \ x + 2, \ &c. \) which we may denote by
\[
f^0 = \phi(x - 1), \ f^1 = \phi(x), \ f'^1 = \phi(x + 1) \&c.
\]
whence we draw immediately
\[
f - f^0 = t, \text{ or } \phi(x) - \phi(x - 1) = f(x).
\]
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Now the function \( f(x) \) is given, being the general term of the series, and the object of enquiry is, from this given function to determine the two functions \( \zeta(x) \) and \( \zeta(x-1) \), of which it is the difference; for the former of these, \( \zeta(x) \), will then be the sum of the series to the term \( n \) inclusive.

To illustrate this by a familiar example; let the proposed series be

\[
1 + 3 + 5 + 7 + 9, \quad \&c.
\]

the general term of which is \( 2x-1 \); therefore,

\[
\zeta(x) = \zeta(x-1) = 2x-1;
\]

whence we have obviously \( \zeta(x) = x^3 \), for

\[
x^3 = (x-1)^2 = 2x-1;
\]

therefore \( x^3 \) is the sum of \( n \) terms of the above series.

Again, let it be required to find the sum of \( n \) terms of the series

\[
1, 7, 19, 37, \quad \&c.
\]

of which the general term

\[
f(x) = 3x^2 - 3x + 1,
\]

therefore,

\[
\zeta(x - \zeta(x-1)) = 3x^2 - 3x + 1;
\]

consequently \( \zeta(x) = x^3 \), the sum of the terms of the series.

In these two examples, finding the sum \( \zeta(x) \) 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 series in any other manner than by another series; but as in the latter case the transformed series may be made to poise almost any degree of convergence we please, this method of summation is still attended with important advantages, and even more perhaps in the latter case, than in any other; because, although not all, summable series, may be summed on some other principles; viz. 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 convergence, 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 enquiry is, in what manner we are to determine a function from two laws of it being given. In the examples we have chosen for illustration, the function whose 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 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 the fluent of any given fluxion is far from poising 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 rife to different functions, the same as happen in finding fluents, 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 therefore leave this determination, 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 series as have any order of their differences vanish, the general term is always of the form

\[
A n^m + B n^{m-1} + C n^{m-2} + D m^{m-2} + &c.
\]

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 1st, 2nd, 3rd, \&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,

\[
a + bx + cx^2 + dx + &c. \quad \text{or}
\]

\[
a + bx + cx^2 + dx^3 + &c.
\]

and our object is to transform either of those general forms into others, whereas 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

\[
A + B x + C x(x-1) + D x(x-2) + &c.
\]

\[
A \left( \frac{x(x+1)}{x(x+1)+x(x+1)(x-2)} + \frac{x(x+1)(x+2)}{x(x+1)(x+2)(x+3)} \right)
\]

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 similar functions

\[
A x + \frac{1}{4} B (x+1) x + \frac{1}{4} C (x+1) x(x-1) + \frac{1}{4} D (x+1) x(x-1)(x-2) + &c.
\]

and

\[
A (x-1) + \frac{1}{4} B x(x-1) + \frac{1}{4} C x(x-1)(x-2) + \frac{1}{4} D x(x-3)(x-4) + &c.
\]

For by subtracting these one from the other, we have

\[
A + B x + C x(x-1) + D x(x-2) + &c.
\]

And therefore, from what has been stated, the first of the above formulae will be the general sum of those series of which the general term is

\[
A + B x + C x(x-1) + D x(x-2) + &c.
\]

And in a similar manner it may be shown, that the second general form is equal to the difference between the two similar functions.
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\[ \frac{A}{x} + \frac{B}{2x(x+1)} + \frac{C}{3x(x+1)(x+2)} + \frac{D}{4x(x+1)(x+2)(x+3)} + \&c. \]

and

\[ \frac{A}{1+x} + \frac{B}{2(x+1)(x+2)} + \frac{C}{3(x+1)(x+2)(x+3)} + \frac{D}{4(x+1)\cdots(x+4)} + \&c. \]

For by subtracting these one from the other, we have

\[ \frac{A}{x(x+1)} + \frac{B}{x(x+1)(x+2)} + \frac{C}{x(x+1)(x+2)(x+3)} + \&c. \]

and consequently the former is the sum of that series whose general term is

\[ \frac{A}{x(x+1)} + \frac{B}{x(x+1)(x+2)} + \frac{C}{x(x+1)(x+2)(x+3)} + \&c. \]

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

\[ a + bx + cx^2 + dx^3 + ex^4 + \&c. \]

into another of the form

\[ A + Bx + Cx(x-1) + Dx(x-1)(x-z) + \&c. \]

By the actual multiplication of the latter formula, we have

\[ A = A \]
\[ B = Bx \]
\[ Cx(x-1) = -Cx + Cx^2 \]
\[ Dx(x-1)(x-z) = Dx - 3Dx^2 + Dx^3 \]

And equating the co-efficients of the like powers of \( x \) in this and the original series, we obtain

\[ d = D \]
\[ e = C - 3D \]
\[ b = B - C + D \]
\[ a = A \]

Whence the values of \( A, B, C, D, \&c. \) are determined by means of the known co-efficients \( a, b, c, d, \&c. \). And the same method may obviously be employed in any other similar case. The following table, however, will facilitate the operation; \( \&c. \)

\[ x = x \]
\[ x^2 = x + x(x-1) \]

Now

\[ \frac{1}{x} = \frac{1}{x(x+1)} + \frac{1}{x(x+1)(x+2)} + \frac{2}{x(x+1)(x+2)(x+3)} + \frac{6}{x(x+1)\cdots(x+4)} + \&c. \]

\[ \frac{1}{x^3} = \frac{1}{x(x+1)(x+2)} + \frac{3}{x(x+1)(x+2)(x+3)} + \frac{11}{x(x+1)\cdots(x+4)} + \&c. \]

\[ \frac{1}{x^4} = \frac{1}{x(x+1)(x+2)(x+3)} + \&c. \&c. \]

Or by making

\[ A = \alpha \]
\[ B = \alpha + \gamma \]
\[ C = 2\alpha + 3\beta + \gamma \]
\[ D = 6\alpha + 11\beta + 6\gamma + \gamma \]
\[ E = 24\alpha + 50\beta + 35\gamma + 10\beta + \gamma \]
\[ F = 120\alpha + 274\beta + 225\gamma + 85\beta + 15\gamma + \gamma \]

which
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

$$A + Bx + Cx(x - 1) + Dx(x - 1)(x - 2), =$$

$$A + \frac{1}{2}B(x + 1)x + \frac{1}{3}C(x + 1)x(x - 1) + &c.$$

Let it be proposed to sum the series of odd numbers,

$$1 + 3 + 5 + 7 + &c.$$

Here the general term is $2.\pi - 1$, or $-1 + 2n$; so that

$$a = -1 \text{ and } b = 2; \text{ whence } A = -1, \text{ and } B = 2,$$

and

$$C = 0; \text{ whence } A + \frac{1}{2}B (x + 1)x = x + x^2 - 1 = x^3, \text{ which is the known expression for the sum of } n \text{ terms of the above series.}$$

Again, require the sum of the series,

$$1 + 2 + 3 + 4 + 5 + &c.$$

Here the general term is $n(x + 1)$, or $x^3 + x^2 + 1$; by the preceding table,

$$x = n$$

$$x^2 = n + x(x - 1) = 2x + x(x - 1).$$

Therefore $A = 0$, $B = 2$, and $C = 1$; whence we have

$$\frac{1}{2}B (x + 1)x + \frac{1}{3}C (x + 1)x(x - 1) =$$

$$\frac{1}{3}(x^3 + 3x^2 + 2x), \text{ the sum of } n \text{ terms, as required.}$$

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 these 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,

$$A + B + C$$

$$x(x + 1) + x(x + 1)(x + 2) + x(x + 1)(x + 2)(x + 3) + &c.$$

the sum of that series is expressed by

$$A + \frac{B}{2x(x + 1)} + \frac{C}{3x(x + 1)(x + 2)} + &c.$$

1. Let it be proposed to find the sum of the infinite series,

$$\frac{1}{1} + \frac{1}{4 \cdot 7} + \frac{1}{4 \cdot 7 \cdot 10} + \frac{1}{7 \cdot 10 \cdot 13} + &c.$$  

where the general term is

$$\frac{1}{3x(x + 3)(x + 6)} = \frac{1}{27}x(x + 1)(x + 2)^3$$

$x$ being successively $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, &c.

Now this is of the required form, $A = 0$, and

$$B = \frac{1}{27}; \text{ therefore the required sum is }$$

$$\frac{1}{54} \frac{(x + 1)}{x},$$

by taking $x = \frac{1}{3}$, its first value. If we took $x = \frac{1}{2}$,

we should have the sum of all the terms of the series, except the first; if $x = 2$, we should have the sum of all but the two first terms, and so on: and it is by this means that we are enabled to give to a great 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; observing only, that such 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 Brontimer, for the quadrature of the hyperbola.

Here the general term is

$$\frac{1}{2x(2x + 1)} \text{, or } \frac{1}{4x(x + \frac{1}{2})} = \frac{1}{4x^2 + 2x};$$

taking $x = \frac{1}{3}$, $\frac{1}{3}$, $\frac{2}{3}$, &c. Now

$$\frac{1}{4x^2 + 2x} = \frac{1}{4x^2} - \frac{1}{8x^3} + \frac{3}{16x^4} - \frac{1 \cdot 3 \cdot 5}{32x^5} + &c.;$$

that is,

$$A = \frac{1}{4}, B = \frac{1}{8}, C = \frac{3}{16}, D = \frac{1 \cdot 3 \cdot 5}{32}, &c.;$$

whence

$$\frac{1}{4x^2 + 2x}, \text{ when converted into the required form, is,}$$

$$\frac{1}{4x^2 + 2x} + \frac{1 \cdot 3 \cdot 5}{32x(x + 1)(x + 2)(x + 3) + &c.;}$$

where the law of continuation is obvious, and the sum will be expressed by

$$\frac{1}{4x} + \frac{1}{16x(x + 1)} + \frac{1 \cdot 3}{48x(x + 1)(x + 2)} + \frac{1 \cdot 3 \cdot 5}{128x(x + 1)(x + 2)(x + 3) + &c.;}$$

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 $x = 13\frac{1}{2}$, which is its value in the 14th term, then the preceding series will exhibit the sum of the original series.
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Series from that term, to which adding the sum of the first 13 terms, we have, for the whole sum,

\[
\begin{align*}
13 & \text{ first terms} = .674285961 \\
9 & \text{ first terms of the new series} = .018861219 \\
\text{Whole sum} & = .693147180
\end{align*}
\]

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 this transformation, which consists in our being able, by the summation of a few of the leading terms of the original series, to give any degree of convergency to our transformed series, and thereby to perform the same upon a few terms, as would require the labour of ages to effect upon the series in its original form.

As another example, let the series,

\[
\frac{1}{x} = \frac{1}{x(x + 1)} + \frac{1}{x(x + 1)(x + 2)} + \frac{1}{x(x + 1)(x + 2)(x + 3)} + \frac{1}{x(x + 1)(x + 2)(x + 3)(x + 4)} + \&c.;
\]

be proposed, in which the general term is \( \frac{1}{x} \).

Now, from what has been said, it appears that

\[
\frac{1}{x} = \frac{1}{x(x + 1)} + \frac{1}{2 x(x + 1)} + \frac{1}{3 x(x + 1)(x + 2)} + \frac{1}{4 x(x + 1)(x + 2)(x + 3)} + \frac{1}{5 x(x + 1)(x + 2)(x + 3)(x + 4)} + \&c.;
\]

and consequently the sum will be

\[
\frac{1}{x} - \frac{1}{x(x + 1)} \frac{1}{2 x} \frac{1}{(x + 1)(x + 2)} \frac{1}{3 x} \frac{1}{(x + 1)(x + 2)} \frac{1}{4 x} \frac{1}{(x + 1)(x + 2)(x + 3)} + \&c.;
\]

in which substituting 13 for \( x \), viz. its 14th value, we find, by summation 13 terms of the new series, and adding that sum = .6742857427, to the sum of the first 12 terms of the original series, viz. 1.5619766653, we have 1.6419345065 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 summation of those series, in which the successive powers of an indeterminate quantity enter; all those which we have at present considered, having been wholly numerical. The formula for this purpose is as follows.

If the terms of any series be formed by writing any number, differing by unity, for \( z \) in the quantity

\[
x + \frac{a}{(1-x)z} + \frac{b}{(1-x)z(z+1)} + \frac{c}{(1-x)z(z+1)(z+2)} + \&c.;
\]

then the sum will be expressed by

\[
x^{n+1} \times \left\{ \frac{a}{(1-x)z} + \frac{b}{(1-x)z(z+1)} + \frac{c}{(1-x)z(z+1)(z+2)} + \&c. \right\};
\]

where \( A, B, C, \&c. \) represent the terms immediately preceding those in which they are found.

This latter expression, like those in the preceding propositions, will terminate when the series is summable; in other cases, it will be itself an infinite series, but such that we may give it to 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 researches 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 expressed by a finite or infinite formula, according as the successive differences of certain parts of its terms are of definite or indefinitely extent; thus, if

\[
a^n + b a^{n-1} x + c a^{n-2} x^2 + d a^{n-3} x^3 + \&c.,
\]

be any power (\( n \)) of the binomial \( a + x \), \( n \) being either integral, 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 \( q - p = D, r - q + p = D', r - 2 q + p = D'', \&c. \), viz.

\[
D', D'', D''', \&c. \],
\]

being the first terms of the successive orders of differences, then the sum will be

\[
D' b a^{n-1} x + D'' c a^{n-2} x^2 + D''' d a^{n-3} x^3 + \&c.;
\]

be expressed by

\[
(p + a x)^n + D' b x (a + x)^{n-1} + D'' c x^2 (a + x)^{n-2} + D''' d x^3 (a + x)^{n-3} + \&c.;
\]

which formula will obviously be finite, if any order of the

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From which general formula a great variety of particular cases may be drawn, according to the different values that are given to \( a, x, \) and \( n \).

Again, let the sum of the series

\[
a x^2 + b x^{n+1} + c x^{n+1} + d x^{n+2} + \&c. = \Lambda
\]

and the terms be respectively multiplied by the terms of the arithmetical progression \( r, r + n, r + 2 n, \&c. \), then will the sum of the series hence arising (B), viz.

\[
r a x^2 + (r + n) b x^{n+1} + (r + 2 n) c x^{n+2} + \&c.
\]

be
be expressed by the fluxional formula

\[(r - p) A + \frac{x \dot{A}}{x} = B;\]

where, because it is given in finite terms, \( \dot{A} \) will always
likewise be had in finite terms, and consequently, also, the
value of \( B \). And in the same manner as we have

\[a x^r + b x^{r+n} + c x^{r+n} + \&c. = A\]

\[r a x^r + (r + n) b x^{r+n} + (r + 2 n) c x^{r+n} + \&c. =\]

\[(r - p) A + \frac{x \ddot{A}}{x} = B;\]

so also

\[r \Delta x^r + (r + n) \Delta x^{r+n} + (r + 2 n) \Delta x^{r+n} + \&c. =\]

\[(r - p) B + \frac{x \dddot{B}}{x} = C \&c. \&c.\]

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 tract 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 fumination.

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," as also in the first volume of his "Introduction
in Analyzin Infinitorum;" many of these, however, may be
referred to the Method of Increments and Recurring
Series, which have been already treated of under those
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
Lucubrations," and shall therefore, in this place, limit our
observations to Euler's differential method.

Euler's Differential Method of Euler.—Let there be
proposed 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.

\[S = \frac{x \Delta a}{1 - x} + \frac{x^2 \Delta^2 a}{(1 - x)^2} + \frac{x^3 \Delta^3 a}{(1 - x)^3} + \&c.\]

in which \( \Delta a, \Delta^2 a, \Delta^3 a \) 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 vanishes, the transformed series will be
finite, but in other cases infinite, the same as that whence it is
derived.

Let, for example, the series

\[S = x^2 + 2 x^3 + 3 x^4 + 4 x^5 + \&c.\]

be the one proposed. 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

\[S = \frac{x}{1 - x} + \frac{x^2}{(1 - x)^2} + \frac{x^3}{(1 - x)^3} + \&c.\]

Hence, by substituting \( x = 1, \frac{1}{2}, \frac{1}{3}, \&c. \) we obtain

\[x = 1; S = 1 + 2 + 3 + 4 + \&c. = \frac{1}{1 - 1} = \infty\]

\[x = \frac{1}{2}; S = \frac{1}{2} + \frac{2}{4} + \frac{3}{8} + \frac{4}{16} + \&c. = \frac{1}{1 - \frac{1}{2}} = 2\]

\[x = \frac{1}{3}; S = \frac{1}{3} + \frac{2}{9} + \frac{3}{27} + \frac{4}{81} + \&c. = \frac{1}{1 - \frac{1}{3}} = \frac{3}{2}\]

Again, let the proposed 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

\[S = \frac{x}{1 - x} + \frac{x^2}{(1 - x)^2} + \frac{x^3}{(1 - x)^3} + \&c.\]

Making therefore, as before, \( x = 1, \frac{1}{2}, \frac{1}{3}, \&c. \)
we have

\[x = 1; S = 1 + 2 + 3 + 4 + \&c. = 1 + \frac{1}{1 - 1} = \infty\]

\[x = \frac{1}{2}; S = \frac{1}{2} + \frac{2}{4} + \frac{3}{8} + \frac{4}{16} + \&c. = \frac{1}{2} + \frac{1}{1 - \frac{1}{2}} = 3\]

\[x = \frac{1}{3}; S = \frac{1}{3} + \frac{2}{9} + \frac{3}{27} + \frac{4}{81} + \&c. = \frac{1}{2} + \frac{1}{1 - \frac{1}{3}} = 1\]

Without further examples, it is obvious, that a most ex-
tensive class of converging 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 supposed, that a certain
order of their differences may vanish, which will always hap-pen, 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 converging series,
it may frequently be employed to great advantage in approxi-mating towards the real value of slowly converging series
that are not convergent in any finite form, as for example,
the series

\[1 = \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \&c. = \text{hyp. log. 2} \]

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

\[S = \frac{x}{1 - x} + \frac{x^2}{(1 - x)^2} + \frac{x^3}{(1 - x)^3} + \&c.\]

will
will become, by making \( x = -1 \),
\[
S = \frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \frac{1}{5} + \frac{1}{6} - \frac{1}{7} + \frac{1}{8} - \frac{1}{9} + \cdots &= \text{etc.}
\]
whence, by changing signs, we have
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \cdots = \text{hyp. log. 2}
\]
\[
= \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \cdots = \text{etc.}
\]
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 most remarkable results, as
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \cdots = \frac{1}{2}
\]
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6} = \frac{1}{4}
\]
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} = \frac{1}{2}
\]
\[
1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} + \frac{1}{6} = \frac{1}{2}
\]
\[
= 0.57493562137
\]
euler also employed other methods for summing series which we have not referred to either in the above article, or in the articles \textit{Increments or 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 seriebus 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 Maclaurin and hutton, but our article having already been carried to a greater extent than usual for mathematical subjects, we must limit ourselves to giving merely the theorem, and leave the application of them to the ingenuity of the reader.

8. Maclaurin's differential Formula for slowly converging Series.

Let
\[
a + bx + cx^2 + dx^3 + \cdots
\]
represent any series, and \( D, D', D'', \text{etc.} \), the first terms of the successive order of differences of the coefficients \( a, b, c, d, \text{etc.} \), which are supposed continually to diminish, then will the sum of the above series be expressed by the differential series
\[
a + bx + cx^2 + dx^3 + \cdots = \frac{D}{1 + x} - \frac{D'}{1 + x}^2 - \frac{D''}{1 + x}^3 - \cdots
\]
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
\[
1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \cdots = \text{etc.}
\]
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 series whose terms are alternately plus and minus, as \( a - b + c - d + \cdots \), the total sum of which series is given alternately in excess and defect, by the successive quantities
\[
\begin{align*}
\frac{a}{2}, & \quad \frac{3a - b}{4}, & \quad \frac{7a - 4b + c}{8}, \\
\frac{15a - 11b + 3c - d}{16}, & \quad \frac{31a - 26b + 16c - 6d + e}{32}, & \quad \cdots
\end{align*}
\]
and each of these quantities, as we have stated above, is an approximation towards the whole sum; the first 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
\[
\frac{1}{2^n} \left\{ (2^n - 1) a - (A - n) b - (B - \frac{n(n - 1)}{1 \cdot 2} \cdots) c \right\}
\]
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 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 indeterminate 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
\[
\frac{1}{p + q} + \frac{1}{p + 2q} + \frac{1}{p + 3q} + \text{etc.}
\]
Multiply each term successively by
\[
x^{p+1}, x^{p+2}, x^{p+3}, \text{etc.}
\]
and there results
\[
x^{p+1} + x^{p+2} + x^{p+3} + \text{etc.}
\]
\[
\frac{x^{p+1}}{p + q} + \frac{x^{p+2}}{p + 2q} + \frac{x^{p+3}}{p + 3q} + \text{etc.}
\]
Make the sum of this series \( S \), and then taking the fluxion on both sides, we have
\[
\frac{q}{x} \frac{dS}{dx} = x^{p+1} + x^{p+2} + x^{p+3} + \text{etc.}
\]
or
\[
\frac{q}{x} = 1 + x + x^2 + x^3 + \text{etc.}
\]
whence
\[
S = \frac{x^{p+1}}{q(1 - x)}
\]
which, by making \( x = 1 \), becomes the same as the series originally proposed, viz.
\[
\frac{1}{p + q} + \frac{1}{p + 2q} + \frac{1}{p + 3q} + \frac{1}{p + 4q} + \text{etc.}
\]
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 integral when \( x = 1 \).

By a similar process, the author finds the sum of the series,
\[
\frac{1}{p + q} + \frac{1}{p + 2q} + \frac{1}{p + 3q} + \frac{1}{p + 4q} + \text{etc.}
\]

O 0 2
to be equal to \( \frac{1}{q} \int \frac{p}{x^2 + \frac{x}{1 + x}} \); the fluent being taken under
the same restrictions as before. And in nearly the same way
he finds the sum of \( n \) terms of the former to be
\[
\Sigma = \frac{1}{q} \left\{ \int \frac{x}{x^2 + \frac{x}{1 + x}} - \int \frac{x + 2}{1 - x} \right\}
\]
and the latter,
\[
\Sigma = \frac{1}{q} \left\{ \int \frac{x}{x^2 + \frac{x}{1 + x}} - \int \frac{x + n}{1 - x} \right\}
\]
In a similar manner, M. Lorgna finds for the infinite sum of
\[
\frac{1}{(p + q)m} + \frac{1}{(p + 2q)m^2} + \frac{1}{(p + 3q)m^3} + \cdots
\]
\[
S = \frac{1}{q} \int \frac{x}{m \pm x}; \text{ and the sum of } n \text{ terms,}
\]
\[
\Sigma = \frac{1}{q} \int \frac{(m^n - x^n) x}{m^n (m - x)} \text{, when the signs are all plus;}
\]
and \( \Sigma = \frac{1}{q} \int \frac{(m^{2n} - x^{2n}) x}{m^{2n} (m + x)} \) when alternately plus and minus.

For a farther illustration of this method, we refer the reader to Clarke's translation of Lorgna's treatise, "De Seriesbus Convergentibus," 4th. ed., 1779.

11. Circular Series. — We have stated, when illustrating the methods of summation employed by the Bernoullis, that James, although he had discovered several curious properties of the series,
\[
\frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots
\]
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 result he drew from the known series, which expresses the sine of an arc in terms of the arc, viz.

\[
f \sin \, x = x - \frac{x^3}{2 \cdot 3} + \frac{x^5}{2 \cdot 3 \cdot 4 \cdot 5} - \frac{x^7}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \cdots
\]
which, when \( \sin \, x = 0 \), becomes, after dividing by \( x \),
\[
o = 1 - \frac{1}{2 \cdot 3} x^3 + \frac{1}{2 \cdot 3 \cdot 4 \cdot 5} - \frac{1}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \cdots
\]
Or writing \( x = \frac{1}{z} \);
\[
o = 1 - \frac{1}{2 \cdot 3} \frac{z^3}{2 \cdot 3 \cdot 4 \cdot 5} - \frac{1}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \cdots
\]
Again, multiplying by \( z^n \),
\[
o = z^{3n} - \frac{1}{2 \cdot 3} z^{5n-1} + \frac{1}{2 \cdot 3 \cdot 4 \cdot 5} z^{7n-4} + \cdots
\]
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
\[
z^2 + z^3 + z^4 + \cdots + \&c.,
\]
and in nearly the same way he finds the sum of the roots of the above equation.

But we know that the values of \( x \), answering to the case of
\( \sin \, x = 0 \), arc \( x \), \( \frac{x^3}{2} \), \( \frac{x^5}{2 \cdot 3} \), \( \frac{x^7}{2 \cdot 3 \cdot 4} \), \&c.; = denoting the semi-circumference; substituting, therefore, these succeessive values of \( x \), we have
\[
\frac{1}{x^2} + \frac{1}{x^3} + \frac{1}{x^4} + \cdots + \frac{1}{x^n} + \&c. = \frac{1}{q} i
\]
denoting by \( x^\frac{1}{2}, x^\frac{3}{4}, x^\frac{5}{6}, \&c., \) or \( \frac{1}{x^\frac{1}{2}}, \frac{1}{x^\frac{3}{4}}, \frac{1}{x^\frac{5}{6}}, \&c. \) the
succeessive roots of the above equation.

And Landen's method depends upon exactly the same principles; but he has rendered it more general, and exhibits several very remarkable series of this kind. He first deduces the formulae for expressing the sums of the several powers of the roots, \( a, b, c, \&c. \) of any equation
\[
x^n + A x^{n-1} + B x^{n-2} + C x^{n-3} + \&c. = 0;
\]
\( viz. \) if \( S' = a + b + c + \&c. \)
\( S'' = a^2 + b^2 + c^2 + \&c. \)
\( S''' = a^3 + b^3 + c^3 + \&c. \)
then
\( S' = - A \)
\( S'' = - 2 B - A S' \)
\( S''' = - 3 C - B S' - A S'' \)
\( S' = - 4 D - C S' - B S'' - A S''' \)
\&c. \&c.

Then from the two series for the sine and cosine of any
arc \( x \), viz.
\[
\sin \, x = x - \frac{x^3}{2 \cdot 3} + \frac{x^5}{2 \cdot 3 \cdot 4 \cdot 5} - \frac{x^7}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \cdots
\]
\[
\cos \, x = 1 - \frac{x^2}{2} + \frac{x^4}{2 \cdot 3} - \frac{x^6}{2 \cdot 3 \cdot 4} + \cdots
\]
he derives the sum of their squares, when \( \sin \, x = 0 \), and \( \cos \, x = 0 \); and, 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 \( \cos \, x = 0, \) 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, \( \cos^2 \),
\[
\frac{1}{\varphi^2} + \frac{1}{3 \varphi^2} + \frac{1}{5 \varphi^2} + \frac{1}{7 \varphi^2} + \cdots
\]
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\[ \frac{2}{\varphi} + \frac{2}{2^2 \varphi} + \frac{2}{5^2 \varphi} + \frac{2}{7^2 \varphi} = S'' = \frac{1}{6^3} \]

\[ \frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} = \frac{\pi^2}{2}. \]

In a similar manner we have

\[ \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + \&c. \]

and on the same principle, the sum of the series,

\[ \frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + &c. \]

may be found, a 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

\[ 1 + \frac{1}{2^2} + \frac{1}{4^2} + \&c. = \frac{\pi^2}{6} \]

\[ 1 + \frac{1}{3^2} + \frac{1}{5^2} + \&c. = \frac{\pi^2}{12} \]

\[ 1 + \frac{1}{6^2} + \frac{1}{8^2} + \&c. = \frac{\pi^2}{24} \]

\[ \&c. \]

where the law of the first multiplier is obvious, but the coefficients of \( \pi^2, \pi, \&c. \) are not so easily seen: those for the following powers are

\[ \frac{\pi^3}{3}, \frac{\pi^5}{5}, \frac{\pi^7}{7}, \frac{601}{105}, \&c. \]

If each of these series be multiplied by their first fraction, they give

\[ \frac{1}{2^2} + \frac{1}{4^2} + \frac{1}{6^2} + \&c. = \frac{1}{2^2} \cdot \frac{\pi^2}{6} \]

\[ \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + \&c. = \frac{1}{3^2} \cdot \frac{\pi^2}{12} \]

\[ \&c. \] and subtracting the first from the latter, we have

\[ \frac{1}{3^2} + \frac{1}{5^2} + \&c. = \frac{\pi^2}{2^2} \]

\[ \frac{1}{3^2} + \frac{1}{5^2} + \&c. = \frac{\pi^2}{3^2} \]

\[ \&c. \]

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.

\[ \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \&c. = \frac{\pi}{4} \]

\[ \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \&c. = \frac{\pi}{8} \]

\[ \frac{1}{3} - \frac{1}{5} - \frac{1}{7} + \&c. = \frac{\pi}{32} \]

\[ \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \&c. = \frac{\pi}{96} \]

\[ \&c. \]

For a great variety of other series of this kind, see Euler's "Introductio in Analytin Infinitorum," and his "Institutiones Calculi Differentialis." See also Spence's "Effay on the Theory of the various Orders of Logarithmic Transcendents," 4th. 1809; in which several series, somewhat similar to the above, but which were not fumenable by Euler's method, are treated of, and investigated in a very able manner.

We ought perhaps to apologize to such of our readers who are not interred in mathematical enquiries, for the length to which we have extended this article; but those who are, will not, we presume, be displeased to find in 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 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 Transcendents," and that of M. Arbogast, given in his "Calcul des Derivatives." We had indeed, in the first instance, intended to give an 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 \( S \) the sum of an infinite number.

1. To find whether the sum of any proposed series be finite or infinite, let \( p, q, r, s \) 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 form of a series, when any order of \( m \) of its differences vanish, is of the form

\[ T = A_n + B n^{-1} + C n^{-2} + \&c. \]

and its sum of the form

\[ S = A' n^{m+1} + B' n^m + C' n^{m-1} + \&c. \]

the values \( A, B, C, \&c. \) being found as indicated in art. 5, and those of \( A', B', C', \&c. \) in a similar manner.

3. Simple arithmetical Series.

\[ a + (a+d) + (a+2d) + (a+3d) + \cdots + (a+(n-1)d) \]

\[ (S) \] Infinite (\( S = \frac{n}{2} (2a + (n-1)d) \).

If the series decrease, then \( d \) is negative, and

\[ (S) = \frac{n}{2} (2a - (n-1)d). \]

4. Simple geometrical Series.

\[ a + ra + r^2a + r^3a + \cdots + r^{n-1}a \]

\[ (S) = \frac{a}{1-r} \]

\[ (S) = \frac{r^n - 1}{r - 1} \]

5. Powers
5. **Powers of Arithmeticals.**

\[(m + p)^r + (m + 2p)^r + (m + 3p)^r + \cdots + (m + np)^r\]

\[S = \frac{np^{r+1}}{(r+1)p} + \frac{n^r}{2} + \frac{np^r}{3} + \frac{np^{r+1}}{4} \cdot \cdots \cdot \frac{np^r}{6} + \frac{r(r-1)}{2} \cdot \frac{r(r-2)}{3} \cdot \frac{r(r-3)}{4} \cdot \frac{r(r-4)}{5} \cdot \frac{r(r-6)}{6} \cdot \frac{r(r-8)}{7}, \cdots \]

\[= \frac{1}{3} \cdot \frac{r(r-1)}{2} \cdot \frac{r(r-2)}{3} \cdot \frac{r(r-3)}{4} \cdot \frac{r(r-4)}{5} \cdot \frac{r(r-6)}{6} \cdot \frac{r(r-8)}{7}, \cdots \]

continued till they terminate. The co-efficients are the same as \(\frac{1}{A^e}, \frac{1}{B^e}, \&c.\) \(N^3 11.\)

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.

6. **Series of figurate Numbers.**

\[1 + m + \frac{m(m+1)}{1 \cdot 2} + \frac{m(m+1)(m+2)}{1 \cdot 2 \cdot 3} + \frac{m(m+1)(m+2)(m+3)}{1 \cdot 2 \cdot 3 \cdot 4} + \&c\]

\[S = \frac{n(n+1)(n+2)(n+3)}{1 \cdot 2 \cdot 3 \cdot 4} \text{ to } m \text{ terms,}\]

See particular results, art. 3.

7. **Series of compound Arithmeticals.**

\[(m + e) \cdot (p + e) + (m + 2e) \cdot (p + 2e) + \cdots \cdot (m + ne) \cdot (p + ne)\]

\[S = np^e + \frac{n+1}{2} \cdot (m + p) \cdot e + \frac{(n+1)(2n+1)}{6} \cdot e^2\]

8. **Series of compound geometrical Numbers.**

\[(b - m) \cdot (c - p) \cdot e^1 + (b - 2m) \cdot (c - 2p) \cdot e^{1+e} + (b - 3m) \cdot (c - 3p) \cdot e^{1+2e} + \&c.\]

\[S = e^e \cdot \left\{ \frac{b}{1 - e^e} + \frac{b \cdot p \cdot c}{1 - e^e} + \frac{m \cdot p \cdot (1 + e^e)}{(1 - e^e)^2} \right\}\]

9. **Series of compound figurate Numbers.**

\[1 + \frac{m}{1 \cdot 2} + \frac{m(m+1)}{1 \cdot 2 \cdot 3} \cdot \frac{m(m+1)(m+2)}{1 \cdot 2 \cdot 3 \cdot 4} + \&c.\]

\[S = \frac{1}{(1 - x)^m}\]

10. **Series of the Reciprocals of figurate Numbers.**

\[1 + \frac{1}{m} + \frac{1}{m(m+1)} + \frac{1 \cdot 2 \cdot 3}{m(m+1)(m+2)} + \frac{1 \cdot 2 \cdot 3 \cdot 4}{m(m+1)(m+2)(m+3)} + \&c.\]

\[S = \frac{m - 1}{m - 2}\]

11. **Reciprocals of the Powers of Arithmeticals.**

\[\frac{1}{a^n} + \frac{1}{a^{n+1}} + \frac{1}{a^{n+2}} + \cdots \cdot \frac{1}{a^{n+1}}\]

\[S = \frac{n}{a^n} - \frac{1}{a^{n+1}} - \frac{1}{a^{n+2}} - \cdots \cdot \frac{1}{a^{n+1}}\]

where
SERIES.

where the law of continuation is obvious, \( p \) being \( \frac{a}{a+nA} \) and the values of \( \frac{1}{A}, \frac{1}{B}, \frac{1}{C}, \&c \) being derived as follows,

viz. denoting these respectively by \( \frac{1}{a}, \frac{1}{b}, \frac{1}{c}, \&c. \)

\[
\begin{align*}
\phi &= \frac{1}{6} \\
\psi &= \frac{3}{10} - 2.5 \\
\phi &= \frac{5}{14} - 3.5 - 5\psi \\
\end{align*}
\]

\( \psi = \&c. \&c. \) and generally

\[
\begin{align*}
\psi &= \frac{n}{2n+4} - \frac{n+1}{2}\psi - \frac{(n+1)n(n-1)}{2 \cdot 3 \cdot 4}\psi - \frac{(n+1)n(n-1)(n-2)(n-3)}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6}\psi \&c.
\end{align*}
\]

12. Fractional Series of the following Form.

\[
\begin{align*}
(1) & \frac{m}{\beta} + \frac{m(m+p)}{\beta(\beta+p)} + \frac{m(m+p)(m+2p)}{\beta(\beta+p)(\beta+2p)} + \ldots \frac{m(m+p)\ldots (m+(n-1)p)}{\beta(\beta+p)\ldots (\beta+(n-1)p)} \\
(\Sigma) &= \frac{m}{\beta-p-m} \\
(2) & \frac{1}{(p+q)(m+r)} \pm \frac{1}{(p+2q)(m+2r)} + \frac{1}{(p+3q)(m+3r)} \pm \&c. \frac{1}{(p+qn)(m+nr)} \\
(\Sigma) &= \frac{1}{p+q} \times \int \frac{(x^q-x^r)}{1+x} \\
(3) & \frac{1}{(p+q)\beta} \pm \frac{1}{(p+2q)\beta^2} + \frac{1}{(p+3q)\beta^3} \pm \&c. \ldots \frac{1}{(p+qn)\beta^n} \\
(\Sigma) &= \frac{1}{q} \int \frac{(\beta^n-x^n)}{\beta^n-x^n} \\
\end{align*}
\]

where \( \beta \) must be affirmative, and not less than unity.

\[
\begin{align*}
(4) & \frac{a}{b(b+c)} + \frac{a}{(b+c)(b+2c)} + \frac{a}{(b+2c)(b+3c)} + \&c. \ldots \frac{a}{(b+(n+1)c)(b+nc)} \\
(\Sigma) &= \frac{n}{a} \frac{b}{b+nc} \cdot (\Sigma) = \frac{a}{bc} \\
(5) & \frac{a}{b(b+c)} + \frac{a}{(b+c)(b+2c)} + \frac{a}{(b+2c)(b+3c)} + \frac{a+2c}{(b+3c)(b+4c)} \\
&+ \&c. \ldots \frac{a+(n+1)c}{b+(n+1)c} \\
(\Sigma) &= \frac{2abc+ace-bce}{2b(b+c)} \frac{n}{b+(n+1)c} + \frac{(ace+bc)e}{b+(n+1)c} n^2 \\
(6) & \frac{a}{a+1} + \frac{a+b}{(a+1)(a+1+b)} + \frac{a+2b}{(a+1)(a+1+b)(a+1+2b)} \\
&+ \&c. \ldots \frac{a+(n-1)b}{(a+1)(a+1+b)\ldots (a+1+(n-1)b)} \\
(\Sigma) &= 1 - \frac{1}{(a+1)(a+1+b)\ldots (a+1+(n-1)b)} \\
(7) & a \cdot c + (a+b)ce + (a+2b)ce + (a+3b)ce + \&c. \\
(\Sigma) &= \frac{ace(q^n-1) + nbcq^2 - bce(q^n-1)}{q-1} \\
\end{align*}
\]
For a great variety of other fractional series, see Clarke's translation of Lograna's Series; for the several differential formulae, our articles 3, 6, 7, 8, and 9; for the summation of Recurring Series, see that 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 Finiliferre; 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.

SERIGO, a town of Italy, on the lake Como; 27 miles N. of Como.

SERIJHEYODOUC, a town of Chinese Tartary, in the country of the Mongols. N. lat. 42° 15'. E. long. 102° 34'.

SERIKOTCHE, a town of Persia, in the province of Choralan or Khorassan; 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 Lusitan fynum, common in Germany and Italy, and called by theAUTHORS haemogn, or hirangryl. Its back is of a reddish-brown, and its head a little black; 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 sings very sweetly.

SERIN of Serinam. See PIPRA Crippata.

SERIN of the Canaries. See Fringilla Canaria.

SERIN of Jamaica. See Fringilla Canaria.

SERINDA, in Ancient Geography, a town of India, on this side 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 Macedon; 44 miles S.E. of Salomik.

SERINEAH, a town of Bengal, 18 miles S. of Pur- neah.

SERINETTE, a bird organ, said to be the Encyclopédie to be an invention of Barbary. The pitch is very high, being in unison with the largest flut 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 base is ever wanted.

SERINGAPATAM, in Geography, a city of Hindostan, and capital of Myro, situated on an island in the Cauvery, which is here about five feet deep, and runs over a rocky channel, about 290 or 300 miles from Madras. The length of this isle is about four 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 out- works, magnificent palaces, and lofty mofiefs; for Tippoo and his father were both Mahometans, nor were they averse from the persecution 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 fortress was defended till the peace of 1792 by a single rampart; the east and west faces being much weaker, were strengthened by double walls and ditches, by outworks before the gates, by a circular work upon the south-east 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 revet- ment, 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 glacis extends along the north face. But the inte- rior of the fort has few good buildings, and the town in general is mean. The old Mysore palace being in a ruined state, has been converted into a military headquarters. The sultan's palace is a magnificent edifice, in the Asiatic style, but much disfigured by a high wall, and a number of unfin ished buildings round it. The great mole 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 Myro, to a peace, by which he made a cession of great part of his dominions, and agreed to pay three crores and thirty-five 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 lots of the besiegers amounted to 22 officers killed, 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 800. The lots must have been very great, as in the assault only, 214 principal officers were killed, and 740 wounded, besides Tippoo himself, who received a shot in his head. There were founders in the forts 323 brass guns, 60 mortars, 11 howitzers, 466 iron guns, and 12 mortars, 424,400 round shot, 520,000 lbs. of gunpowder, and 99,000 muskets, carabines, &c. Within the fort there were 11 large powder magazines, 72. experience magazines, 17 armories, 2 cannon foundries, three buildings with magazines for boring guns and muskets, four large arquebuses, and 17 other foureleeves, containing accoutrements, swords, and other articles, besides many granaries abundantly stored with provisions of all kinds. Of treasure and jewels the total value was 2,533,804 rupas pagodas, or 1,143,261 sterling. The fall of this city put the whole kingdom of Mysore, 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 successees afford a convincing proof that no climate or fortresses can overcome British courage, conduct, and perseverance. N. lat. 12° 31' 45''. E. long. 76° 46' 45''.

SERINGHAM, an island of Hindoostan, in the river Cauvery, on which are two pagodas, much venerated by the Hindoos, and one particularly 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 Trichinopoly.
SERINHAEM, a river of Brazil, which runs into the Atlantic, S. lat. 1° 50'.

SERINO, a town of Naples, in Principato Ultra; 19 miles S. of Benevento.

SERINPALLE, a town of Africa, in the country of Cayor, on the left bank of the Senegal. N. lat. 16° 50'. W. long. 15° 50'.

SERINPETTA, an island in the river Senegal, where the canoes of the country are contracraet.

SERIO, a river of Italy, which runs into the Adda, at Pizzighitone.—Allo, a department of Italy, composed of part of the Bergamaco: it contains 195,803 inhabitants, who elect 15 deputies. Its capital is Bergamo.


Gen.Ch. Common calyx simple, composed of linear, nearly equal, erect leaves. Cor. compound, imbricated, uniform, composed of numerous, equal, perfect flowers; proper of one ligulate, linear, truncated, five-toothed petal. Stam. Filaments five, capillary, very short; anthers cylindrical, tubular. Pist. Germen ovate; style thread-shaped, the length of the flaments; stigmas two, reflexed. Peric. none, except the unchanged calyx. Seeds oblong, the length of the calyx. Down capillary, feathered, with ten rays hairy at the recept. Recept. chaffy, deciduous, as long as the calyx.


3. S. criptes. Cretan Seriola. Linn. Sp. Pl. 1139. ("Achiloplos serisus, dentis leonis folio leviter dentato; Vaill. Act. 740.")—Hardy rough with hairs. Leaves runcinate.—Native of the island of Candia or Crete. We know not of any figure or description of this species. It is kept on the above quoted authorities.


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SERIPALA, in Ancient Geography, a town of India, on this side of the Ganges, in the number of those which were situated to the east of the river Nosudus, according to Ptolemy.

SERIPHUS, in Botany, a plant applied to this genus on account of the analogy, in its habit and foliage, with Artemisia pontica of Pliny, called by the Greeks Seriphe. The origin of this name may be traced to Seriphion, or, as it is now called, Serphi, an island in the Aegean sea, where a fish is used to feed the nature, as only to abound in plants of this rough kind. "This island," says De Theis, "covered with rocks and mountains, has always been regarded as a melancholy retreat. A Greek once demanded of one of its inhabitants, what crime they punished with banishment? Perjury, was the answer. Why then, says the Greek, don't you always perjure yourselves, in order that you may escape from such a horrible residence?" The French name Armee, from Arnoifi, Wornwood, is expressive of its natural affinity to that genus.—Linn. Gen. 454. Schreb. 594. Martt. Mill. Dict. v. 4. Juff. 180. Lamarck Hith. t. 722. Gaertn. t. 157.—Clas and order. Synonemia Polygama Segregata. Nat. Ord. Composite Nuemcanteae. Linn. Cimbrabae, Juff.

Obf. Wilkendow and the editor of Hortus Kewensis have not adopted this genus. They refer the several species of it to Artemisia and Stachy.

Gen. Ch. Cal. Peranth double; outer of five, roundish, imbricated, downy leaves; inner of five, erect, acuminate, awl-flowered, smooth, feamy leaves, which are twice as long as the outer ones, single-flowered. Cor. of one petal, funnel-flowered, shorter than the inner calyx; limb five-toothed. Stam. Filaments five, capillary; anthers cylindrical. Pist. Germen between the calyx and the flower; style thread-flowered; stigma rather slender. Cor. none, except the unchanged, closed calyx. Seed solitary, oblong.


The food-down of this species being feathered at the tip, induced Linnaeus to make it a Seriphium.

SERIPIUS, or Seriphion, in Ancient Geography, an island in the Archipelago, and one of the Cyclades, ac-
acording to Herodotus, the inhabitants of which took the part of the Greeks against Xerxes. Some authors, however, place Scythus in the rank of the Sporades. It is situated west of Paros, and south of Cythnos. It presents the appearance of a rock, but is inhabited. The Romans fent several certain criminals.

SERIPO, a town of Hifpania, in Bética. Pliny.

SERI SOMTOUT, in Geography, a district of Tibet, 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-leaf; segments trifid, acute. Stam. Filaments five, very short, below the mouth of the tube; anthers oblong, incumbent. Pith. Germin inferior, rounded; style thread-shaped, the length of the corolla; stigma oblong, villous, reflexed. Peric. Berry roundish, small, of one cell. Seeds numerous, (according to L’Heritier and Brown only two), ovate, fmal.

El. Ch. Corolla funnel-shaped, fringed at the mouth. Segments of the limb mostly three-lobed. Berry inferior, with two seeds.


This elegant little shrub produces numerous white flowers, which have the appearance of those of Jasmine, but are without scent, as indeed is the whole plant, until it is 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 Borytenees. Ptolomy.

SERKA, in Geography, a town of Nubia; 200 miles S. of Sennar.

SERKEISK, 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 Afgan Turkey, in Caramania; 50 miles W. of Cogni.

SERLIO, Sebastiano, 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 refided 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 elections 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 Griman at Venice, are built in a grand and magnificent style. Gen. Bion.

SERMAISE, in Geography, a town of France, in the department of the Marne; 10 miles S. of Menehould.

SERMAIS, a town of France, in the department of the Loiret; 7 miles N. of Pithiers.

SERMAK, a town of Sweden, in the province of Tavalland; 170 miles N. of Tavallus.

SERMANICOMAGUS, in Ancient Geography, a town of Gaul, which, according to the tabular of Peutinger, was situated in Aquitania secunda. It was on the right of the Varus, at some distance N. of Icullina, according to M. d’Anville; it is the present Chermes.

SERMATIA, in Geography, a town of Hindostan, in the sbah of Agra; 25 miles N.E. of Kerowly.

SERMATTIA, an island in the East Indian sea, about 22 miles long, and six broad. S. lat. 8° 9'. E. long. 129° 13'.

SERMESOK, an island near the W. coast of Greenland. N. lat. 61° 50'. W. long. 47° 43'.

SERMIA, a river which rises near Montegio, in the state of Genoa, and after passing by Serravalle, Tortona, &c. runs into the Tanaro.

SERMIN, a town of Ilria; 2 miles N.E. of Capo d’Itria.

SERMIONE, a town and castle of Italy, in the Veronese, on a neck of land running into lake Gorda, the harbour of which may be shut by means of chains, defended by a castle. This was the native place of the poet Catullus; 16 miles W. of Verona.

SERMOCINATION, SERMOCINATIO, in Rhetoric, denotes discourse in general, whether held by a perfon alone, or in company, and is the same with what is otherwife called dialogism.

SERMOLOGUS, SERMOLOGUE, an ecclesiastical book composed of sermons, or homilies of popes, and other persons of eminence and finuity, formerly read at the feafts of the Confessors, the Purification, All Saints, and on every day from Christmas to the octave of the Epiphany. See HOMILY.

SERMON, a discourse delivered in public, for the pur- pose of religious instruction and improvement; or a per- fusive 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 moft 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 sense and common probity must teach every man to despife. Usefulness and true eloquence are insepable, nor can any man be justly deemed a good preacher, who is not an useful one. 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 not too numerous
numerous and too minute, serve to aid the composer and the
hearer of a sermon. In order to render sermons more
shining, and consequently more useful, the subject of
them should be precise and particular. General subjets, 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 flowry talents, are by
no means the most favorable for producing the highest effects
of preaching. These subjets, often recur to, admit of
little diversify and variety. The attention of the hearer
is more certainly engaged and fixed, by fixing some particular
view of a great subjet, some fingle interlacing topic, and
directing to that point the whole force of argument and
elegance. Here indeed the execution is more difficult,
but the merit and the effect are higher. Moreover, the com-
poser of a sermon should never fludy to lay all that can be
said upon a subjet: no error can be greater than this. On the other hand,
the preacher should select the most useful, flring, and
perfeftive topics which the text suggests; and with this view
he should confider, that difcourses for the pulpit are intended
lest for information than perfuafion, and that nothing is
more opposite to perfuafion than an unneceffary and tedious fulnefs.
Again, in fludyng a sermon, the preacher ought to place
himself in the situation of a ferial hearer; and derive his
principal materials from those views of a subjet, and those
arguments and reflections which would operate moft favour-
ably and moft effectually on his own mind. Above all things,
the preacher should fludy to render his instructions interlacing
to the hearers. In this refpect, much depends on the delivery
of a difcourse, but much will also depend on the composition
of it. Correct language and elegant defcription are but
the secondary instruments of preaching in an interlacing
manner. The great fecret lies, in bringing home all that is
faid to the hearts of the hearers, fo that every man may be
led to think that the preacher is addreffing him in particular.
It is hardly neceffary to fubjoin a caution here, that perfon-
ality should be avoided. For the attainment of the end now
firmed, the preacher should avoid all intricate reafonings,
and expriffing himfelf in general speculative propofitions,
and laying down abstract truths in an abstract metaphypfical
manner. As much as poifible, the difcourse ought to be
caflly on the plan of direct adfrefs to the audience;
not in the strain of one writing to felf, but of one speaking
to a multitude, and fludyng to mix what is called application,
or what has an immediate reference to practice,
with the doctrinal and didactic parts of the sermon.
In this connexion we may add, that the preacher fhow
adapt his difcourses, with a view of making them inter-
lacing, to the different ages, characters, and conditions of
men, and that he fhould avail himfelf of any personal or
domestic occurrence, for imparting either inftruction or confo-
lation. Some of the moft imprefive difcourses are thoje
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 fermo{i of the
"character of Balaam," affords a fpecimen of this kind of
preaching. It is of importance to obferve, farther, that
the preacher fhould be cautious not to take his model from
particular fashions that chance to have the voige. It is the
universal taflie of mankind, which is fubjecf to no changing
modes, that alone is entitled to poiffefs any authority: and
this will never give its fanaion to any strain of preaching
that is not founded in human nature, connected with ufe-
fulnefs, adapted to the proper idea of a fermo{i, as a ferial
persuasive oration, delivered to a multitude, in order to make
them better men. Let the preacher fowmelf him upon this
standard, and he will attain reputation and succces much
more than by a fervile compliance with any popular taste, or
tranfient furoeur of his hearers.
As to the fyle of sermons, it fhould in the firth place be
very perficuous. Plainnefs and simplicity fhould prevail;
and of course all unusual, fowl, or high-founding words
fhould be avoided; and especially thoje that are merely poe-
tical, or merely philofophical. Dignity of expression is in-
deed indifpenfable; but this dignity is perfectly conffident
with fimplicity, and also with a lively and animated fyle,
dictated by the earneffnefs which a preacher ought really to
feel, and not merely to affect, and justified by the grandeur
and importance of his subjets. He not only may employ
metaphors and comparifons, but, on proper occasions, may
apologize the faint or the finner, may perfominate inanimate
objects, break out into bold exclamations, and, in general,
command the moft 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 ufe{hould be natural and fady, for if they fecm foorm,
they approach to the nature of conceits. In a fermo{i, no
points or conceits fhould appear, no affected furntteis and
quaintnefs of exprfion; which derogate much from the
dignity of the pulpit. It is a frong, expressive fyle, rather
than a sparkling one, that ought to be fludied. Epithets
have often great beauty and force, but it is a great error to
imagine, that we render it ftreng and expressive, by a
confant and multiplied ufe of epithets.
As to the quefion, whether it be moft proper to write
sermons fully, and commit them accurately to memory, or
to fludy only the matter and thoughts, and truff the exp-
reffion, in part at least, to the delivery, Dr. Blair is of
opinion that no univerfal rule can be given. Preachers
must adopt either of thefe methods, according to their diferent
genius, and we may add according to the situation where they
are fettled, and the rank or character of the assembly which
they addrefs. It is proper, however, to begin, at leaft, the pracife
of preaching, with writing as accurately as poifible. He thinks
it alfo proper to continue, so long as the habits of industry
falt, in the practice both of writing and committing to
memory. The practice of reading sermons is, as our author
fays, one of the greateft obficles to the eloquence of the
pulpit in Great Britain, where alone this practice prevails.
No difcourse which is designed to be perfuafive can have the
fame force when read as when spoken. We are of opinion,
however, that fermons from memory have little advantage,
in point of effect, above thoje that are read. An ex
temporary fermo{i has this advantage in an eminent degree; but
few excel, and many difcourses of this kind are fuch as
would dignify a judicious, though cau{u, hearer.
The French and English writers of sermons proceed upon
very different ideas of the eloquence of the pulpit. A
French fermo{i, for the moft part, is a warm animated
exhortation; an English one, a piece of cool inftuctive rea-
foning. The French preachers adfress themfelves chiefly to
the imagination and the passions; the English, almost solely
to the underftanding. The union of these two kinds of
compoftion, of the French earneffnefs and warmth with
the English accuracy and reafoning, would form,
in Dr. Blair's judgment, the model of a perfect fermo{i.
The ceufure which, in fact, the French critics
pass on the English preachers is, that they are philo-
ophefs and logicians, but not orators. Among the French
Protestant divines, Saurin is the moft dilligufhed; and the
late Mr. Robinfon of Cambridge has done a public fervice by
translating many of his difcourses into the English language.
Saurin is copious, eloquent, and devout, though, in his manner, too ornamental. Among the Roman Catholics, the two most eminent are Bourdaloue and Maffillon. The French critics differ in their opinion to which of these preachers the preference is due. To Bourdaloue they attribute more direct 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, and earnestness; 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 persuasive, 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 casuistical theology, but in their application they adopted more pathetic addresses to the consciences of the hearers. Upon the restoration, preaching assumed a more correct and polished form. Whatever was carnal 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 imperceptive, which is too generally the character of English sermons. Dr. Clark, who excels in a variety of respects, may be esteemed a very instructive compiler of sermons, but he is deficient in the power of interesting and feizing the heart. Tillet'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 is, 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 Bullett had given us more sermons in the strain of those upon self-deceit and the character of Balaam, in the room of abstrat philosophical essays, he might have been distinguished for that species of characteristic sermons above recommended.

The parts of a sermon, discourse, or regular formed oration, are the following fix: 1. 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 flail 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 causing 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 Cambroy 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 things that are most easily apprehended and necessary to be first discussed, 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 needlessly 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 anywhere, 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 precise time of concluding a discourse is an object of importance. It should be so adjusted 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 wrinkling sentence; but to rise with dignity and spirit, that we may leave the minds of the hearers warm; and dismiff 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 Boffu seems best grounded. A mere observance 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 prose; unless it have some farther air, or character of poetry; somewhat of the fable or the sublime.

Hence he judges it, that Horace calls his Satires prope, or sermons: his Odes have quite another air, and are therefore called poesia, carmina.

SERMONETTA, in Geography, a town of Italy, in the Campagna, situated on a mountain difficult of access. Some say that it occupies the site of the ancient Sora; but others say that it occupies the spot on which Sulmo stood; 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 festival or high procession day.

This is supposed to have been the origin of the modern drama.

SERMOUNTAIN, in Botany, a species of the linnæan order, and, according to others, of the jefell, or wild fennel, which grows wild in some of the southern parts of Europe, is raised with us in gardens, and flowers in June.

The seeds of this plant are the part directed for use in our pharmacopoeia, and the roots appear to be useful aromatics, though not regarded in practice; of an agreeable smell, and a warm glowing sweetness; the roots have the greatest warmth and pungency; the seeds the greatest sweetnees, and the most pleasant flavour. A spirituous extract
tract of the seeds is a very elegant aromatic sweet. Lewis.

See Seneka Seed.

SERMUR, in Geography, a town of France, in the department of the Creuse; 6 miles S.S.W. of Auzance.

SERNA, La., a town of Spain, in the province of Leon; 24 miles N. of Palencia.

SERNANCELLA, a town of Portugal, in the province of Beira; 19 miles S.E. of Lamego.

SERNETTY, a town of Bengal; 30 miles E.S.E. of Calcutta.

SERNICUM, in Ancient Geography, a town of Italy, on the route from Milan to Colonne, in passing through Picenum, according to the Itinerary of Antonine, in which it is marked between Aufidiana Civit., and Bevianum Civit.

SERNON, in Geography, a town of France, in the department of the Var; 7 miles N.W. of Graffe.

SERNST, a town of Switzerland, in the canton of Glarins, near a river of the same name; 3 miles S. of Glaros. The river runs into the Sundbach at this place.

SEROGLAZOVSKAIA, a fortress of Ruffia, in the government of Caucausus, on the Volga; 24 miles N.W. of Astrachan.

SEROLZECHE, a town of the duchy of Warsaw, at the union of the rivers Narlaw and Bug; 20 miles N. of Warsaw.

SERON, a town of Spain, in the province of Grenada; 7 miles W. of Parchena.

SERON of Almonds, is the quantity of two hundred weight; of anle-feed, it is from three to four hundred; of Calilis soap, from two hundred and a half to three hundred and three quarters.

SERONGE, in Geography, a town of Hindooollan, in the Malwa country, celebrated for its manufacture of printed cottons and chintzes; 132 miles N.E. of Ougein. N. lat. 24° 5'. E. long. 78° 4'.

SEROR, a town of Hindooollan, in Dowlatabad; 24 miles S.S.W. of Amedagur.

SEROS, Los, a town of the island of Cuba; 38 miles N. of Trinidad.

SEROITY, the watery part of the blood, or serum.

See Blood.

SEROTA, in Ancient Geography, a town of Pannonia, between Lentuli and Marinhins.

SEROUGE, in Geography, a town of Asiatic Turkey, in the province of Diarbekir; 80 miles S.W. of Diarbekir.

SEROWRA, a town of Hindooollan, in Oude; 4 miles N. of Lucknow.

SERPA, a town on the E. coast of the island of Corfu; 8 miles N. of Corfu.—Alfo, a town of Portugal, in Alentejo, containing two churches, and about 4000 inhabitants; 12 miles S.W. of Mourao.

SERPA, in Ancient Geography, a town of Ilipiania, in Boetia, on the left of the river Anas, and nearly E. of Pax-Julia.

SERPEGEE, in the Manege, was used to denote the riding a horse in the serpentine way, or in a tred with waved turnings like the posture of a serpent's body; but is now become obsolete.

SERPENTARA, in Geography, a small island near the E. coast of Sardinia. N. lat. 39° 18'. E. long. 10° 2'.

SERPENTARIA, in Botany, a name applied by the older botanical and medical writers, to various plants, either on account of the serpent-like form of their roots, as in Polygonum Biflorna, their spotted stems, as in Arum Dracunculus, or some other fanciful resemblance. The same name has likewise been given to plants supposed to cure the bites of serpents, as Aristolochia Serpentaria, or Virginian Snake-root. For a similar reason certain species of Plantago have been denominated Serpentina.

SERPENTARIUS, in Astronomy, a constellation of the northern hemisphere, called also Ophiuchus, and Aniciently Aesopus.

The stars in the constellation Serpentarius, in Ptolemy's catalogue are 29; in Tycho's, 15; in Hevelius's, 40; in the Britannic catalogue, they are 74. See Constellation.

SERPENTES, Serpents, in Zoology, the second order in the Linnean class Amphibia, which are thus commonly characterized: they are footless; their eggs are connected in a chain; the penis is double, and mucrulate.

These animals are sufficiently distinguished from reptiles by their total want of feet, moving by the assistance of their scales, and their general powers of contortion. The distinction of species in this numerous tribe is, according to Dr. Shaw, frequently very difficult. Linnaeus thought that an infallible criterion might be found in the number of scaly plates on the abdomen, and beneath the tail; and accordingly attempted, in the Syllena Natura, 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 pattern, 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 poisonous and innocuous, can only be known by an accurate examination of their teeth; the fangs, or poioning 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 defined 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 quiet state, they are recumbent, with their points directed inwards 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 these first discovered are fangs, and that the serpent consequentlv 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
fangs in a serpent is their tubular structure, which may always be easily detected by the allusion 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 fides 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 retirement, and pass the winter in a state more or less approaching, in the different species, to complete torpidity. Some serpents are viviparous, as the rattle-snake, the viper, and many other of the poisonous kind; while the common snake, and probably the greater part of the innoxious serpents, are oviparous, depositing, as have already observed, their eggs, in a kind of firing or chain, in any warm and close situation, where they are afterwards hatched. The broad undivided lамиa, or flat plates, on the bollsies of serpents, are termed fetsa; and the smaller or divided plates, beneath the tail, are called sub-caudal scales; and from these different kinds of lamiae, the Linnean genera of serpents are chiefly instituted. In the edition of the Systema Naturae by Gmelin, seven genera are enumerated and described, viz.

Acrochordus,
Amphibana,
Anguis,
Boa,
Cecilia,
Coluber,
Crotalus.

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, viz. the javanicus; but Dr. Shaw has described three

Species.

Javanicus; or Warded Snake. Brown, beneath paler; the fides obliquely variegated with whith.

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 convex 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 towards the middle, and suddenly contracting near the tail, which is short and slightly acuminate.

This remarkable snake, which gave rise to the institution of the genus, was first described by Mr. Hornstedt, in the Swedish Transacti ons 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 fides 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 snout; 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 Chinfe, 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 flesh of the animal was eaten by the Chinefe, who affirmed that it was excellent food, and the skin being preferred in Africa, was brought to Europe by Mr. Hornstedt, and deposited in the museum of the king of Sweden.

Dubius, or Brown Acrochordus, has a carinated abdomen, and its fides 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 warty 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, differing along the fides and abdomen. The specimen from which this description is taken, is in the British Museum; but its native place is not ascertained.

Fasciatus, or Fuliginus Acrochordus, called also the Hydrus granulatus, has a carinated abdomen, with whitish ascendant 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, figure, and in the cast of colours, measuring about eighteen inches in length, and being of a dusky brown colour, with several paler fasciae, which take their rise from the abdomen, and ascend on the fides; 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 that it has a carinated abdomen; its other characters by no means agreeing with those of the genuine Hydrus." 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 the plan of the work was somewhat altered, and the species will now be given with their appropriae 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 surrounded with transverse lines.

Meleagris. 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 hips (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.

Columb us. 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 near the Caspian sea; it is 14 inches long, and is about as thick as one's finger; black, with numerous pale scales or dots on the sides, and grey ones on the back; the head is grey, sprinkled with black; the tail is two inches long, much thinner than the body, cylindrical, obtuse, varied with white.

**Jaculus.** The scales of the belly of this species are 186, those of the tail 23; it inhabits Egypt.

**Maculatus.** There are on this 200 abdominal scales; 12 subcaudal ones. It inhabits America; above it is yellow, with a brown dorsal stripe and linear bands. A variety is decollate with red bands dotted with black. It inhabits Asia.

**Reticulata.** Scales on the belly 177; of the tail 37. This is an American snake. The scales are brown with a white disk.

**Chryseus.** Abdominal scales 200; subcaudal 15. It is found in Egypt.

**Nasutus.** On the belly of this are 218 scales; on the tail 22. It is about a foot long; the colour is of a greenish-black; beneath, at the fides, on the tip of the head, a broad band on the tail, and dots on the tip, all yellow. The snout is prominent; it has no teeth; the eyes are on the top of the head, not lateral; the trunk is round with 20 rows of hexagonal scales; the tail not quite half an inch long, with minute scales, and obtuse, rigid at the tip.

**Lumbricalis.** In this the scales of the belly are 230; those of the tail seven; it inhabits America. In colour it is whitish, inclining to yellow.

**Laticauda.** The abdominal scales are 200; the subcaudal 50. This is found at Surinam; the tail is compressed, sharp, pale, with brown bands.

**Scyphus.** Scales of the belly 240; of the tail 13. As Dr. Shaw calls all the species of this genus by the English name shew-flow-worm, from its singular beauty; its general length is from eighteen inches to two feet, and its diameter in proportion; the ground colour is a rich yellowish-ferruginous or orange, on which are dispersed throughout the whole length of the animal, numerous, moderately broad, equidistant, jet-black transverse bands, not continued entirely round the body, but alternating with each other, and terminating in rounded extremities; the scales on the intermediate parts are generally tipped with brown, exhibiting more or less of a flecked appearance on the skin. When this animal has been preserved a considerable length of time in spirits, many of its fine colours fade into white, in consequence of which, the specimen usually seen in museum, appear variegated only with black and white; the head is small, and the tail is very short, being not more than the twentieth of the whole length, and terminating otherwise. This species is a native of South America, and one of the West Indian islands.

*Erucis; Aberdeen Snake. The scales on this species of the belly are 126; those on the tail 136. It inhabits America and England. Above it is cinereus, with black lines the whole length, beneath it is lead-colour, with white spots. It has been thought to be only a variety of the next species.

*Fragilis; Blind Worm. Scales of the belly 135, and the same number on the tail. This species is found in almost all parts of Europe, in our own islands, and in Siberia, in familiar situations with the common snake. It is a perfectly innoxious animal, living on worms and insects; its usual length is from ten to twelve inches, and sometimes even more; its colour is pale russet-brown above, with three narrow longitudinal dorsal streaks of a darker cast; and beneath a deep lead-colour. The head is rather small, and covered in front with large scales, as in most other innoxious serpents; the eyes are very small; the tail measures more than half the length of the animal, and terminates rather suddenly in a slightly acuminated tip. It is a viviparous animal, and sometimes produces a very numerous offspring; like other serpents, it varies in the intensity of its colours at different periods, and the young are commonly of a deeper cast than the parent; the general motions of this animal are either slow or otherwise, except when endeavouring to escape, and the young seem to move more slowly than those that are full-grown. Slow-worms can, however, exert a considerable degree of swiftness, and can readily penetrate the loose soil, in order to conceal themselves from pursuit; they are often found in considerable numbers, during the winter season, at some depth beneath the surface, retiring on the approach of winter, and lying in a state of torpidity, and again emerging from their concealments on the approach of spring, when they cast 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 struck with any degree of violence, the body not only breaks abruptly on the struck part, but even frequently at different parts; the skin is remarkably strong, and the animal, when handled or irritated, has a mode of stiffening itself by stretching to its utmost length, in which state, it can, 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.

**Ventralis.** Abdominal scales 127; subcaudal 223. This is an inhabitant of South Carolina. The body is of an ash-green, black, lateral hand black; belly short, and appearing as if annexed by a hollow future; 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.

**Platurus.** 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-ornicular, 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.

**Clivicus.** Cinereous-brown; the plate of the front is larger and heart-shaped. It is found in some parts of Germany.

**Annulatus.** White, with straight brown bands; beneath, tail tapering, beneath with a double row of imbricate scales.

**Scutatus.** This is a very slender species; waved with white and black bands; plates of the head broad; tail sharpish. This is found at Surinam. The belly and tail beneath with transverse broad scales, like the boa. Gmelin thinks it does not belong to this species.

**Corallinus.** This is named by Shaw the pale-red flow-worm, with blood-red variegations, and so, by Seba it is 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 very considerable; the ground-colour is of a pale-red, with very broad, alternating facets, 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 fullness from the larger
larger insects, as locopendrium, &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.

AFTER. This, as its name denotes, is black with white bands; scales tipt 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 tranverse but interrupted white lines; beneath it is variegated. This is found at Surinam.

HEPATICA. 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.

Tessellatus. This species is of a fawn-colour, with numerous bands, and three fringes: 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 reference 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 emerise, 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 tranverse, undulated, white dorsal bands. It is a highly beautiful snake, meauring, 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 molt beautiful Saxon green, with several short, undulating, tranverse white Saxon spots 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 dorsal 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.

Hipnale. 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 oblate spots on the back.

Constrictor. This, by some naturalists, is denominated the yellowish-grey boa, with a large chestnut-coloured chain-like pattern down the back, and subtrigonal spots on the sides. Dr. Shaw gives the generic character thus: scuta, 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 boa, the most conspicuous is the B. confolidus, 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 state 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 disposed 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 squarish form, accompanied on their exterior sides by large triangular spots, with their points directed downwards; between these larger marks are disposed 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 specks 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 richness 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 a uniform grey cast, and the red tinge of the variegations sinks into a deep chestnut; 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 resides 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 so violent a terror amongst the most valiant of mankind, and threw a whole Roman army into dismay. Historians relate this surprising event in terms of considerable luxuriance. Valerius Maximus mentions it from Livy, in one of the loft books of whose history it was related more at large, and the learned Friennhemus, 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, every where victorious, led his army into a region watered by the river Bagrada, near which an unlooked-for 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 fropes, and bruising them with the strokes of its tail; and some were even destroyed by the pestilential effluvia 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 armour of its scales easily repelling the force of all the weapons that were directed against it; upon which recourse 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 stone, the formidable monstur began to lose its powers, and was yet with difficulty destroyed; after having diffused such a horror...
horror among the army, that they confessed they would rather attack Carthage itself than such another monster: nor could the camp continue any longer in the same situation, but was obliged to fly; the water and the whole adjacent region being tainted with the pestilential effluvia. A most mortifying humiliation to human pride! Here at least was an instance of a whole Roman army, under the command of Regulus, and universally victorious both by sea and land, opposed by a single snake, which conflicted with it when living, and even when dead obliged it to depart. The proconol, therefore, thought it no diminution to his dignity to fend the spoils of such an enemy to Rome, and to confcles at once the greatnes 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 supfenced in a temple, and remained till the time of the Numantine war.

Cenchris, the Rufeceent 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 occellate spots; the irids are grey.

Ophevas, or Brown Boa, has on its belly 281 plates, on the tail 84; the body is brown, and in appearance it resembles the B. confdictor.

Enydris, 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 fecta is 270, and of those on the tail 105. It is very like the hortulanus, hereafter to be described.

Murina; 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.

Scytalle; Spotted Boa. Cinereous, with large orbicular black dorsal spots, and annulated lateral ones, with white centres; it has 270 plates on the belly, and 70 on the tail.

This is farceally inferior in size to the B. confdictor, and is of inferior manners, deleasuring, 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 fides; while on the abdomen are scattered several oblong spots, and marks interfused 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, thence on the head resembling face; the body sub-compresed, and the fides 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 ferrorous or yellowish ground; they are disposed into large circular, and sometimes angular patches on the fides, the centres of fome being open, and of others marked by an oblong spot; besides these there are others interfused 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 embroidered appearance of the pattern, and more particularly by that on the top of the head; the head is also broader, and the neck more fnder in proportion, than in most of the other boas, the body slightly compressed, and the tail slender. It is a native of South America.

Such are the Linnean species given by Gmelin; the following are additional ones, described by Dr. Shaw in his General Zoology.

Regia; Royal Boa. With longitudinal striped neck, and body variegated either with brown and grey, or orange and rofe-colour. This species, which is described by Seba, is, in its general shape, most allied to the canina and the phyrgia. It varies very much with respect to colour, the ground-work being white, but the variegations sometimes dusky or chefln, and sometimes of an elegant orange-red, accompanied by a tinge of blossom-colour on the lighter parts of the pattern; the top of the head is filled by a large patch, from which run two long parallel stripes to a considerable distance on each side 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 oblique processes, or situations regularly 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.

Pheroga; 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 needle-work. It is a native of the East Indies, where divine worship is paid to it.

Fascia; Faffcated 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 investing the body; the body is of a trilong form, the fides sloping very considerably; along the ridge of the back runs a continued series of hexagonal scales. This snake is among the number of poisonou species, and its bite is considered by the Indians as fatal. A specimen was brought to Dr. Ruffel in the month of November 1788, in an apparently very weak and languid state. Being fet at liberty, it chewed 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 flewed 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; Viperine Boa. Grey, with a black, undulating, dorsal band, edged with white; and the fides 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 slow wasting 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, Lincated Boa, called also Gredi Paragoudon,
is of a flender form, with the general appearance of a coluber rather than a boa. It is of an extremely dark blue colour, 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 42 to 50; they are so disposed, as almost to represent fo 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.

**Horaita.** This is of a dark brown, with a waving yellow bauld 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 poisioning 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.

**Palpebroa.** Whitish, obscurely fcalated with grey; with prominent eye-lids; this has 112 abdominal scuta, and 51 on the tail.

**Annulata.** Suhaffiguineous, with black, orbicular, dor- sal 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. horitaria and eydysis. It is a native of South America.

**Serpents, in Astronomy, 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 British catalogue, 64. See Constellation.**

**Serpent Cucumber, in Botany. See Trichosanthes.**

**Serpent Hypnoticus.** See Hypnoticus.

**Serpent Marinus.** See Sea Snake.

**Serpent Rubeus, the red serpent-fish, in Ichthyology, the name of a fish, properly of the tunja kind.** It resembles the common snake in figure, and is of a fine brown-red 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 single fin.

**Serpent Terminus, 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-Stone.** See Snake-Stone.

**Serpent's Tongue, in Botany, a genus of the cryptogamia filices clasf, comprehending five species. See Adder's-tongue.**

**Serpents' Tongues.** The island of Malta abounds with glosophile, or the petrified teeth of sharks, which, from their resemblance to a tongue, are by the vulgar supposd 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 bufo, and salt numbers 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 system, 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 foit mud, with an immense number of sea-shells, teeth of fishes, and other remains of sea-animals mingled among it; and that these fossilizing so slow 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 native of these 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 glosophile, or snakes' tongues, but they are few in number, and worse prepared than those of the island of Malta; which is probably owing to the high ground of those mountains being less likely to receive the refuse of the sea, and its foil, which is sandy, being left fitted to preserve them when there than the marl, of which the island of Malta consists.

The echini marini, or sea-eggs, and their species, which are very frequent among the serpents' tongues of Malta, all lie upon the surface of the ground, or near it; whereas the glosophile are 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 glosophile, or serpents' tongues, being heavy, would subside in the water, while the light shells of those other animals would float on or near the surface.

Whenever the glosophile are taken carefully up out of the earth in Malta, the marl or earth, which served for their bed, is found to contain all their minutest traces and lineaments, like wax from a feal. This is a proof that the marl 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 proceses in the glosophile, 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 mortified 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 person of judgment will be able to say what part of the moth it belonged to; so in the fossil shark's teeth, or glosophile, there is not any one which may not be referred to the particular part of the moth of the living animal, and could have belonged to no other. Augustino Scilla, de Petrific. See Glossopetra.

**Serpent, in Music, a wind instrument of the baffeon 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 leather.**

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, as that the fore-finger, the middle-finger, and the ring-finger of the left hand, cau stop the
the holes 1, 2, and 3; and the same fingers of the right hand, flop the holes 4, 5, and 6.

The abbé de Beauf, in his History of Auxerre, tom. i. p. 643, says that, about the year 1590, Edmond Guillaume, a canon of Auxerre, found the means of boring and turning a cornet in the form of a serpent, which was used in concerts at his house, and the instrument having been perfected became common in the great churches. For the scale and compass of the serpent, see Laborde.

In France, the serpent used to be confined to the military bands; at present, says M. Laborde, it is confined to the church and processions. In cathedrals there is one on each side the choir.

Merennus, who had studied this instrument, says, that if unfolded and straight, it would be more than six feet long. Laborde says eight feet. The compass of the instrument is now probably extended, which in the scale given in the folio Encyclopédie is from double B flat in the bass, to F in the first space of the treble.

Merennus, who has particularly described this instrument, mentions some peculiar properties of it, e. g. that the sound of it is strong enough to drown twenty robust voices, being animated merely by the breath of a boy, and yet the sound of it may be attempered to the softness of the sweetest voice. Another peculiarity of this instrument is, that great is the distance between the third and fourth holes appears, yet, whether the third hole be open or shut, the difference is but a tone.

SERPENT, in Mythology, 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 this luminous; 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 preided over it, as of Apollo and Aesculapius: and 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 Moses, Lev. xx. 27. The woman of Endor, who had a familiar spirit, is called Oub, or Ob, and it is interpreted Pythonis: the place where the reeded, says the learned Mr. Bryant, seems to have been named from the worship then instituted; for Endor is compounded of En-ador; and signifies font pitionis, the fountain of light, the oracle of the god Ador; which oracle was probably founded by the Camaanites, and had never been totally suppried. His pillar was also called Abbadir, or Abadir, compounded of ab and adir, and meaning the serpent deity Adir, the name as Arabus.

In the orgies of Bacchus, the perfons who partook of the ceremony, used to carry serpents in their hands, and with horrid fermons call upon Eva! Eva! Eva! being, according to the writer just mentioned, the name as epha, or opha, which the Greeks rendered ophis, and by it denoted a serpent.

These ceremonies, and this symbolic worship, began among the Magi, who were the fans of Chus; and by them they were propagated in various parts. Wherever the Phoenicians founded any places of worship, and introduced their rites, there was generally some story of a serpent. There was a legend about a serpent at Calthis, at Thbes, and at Delphi; and likewise in other places. The Greeks called Apollo himself Python, which is the name as Oupis, Opis, or Oub.

In Egypt there was a serpent named Thermuthis, which was looked upon as very sacred; and the natives are said to have made use of it as a royal tiara, with which they ornamented the statues of Isis. The kings of Egypt wore high bonnets, terminating in a round ball, and surronded with figures of aps; and the priests likewise had the representation of serpents upon their bonnets.

Abadon, or Abaddon, mentioned in the Revelations, xx. 2, is supposed by Mr. Bryant to have been the name of the Ophite god, with whose worship the world had been so long infected. This worship began among the people of Chaldea, who built the city of Ophis upon the Tigris, and were greatly addicted to divination, and to the worship of the serpent. From Chaldea the worship passed into Egypt, where the Serpent deity was called Caneph, Can-cph, and C'noph; it also had the name of Ob or Oub, and was the name as the Basilicus, or royal Serpent, the name as the Thermuthis, and made use of by way of ornament to the statues of their gods. The chief deity of Egypt is said to have been Vulcan, who was called Opis; he was the same as Osiris, the Sun, and hence was often called Ob-el, or Python sol; and there were pillars facred to him, with curious hieroglyphic inscriptions, bearing the same name, whence among the Greeks, who copied from the Egyptians, every thing gradually tapering to a point was called obelos, or obeliscus.

As the worship of the serpent began among the sons of Chus, Mr. Bryant conjectures, that from thence they were denominated Ethiopians and Aethiopians, from Aeth-ops, or Aeth-opes, the god whom they worshipped, and not from their complexion: the Ethiopes brought thee rites into Greece, and called the island where they first established them, Ellopia, Solis Serpentis infula, the same with Eubua, or Oubia, i. e. the Serpent island.

The same learned writer discovers traces of the serpent worship among the Hyperboreans, at Rhodes, named Ophiura, in Phrygia, and upon the Hellespont, in the island Cyprus, in Crete, among the Athenians, in the name of Cecrops, among the natives of Thebes in Babylonia, among the Lacedaemonians, 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 Ophite. Bryant's Analysis of Ancient Myth. vol. i. p. 47, &c. p. 473, &c.

SERPENT ISLANDS, in Geography, small islands near the N. coast of lake Huron. N. lat. 46° 2'. W. long. 82° 45'.

SERPENTS, Island of. See SALGEN.

Serpentina, in Botany. See SERPENTARIA.

Serpentine, in Chemistry, a worm, or pipe of copper or pewter, twilted into a spiral, and ascending from the bottom of the alembic to the capital, and serving in the dililution of rectified spirit of wine.

Serpentine, in Mineralogy, a stone, which derives its name from the variety of its colours, supposed to resemble those of the serpent. The ancients called this stone ophis, from the Greek ophis, a 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 veiny. Some serpentines are red, varying from a peach-bloom to 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 nearly indestructible by fire or acids, and is therefore eminently fitted for ornamental sculpture or architecture. The hardness of serpentine is variable: some kinds scarcely yield to the knife, others are easily worked. It is intitible by the blowpipe; the fracture is splintery, passing into small con-
choidal; the fragments are translucent at the edges; the luster is somewhat reнизious, and when powdered, it has an unctuous foamy feel. The specific gravity varies from about 2.6 to 2.7. Serpentine feems nearly allied to the mineral called hornblende, from which it differs in its constituent parts by containing more magnesia and less iron. Chrome has been found in some serpentines. The analysis of different serpentines shews a considerable variation in the proportion of their constituent parts,

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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 common as granite, f에, and limestone. Serpentine occurs in beds in gneis and primary limestone, and in mica-flake; it also covers many rocks in amorphous masses, and may be observed passing into chlorite or talc-flake. 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 Jurassic series which surround the central parts of Mount Rofa, in Switzerland. These quartzites have an elevation of more than 1700 fathoms, formed of bands 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 fide towards Switzerland. It extends through Italy, where it is called gabbro. One of the finest varieties is at the hills of Improntetta, near Florence; it contains much of that green, leucitflanatous, and fatty substance, which Sauvage calls smaragdine, on account of its fine emerald-green colour. France has some mountains of serpentine, especially in Limousin.

The finest serpentines of Spain are from Sierra Nevada; two leagues from Grenada, they have a green base filled with glittering plates of a yellow colour. Superb columns have been made of it, which decorate the churches and palaces of Madrid. According to Patria, 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 bafe, following their direction from north to south; there are also some detached branches which appear near Tobolik, 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 Dauria. The serpentines most known in Europe are those of Saddelberg 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 size of a pea, dispersed equally through the mafs. When the stone 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 1556 fathoms; it is composed of immense masses of serpentine of an irregular shape. The surface of this serpentine becomes a deep red 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 sheet of a fee-green colour, mixed with carbonate of lime and grains of felspar. On this serpentine are laid beds of micaceous schist, intermixed with limestone, composed of more than one half of mica. These are again covered by serpentine; all the beds are nearly horizontal; riling a little towards mount Rofa.

Mount Crevin, another mountain near mount Rofa, is an inaccessible obelisk of a triangular form, which is elevated 2359 fathoms above the sea. It is composed of three different masses; the uppermost, which forms the summit, is of a yellow ifabella colour. It is composed of serpentine mixed with micaceous schill, containing limestone and quartz. The middle is of gneis and micaceous schill, and the lower one or base of the pyramid is serpentine; but the most remarkable hill of serpentine is in the chain of mountains which separates the margravate of Bayreuth from the Upper Palatinate. Its elevation above the plains 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 resting on gneis and hornblende.

M. Humboldt having brought his compas near these rocks of serpentine, saw with surprise, that the north pole of the needle flew round 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 stone 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 mafs, 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 contains is in the flate of oxide. Its specific gravity is much less than that of other serpentines, fearfully reaching to 3.000, that of common serpentine being upwards of 2.700. 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 mafs, each small piece has its north and south pole, and a central part, which is not magnetic. That particular kind of soft serpentine, which is capable of being turned into vessels that refill the action of the fire, is called pot-stone, and has been already described. See Pot-Stone.

Steatite and amianthus, a fibrous asbestos, are almost always associated with serpentine. (See Asbestos and Steatite.) The finest amianthus occurs in Corfica form-
ing beautiful white silky threads of two or more feet in length, and is so abundant, that Dolomieu made use of it instead of flax to pack his minerals in when in that island.

Serpentine exists in various parts of the highlands of Scotland and the Hebrides; it is found both pure and alternating with mica-flake and limonite.

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 talcous slate. The beds are of considerable size, and divided by seams of albite. Some of the serpentine is intermixed with white crystalline limonite, like the verde antique from Italy; but the particles of white are generally smaller. Vombs of quartz and felsite, with brilliant lamina of cheller spar, also occur in some of the beds. It is sufficiently hard to relit the point of a copper tool, and has a high polish. The colours are various: shades of light and dark green and red, varying from a peacock-bloom to a bluish-red scarlet. The colours are intermixed and distributed in an infinite variety of spots and clouds, the effects of which are heightened by polishing.

Mellers, Bullock & Co. in Oxford-street, have established a manufacture of chimney-pieces, columns, and other ornamental articles of this stone, which has the advantage, being railed in small blocks, so as to form columns and slabs 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 Mellers. Bullock's manufacture, 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 Cameron marble, as this serpentine is called by the proprietors, was 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 granular limonite. See Verde Antique.

Serpentine, in the Ronces. A horse is said to have a serpentine tongue, if it is always talking and moving, and sometimes passing over the bit, instead of keeping in the void space, called the liberty of the tongue.

The Romans, in breaking and drenching their horses, used to work them in sawing or serpentine lines, as the practice is, or ought to be, at present. The French call this riding a horse en serpentin. The Greeks and Romans knew it by the term of riding in Meanders, in allusion to the windings and doublings of the celebrated river which bore that name.

Serpentine Column. See Column.
SER

half, long, resembling those of *Veronica agriflia*. Flowers monoecious, four-cleft, reddish, very minute.

* S. occidentalis. American Serpica. Pursh n. 1. (Elo- dea canadensis; Michaux Borel-Amer. v. 1. 20.)—"Flowers united. Stigmas ligulate, cloven, reflexed. Leaves ternate, linear, acute."—Frequent in stagnant 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 Medicins, from *fergere, to creep,* is nearly synonomous with *herpes,* and signifies, in the language of the older writers, any spreading tender, or exaration of the skin. When the latter is lichenous, according to Forellus, it is called *impetigo,* but when it spreads and creeps from one place to another, it is called *serpigo.* (See Forel. Obs. Chirurg. lib. ii. obf. 11.) It is the property, however, of many eruptive diseases 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 diseases of every class, putulur, fcaly, papular, and vesicular; to the diseases called imperfecta, lepra, pellorians, lichen, herpes, eczema, &c. It is, therefore, unjustly exploded.

**SERPUCOV**, in Geography, a town of Russia, in the government of Moscov; 40 miles S. of Moscow. N. lat. 55°. E. long. 37° 2'.

**SERPULA,** in Conchology, a genus of the order Tef- taces, of which the generic character is, animal a terebella: shell univalve, tubular, and generally adhering to other sub- stances; 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.

**NAUTILOIDES.** Shell flattish, minute, confluent, verru- cose, spiral, with very thin semilunar internal divisions. It is found in the seas about Norway, adhering to the Madre- pora proliferas, 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 fossil. The shell is scarcely larger than a grain of sand, white and yellowish; the whorls are prefixed close together; the aperture is narrow, and com- pressed.

**PLANORBIS.** In this species the shell is orbicular, regu- lar, 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.

**SPIRILLUM.** Shell regular, spiral, orbicular, pellucid, with round gradually decreasing whorls. It inhabits the ocean, on zoonothes, furtoria, and other marine substances; it resembles the next, which is a native of this country, but is much less than it.

* SPIRORBS. Shell regular, spiral, orbicular, the whorls slightly carinated above and inwardly, and growing gradu- ally less towards the centre. It inhabits molt seas, adher- ing to fæci and zoophytes. There is a variety; the shell is white, without pellucid, not complicated, but dispoled closely on the substance 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- stances, fæces, and the bottoms of ships; is from half an inch to an inch long. The shell is white, pellucid, irregularly twirled, carinate on the back, sometimes denticulate, with a narrow circular aperture.

**ISTRICATA.** Shell filiform, rough, round, intricately twirled. 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.

**Filograna.** 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, glo- merate, with elevated ribs on the upper side. It inhabits the North seas, in large males, adhering to shells, &c. The shell is white, and the size of a cowrie.

**Contortuplicata.** The shell is angular, rugged, and irregularly entwined. It is found in the European and Ame- rican 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 flirrate.

**Glomerata.** The shell of this species is round, glo- merate, with deciduate wrinkles. It inhabits the European and Atlantic seas, in large males. 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 males. The shell is from three to five inches long, transversely ribbed and longitudinally wrinkled.

**Polythalamia.** The shell of this is likewise round, diaphanous, smooth, straightish, with numerous internal di- visions. 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 divisions, making it appear as if it consisted of numerous united tubes.

**Arearia.** Shell jointed, entire, distinct, flattish beneath. It is found in India, and divers parts of the coast of Africa. It is probably a teredo, hereafter to be des- cribed. The shell is white, with pale brown undulate rays, or whitish; the outside cancellate, within it is smooth; spirally twirled: there are about a hundred siphes, which are sometimes nodular.

**Anguina.** Shell roundish, sub-spiral, with a longitudi- nal 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 arise a trumpet-shaped tube, and a leffer simple one.

**Penis.** The shell of this is round, straight, taper, with a dilated radiate larger extremity; the diske 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 shade of red; smoothish, tapering, and open at the small end; the dilated margin at the larger
end terminating in numerous small tubes; the disk is convex, and covered with round perforations, with a longitudinal one in the middle.

Echinata. Shell roundish, flexuous, rosy, with numerous rows of prickles, obtuse at the end. It is the size of a crow's quill; the aperture is marginated.

Oreia. The shell of this is roundish, flirate, brown. It inhabits the Indian ocean, usually affixed to corals.

Protenta. Shell polished, smoothish, with annulate plates, a little tapering towards the end. It is found in the Indian and American seas, and is the size of a quill. The shell is ivory, whitish or blueish, either straight or partly bent.

Decussata. Shell round, with decussate flirates, slightly wrinkled, flexuous, red, within smooth and white.

Proscidea. The shell is smooth and white; the broader part is straight and transversely plaited. The shell is from two to four inches long, white, or of a dusky brown.

Afra. Shell sub-flirate, yellowish-brown, round, twisted into three whorls, with a central tip. It is found about the coasts of the island of Goree.

Cerolus. Shell round, smooth, yellowish, many times twisted. It inhabits America. The shell is long and narrow.

Cornucopia. Shell conic, spirally twisted, yellowish, with brown bands; the middle is round and twisted; the aperture is orbicular. The shell, as to its form, is obtuse at the tip.

Goreensis. The shell is round, cancellate, yellow, within horny. It is found at Goree, fixed to tesselaceous substances and wood; is from eight to nine inches long, with elevated flrases; the longitudinal ones are crowded.

Intestinally. Shell triangular, twisted, fragile, tuberculate, with hollow dots. This is found on the African coast. The shell is whitish, angularly twisted, sub-umbilicate, within glabrous.

Infundibulum. The shell is round, white, transversely flirate, and three twisted; the first bend appearing as if composed of five funnels placed on each other.

Pyramidalis. Shell crenose, above convex, beneath flat, pyramidal, hence its specific name; and it is many times twisted, the bends decreasing inwardly. It is found in the Indian sea, adhering to tesselaceous substances about an inch long, open at the narrower end; sometimes it is straightish, or a little bent.

Denticulata. The shell of this is white, round, subulate, straight, toothed at the fides, with a longitudinal glabrous rib in the middle; the tip is a little incurved and glabrous. It is found adhering to the Lepas tationsulum, and is about three-quarters of an inch long.

Melitensis. Shell roundish, twisted, umbilicate, with decussate flirates, and longitudinal nodulated ribs, within smooth, with numerous divisions. It is found fossile in Malta. The two first bends are placed on each other.

Norwegica. The shell of this is round, smooth, incurved, with a nearly obsolete undulate 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. spirillum, but is whiter, pellucid, and not rugged; the inhabitant is short, with a red back and paler sides.

Vitrea. The shell is round, regular, spiral, orbicular, pellucid, shining, wrinkled, with a thickened aperture. This species is found in the Greenland seas, on tesselaria, frunci, thones, and divers marine substantias. It resembles the S. glomerata; the shell is thick, umbilicate, not a line in diameter, and sometimes it is of a reddish colour.

Cancellata. Shell spiral, glomerate, with three grooves, the lower groove interrupted by transversely lines. It inhabits the Greenland seas, and resembles the S. granulata. Shell white, grey or greenish, the aperture is two-toothed.

Stellari. Shell sub-orbicular, umbilicate, convex, radiate with wrinkles. This also is found in the Greenland seas, on tesselaria and thones. The shell is scarcely larger than a needle, violet, reddish-brown, or yellowish radiate with white; beneath it is flat, with a single whorl or bend; the aperture is very minute.

Gigantea. The shell of this is somewhat triangular, with a little bend, gradually tapering, violet, within smooth, pale yellow, the aperture is white, with undulate flirates, and armed with a conic tooth. It inhabits Africa and America, attached to rocks and corals. The shell is six inches high, and as thick as the little finger. The inhabitant is whitish.

Cinerea. The shell is filiform, glabrous, congoulerate, perforated. It inhabits the shores of Madagascar; it is glabrous, of a 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 greenish colour.

* Ovalis. Shell sub-oval, imperforated. It is found at Tenby. The shell has two bends, which form an oval; it is never perforated, and is minute.

* Reflexa. The shell is regular, rounded, with a reflected margin at the aperture. This is found on the Pembrokeshire lands. It is a minute; shell glossy, white, perforated; the aperture is above the plane of the spire.

* Cornea. The shell is regular, rounded, and pellucid, with three whorls. This also is an inhabitant on the Pembrokeshire coast. It is brown and horny.

* Bicornis. Shell semilunar, ventricose, white, opaque, glossy. It is found at Sandwich and Reculver, and is minute.

* Perforata. Shell semilunar, perforated, white, opaque, glossy. It inhabits Sandwich, as do all those that will hereafter be described. This is, however, as well as the next, very rare and minute.

* Lacera. The shell is ovate, thin, smooth, pellucid, with milky nerves.

* Lacina. Shell rounded, flirate, grooved, with a narrow neck. This is decribed, as are all those which are found in this country, in Adama’s work on the Microscope. The shell of this is exactly shaped like an oil-leaf, and is whitish.

* Retorta. Shell rounded, margined, with a slender recurved 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 smallest end. The shell is white and transparent, and resembles, in some respects, the Nautilus semilunatus.

Serpillum, in Botany, sometimes written Serpillum, so called from its humble creeping mode of growth. See Thymus.

Serequeux, in Geography, a town in France, in the department of the Upper Maine; 3 miles N. of Bourbounne.
SERRA, PAOLO, in Biography, author of an elaborate treatise on foliation, published at Rome in 1768, small folio, entitled "Introduzione Armonica Sopra la nuova fiera de' Suoni modulati oggidì e modo di rettamente e più facilmente intonarli," or, "Harmonical Introduction 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 hexachord, and foliation, and condemning its use, he proposes a new method of naming the notes in learning to sing, assigning a specific name to every found in the scale ending with the vowels A, E, I; as ca 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 disembarassed 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 singing at sight any vocal music that was put before him, even without accompaniment. Benedetti has since sung 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 facility 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 alphabetical 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 sing. 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 transfused keys, with double flats and sharps, Durante cried out, "Quelle note intonatele, chiamatele poi anche diavole ve volete, ma intonatele." 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 admitter'd is best."

And seconds 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 "solfeggi" in the most rapid movements, we may apply to the new systems what M. Rousseau said with respect to his own: "That the public has done very wisely to reject them, and to send 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 same name, who has studied the plants of Minorca. De Theis.

SERRA, in Geography, a town of France, in the department of the Jemappes, and chief place of a canton, in the district of Corté. The canton contains 2,717 inhabitants.

SERRA, a town of Corseca; 11 miles S.S.W. of Cervione.

SERRA de Azenho, mountains of Portugal, in Alentejo; 4 miles N. of Monfort.

SERRA d'Alcoba, mountains of Portugal, in the province of Braga, between Vifeu and Bragança Nova.

SERRA de Bouzeno, mountains of Portugal, in Alentejo; 4 miles S. of Portalegre.

SERRA de Caldeirao, mountains of Portugal, between Algarve and Alentejo.

SERRA da Eferica, mountains of Portugal, in the province of Entre Duero e Minho; 18 miles N. of Bragança.

SERRA Falhera, 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 Algarve.

SERRA de Monfim, mountains of Portugal, between Mirandela and Torre de Moncorvo.

SERRA de Querera, a town of Africa, in Lower Guinea, on the river Camarones.

SERRA de Rebearados, 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 Castello de Vide.

SERRA de Salvador, mountains of Portugal, in Alentejo; 8 miles E. of Arronches.

SERRA Pifitas, in Ichthyology, a name given by many authors to the pifitas, or feco-fish.

SERRA is also a name given by Pliny to a species of the balaenidae, called by the generalities of writers foldopas. It is distinguished by Artedi by the name of the balaenidae, with two spines in the place of the belly-fins, and one behind the anus. See TRUMPET-fish.

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 Hedjas; 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 vessel 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. 86° 10'.

SERRAPETRONA, 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 betonica, and which the Greeks called *systerin-fuchstropon* and *priorites*. This was evidently the same plant with our *ferrata*, or *faw-word*; but besides this there was another plant called by this name, and which, according to Pliny, was the chamaedrys or germander of the Greeks.

 Dioscorides says 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 faw from the leaves of the *ferrata* than from those of this plant, they being much leaves nicely denticulated than those. So that those who have been influenced by Pliny, to suppose the germander and ferra of the ancients to be the same plant, are in the wrong, though they have the coextensity of this so generally reputed authentic author for it.

SERRATE FLIES, 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 faw, 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 communicate the name of this curious insect, though they have it. See ROSA-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 bastard capperpillar 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 viscid fluid which covers them. It is a very remarkable property in the eggs of this genus of flies, that they grow much longer 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 more beautifully feen, and the whole growth of the fly in them is clearly seen, on examining them at different times of their growth, which may be easily done without disturbing them, as they are left upon 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 these 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 preserved fresh and juicy, the creature hatches from it as well as if it was left upon the tree.


SERRATED LEAF, in *Botany*. See LEAF.

SERRATI, in the *History of Coins*, a name anciently given to Syrian, Roman, confular, and some few 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 forgers imitated this kind of incision, which was intended to prevent forgery, by using the inside of the metal.


Gen. Ch. *Common Calyx* oblong, nearly cylindrical, closely imbricated, with numerous, lanceolate, erect, unarmed scales. *Cor.* compound, tubular, uniform. Flores numerous, equal, all perfect, of one petal, funnel-shaped; the tube forked; limb subulate, five-eleft. *Stam.* Filaments five, capillary, very short; anthers united into a cylindrical tube. *Fyl.* German obovate; fyll thread-shaped, the length of the filaments; ligaments two, oblong, revolute. *Peric.* none, except the unchanged calyx. *Seeds* solitary, obovate. Down soft, toothed or feathery. *Recept. calyx* hairy.


Obs. *Carduus* and *Cnicus* are distinguished from this genus by their more swelling, or nearly globoso, calyx, with spinous scales. We know not what Germain has procured for the *Cardus cyanoides*, which he represents with unarmed scales, and therefore properly refers to *Serralula*; but the true Linnaean plant has spinous scales. This learned author would remove to the present genus a number of species from *Cnicus*, *Carduus*, and *Centaurea*, of which he names but two, *Cnicus centauriae*, and *Centaurea Rhoecamum*, certainly very remarkable plants, and strictly akin, but in our opinion they answer very imperfectly to the idea of a *Serralula*. We content ourselves with following Widdenow in the main, though well aware of the ambiguity of some of the species, too prone to approach *Cardus* in their calyx, or *Centaurea* occasionally in their marginal florets. We prefer, however, in excluding *S. arvenfis*, which is, in character and habit, a most evident and certain *Cardus*, or rather *Cnicus*, as Mr. Curtis long ago demonstrated. Widdenow could scarcely have been acquainted with this common species, for he marks it as biennial, though no weed is more notorious for its deeply creeping, almost indestructible, roots. See Fl. Brit. 851, and Curt. Lond. f. f. 1827. Two genera, with a naked receptacle, and other differences of character, are properly separated by Schreber, Widdenow, and others, from *Serralula*. See *Liatris* and *Vernonia*.


2. *S. coronata*. Siberian Saw-wort. *Linn. Sp.* Pl. 1144. *Ait.* n. 2. *(S. praecarpa centauriae montana italic*; *Bocc.* *Mul.* 45. t. 37? *Carduus* n. 41; *Gmel.* *Sib.* v. 2. 499. t. 20.)—Leaves sharply serrate, somewhat ciliate, deeply pinnatisect. *Corolla* level-topped. Flores of the circumference female, longer than the rest.—Native of mossy parts of Siberia, flowering in the end of June. If Boccuno's synonym be right, the plant grows also on mountains in R.
SERRATULA.

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, while, 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, furred, cottony, crowned with a level-topped tuft of elegant flowers, on stalks of various lengths. Calyx of many soft, brown, hairy scales. Flora 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. Willd. n. 9. (S. alpina, angustifolia; Linn. Sp. Pl. 1145; Cirrimum n. 50; Gmel. Sib. v. 2. 278. t. 32. 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 stem is eighteen to twenty-four inches high, erect, slender, hairy, almost smooth. Leaves furred, hardly a line broad, quite entire, paler, and a little hairy, but not cottony beneath. Flowers few, on long, simple, distant, rather racemose than corymbose, flaky. Scales of the calyx ovate, pointed, purplish or brown, hairy within.

9. S. falicifolia. Willow-leaved Saw-wort. Linn. Sp. Pl. 1145. Willd. n. 15. Ait. n. 5. (Cirrimum n. 55; 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 Buth 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 back of its leaves, whose edges are fearlessly, if at all, revolute; their base tapering down into a bordered footstalk. The flowers rather more refulible those of S. tinctoria than of alpina, but the calyx is slightly cottony.


11. S. multiflora. Many-flowered Saw-wort. Linn. Sp. Pl. 1145. Willd. n. 12. (Cirrimum n. 54; Gmel. Sib. v. 2. 71. t. 28.) — Leaves lanceolate, rough, somewhat decurrent, nearly entire; woolly beneath. Stem repeatedly corymbose, many-flowered. Scales of the calyx lanceolate, keeled.—Gathered by Gmelin in mountainous parts of Siberia. Dr. Flitcher has sent us a less luxuriant specimen from Mount Caucans. Th. stems 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 clothed with loose white cottony wool. Flowers more or less numerous, corymbose, rose-coloured, with an elegant, slender, purplish, slightly downy, calyx. Gmelin himself fully says that the flowers in his plate are too large; yet Linnæus on that account doubts the certainty of his synonym, for which there can be no reason.


14. S. amarit. Bitter, Saw-wort. Linn. Sp. Pl. 1148. Willd. n. 15. (Asciunum n. 55; Gmel. Sib. v. 2. 72. t. 20.)—Leaves lanceolate, round-edged, naked, somewhat deciduous. Flowers corymbose. Scales of the calyx dilated and rounded at the extremity. — Native of dry open fields in Siberia, on a saline soil, abundantly. Gmelin. Root as thick as the little finger, perennial, bitter, with a saline flavour. Stem from a sap to one or two cubits high, simple or branched, leafy, angular, and furrowed. Leaves four or five inches long, and one broad, coriaceous, tapering at each end, naked and nearly smooth on both sides, except the edges and midrib; the lower ones flaked, toothed; the upper generally deciduous, and entire. Flowers several, purple, the size of Centaurea nigra or Jacob, 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. centauroid. Centaur-like Saw-wort. Linn. Sp. Pl. 1148. Willd. n. 16. Ait. n. 6. (Cardus n. 38; Gmel. Sib. v. 2. 44. t. 17.)—Leaves deeply pinnatifid, acute, smooth, unarmured. Stem branched. Flowers foliaceous. Scales of the calyx partly pointed; 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 Centaureas, but wants the neutral margin of flowers. The stem is a foot or more in height, alternately branched, leafy, angular, smooth. Leaves rigid and coriaceous, with deep, entire, deciduous segments. Flowers foliaceous at the top of each branch, large, purple. Calyx ovate, of many ovate acute scales, several of the middlemost 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 Scirtatula or Centaurea; perhaps we should, like Gmelin, remove it to Cardus or Centaurea, the calyx answering very nearly to that of the arvensis.


17. S. ciliata. Fringed Saw-wort. Vahl. Symb. v. 1. 69. Willd. n. 18.—Leaves sessile, lanceolate, undivided, fringed with minute spines; downy underneath. — Gathered by Forskål, in gardens at the village of Bujuchtar, near Constantinople. Willdenow erroneously makes this species a native of Egypt. Forskål took it for the Linnæan S. arvensis. Vahl, who had examined his original specimemens, describes the stem as herbaceous, branched, fringed, hoary in the upper part. Leaves sessile, an inch and a half long, tapering at the base, obtuse, finely serrated, with spiny teeth; the upper side green, flaggy; the under hoary and downy. Flowers smaller than a hazel-nut, flaked, two or three at the end of each branch. Calyx-scales smooth; the outermost ovate, keeled at the summit, and pointed; the inner ones lanceolate. Seed-down feathery. This may possibly, like the following, belong to Cinclus.

18. S. tetofa. Brilly Saw-wort. Willd. n. 19— "Leaves oblong, smooth, finely serrated, fringed with bristles, obtuse, pointed. Stem corymbose." — Native of Sileia; observed by the Rev. Mr. Seeliger. Root biennial. Stem furrowed, smooth, corymbose and level-topped. Leaves copious, alternate, an inch long (or broad?) green on both sides, smooth, undivided, very minutely serrated, each serration tipped with a brilly point. Flowers flat; hoary. Calyx glitly downy, with ovate, acute, obscurely-serrated scales. Willdenow, from whom we borrow this description, says the plant is like Sileia (his Scirtatula) arvensis, except in the form of its leaves, and smallness of the flowers. If so, it perhaps is likewise a real Cinclus, and perennial; see our observations under the generic character.

SERRATULA, in Gardening, 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. pratetia); the glaucous-leaved faw-wort (S. glauca); the rough-headed faw-wort (S. australis); the ragged-cupped faw-wort (S. scariflora); and the spiked faw-wort (S. scirpeta).

Method of Culture. — These plants may all be increased by parted the roots, and planting them out in the autumn, when the stems decay, or in the spring; but the former is the better season. The old plants should not be parted oftener than every third year, and then not too small.

They are likewise all capable of being increased by seeds, when they can be had good, which should be sown in the autumn or early spring, in a border to the east, in flight drills. When the plants are a few inches high, they should be pricked out in nursery-rows to remain till the following autumn, and then planted out where they are to remain.

They afford ornament in the borders, clumps, &c. being planted to the middle or the back parts.

SERRATUM, and Serratula, Folium, in Botany, so called from ferra, a faw, the teeth of which are imitated in their margins. See leaf.

SERRATUS, 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.

SERRATUS Anticus, the name under which Albinus describes the pectoralis minor. It is also called ferratus minor antiquus.

SERRATUS Magnus, ferratus major antiquus; le grand dentillé; faculo collum), a large muscle of the shoulder, broad and flat, lying between the scapula and the clavicle, and extending
extending from the nine upper ribs to the bไข的 of the scapula. It is irregularly four-furred, 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 flabby. 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 fifth or sixth, narrower and increasing in length downwards, arise from the upper edge and external surface of the corresponding ribs, and are placed between the digitation of the obliquus externus abdominis. From the origins just enumerated, the fibres of the muscle proceed, divided, particularly below, into faciculi 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, affending 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 third-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-fascial. The external surface covers the seven or eight superior ribs, the external intercostal muscles, and behind a portion of the serratus posterior inferior. 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 serrae 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 anterior 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, rhomboïd 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 rhomboïd, 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 anterior 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 Posticus Inferior, (denté postérieur inférieur ; lombocollien) is a broad, thin, and flat muscle, situated 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, and the intervening inter spinous ligaments, by a broad aponeurosis, comprising 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 faciculi or pointed serrated portions, of which the first and broadest is fixed to the lower edge, and near the angle of the second last 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 facrualbalius, and the transversus abdominis. The upper edge is continuous with the thin aponeurosis, which immediately covers the longissimus dorsi and facrualbalius.

By drawing downwards the lower ribs, this muscle affairs 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 fame effect as the serratus posterior superior and the fascia extended between them.

Serratus Posticus Superior, (denté postérieur supérieur ; dorso-costéen,) 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 fleshy fibres follow the same direction, forming a thin frattum, which terminates in four small faciculi or serrated portions, ending in aponeurotic fibres, which are inserted in the upper edges of the second, third, fourth, and fifth ribs, near their angles. It is covered externally by the rhomboïd; and it covers the splenius, transversalis, collis, 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 assisting in inspiration.

Serravalle, in Geography, a town of France, in the department of Marengo, on the Serina; 12 miles S. of Turin.—Also, a town of France, in the department of the Seine; 18 miles N. of Vercelli.—Also, a town of Italy, in the duchy of Mantua; 24 miles S.E. of Mantua.—Also, a town of Italy, in the Trevisan, 25 miles in circumference, partly on a plain between two mountains, and partly on the mountains near the river Mafchio, 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 marketplace 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. Augustine, built by its noble architecture, and its long noble staircases. Here are also two monasteries, and two nunneries. The inhabitants are industrious, and trade particularly
particularly in cloth, woollen and silk manufactures, and carry on an extensive commerce in wine, corn, and honey, both with the adjacent provinces and with Germany; 2 miles N. of Genoa.

SERRE, L. A., in Biography, a miniature painter of Geneva, who had been in England, and seemed well acquainted with Gemmian, and the state of music in our country in the middle of the last century. He has analysed the "Guida Armonica" of Gemmian, the "Balle fondamentale" of Rameau, and the Treatises of Tartini, with his discovery of the "Terzo Suono." These celebrated works M. Serre has critically examined in two ingenious essays, published in 1755 and 1765, in which there are likewise many curious remarks on disputable points in the theory and practice of harmony, which will both amuse and instruct musical students.

Serre, Fr., close intervals in music, such as the enharmonic quarter tones in the ancient Greek music; and in French music, short and quick. See Soprus.

SERRI, La, in Geography, a river which runs into the Oise, near La Fère, in the department of the Aine.

SERRI, a town of France, in the department of the Hère; 12 miles N. of Romans.

SERRIS, JOHN DE, in Biography, a Protestant minister, was born in the south of France, and studied at Lauffeune. 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 Nîmes, and a minister of that city, and was employed on several important occasions by Henry IV.; that prince having asked Serre if it were possible for a perfon to be faved in the communion of the church of Rome, he answered in the affirmative, and that he had been secured of promoting Henry's change of religion. Notwithstanding this declaration, he was a warm controversialist against the Catholics, and made a very severe attack upon the Jesuits, entitled "Doctrina Jesuicis præcipuæ capita." 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 however is not remarkable for correctness; and the style of those parts which Serre composed 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 compositions are paid by the Catholics to be partial and full of misrepresentations. The principal of them are as follows: "Commentarius de Ritu Religionis et Republicæ in Regno Franciæ," comprising the events from 1557 to 1576; "Memoire de la Troisiçme Guerre civile sous Charles IX."; "Recueil des Choffe memorable avens in France sous Henri II., Francois II., Charles IX., et Henri III."; and "Inventaire Général de l'Histoire de France." Serre, towards the end of his life, engaged in the hopeless design of uniting the Catholic and reformed churches, which brought on him the contempt of one party and the enmity of the other. He died in 1598.

SERRIS, OLIVIER DE, an eminent agriculturist, was born in 1539, at Villeneuve de Berg, in the Vivarais. During the civil tumults of his time, his property was pillaged, and his house demolished, and after it had been rebuilt, it was again destroyed by fire. He is said to have borne these misfortunes with great equanimity, and to have forgotten them by engaging his mind in study and rural occupations. By his talents he became so advantageously known to Henry IV., that he went for him to Paris, and employed himself in several improvements about his domains. Serre wrote works, which rendered him the oracle of the cultivators in that age, and many of his ideas have been copied by later writers without acknowledgment. The chief of these, in which he collected the results of long experience, is entitled "Théâtre d'Agriculture, et Ménage des Champs," 1630, and has been several times reprinted. It has been described by Haller as "a great and valuable work, written by an experienced man, fond of simplicity, and not at all attached to expensive methods." Some of the economical precepts of Mr. Serres have been thrown into verse, in order that they might be more easily remembered. He published treatises on the management of silk- worms, the collection of the silk, and the culture of the white mulberry-trees, which he introduced into France. This able man died in 1619, at the age of four-score, after having had the satisfaction of witnessing the happy effects of the improvements suggested by him.

SERRE, in Geography, a town of France, in the department of the Higher Alps, and chief place of a canton, in the district of Gap; 24 miles W.S.W. of Gap. The place contains 1219, and the canton 4249 inhabitants, on a territory of 170 kilometres, in 10 communes. N. lat. 44° 26'; E. long. 5° 8'.

SERRET, a town of Asiatic Turkey, in Natalia; 30 miles W. of Caftamena.

SERRIERES, a town of France, in the department of the Ardèche, and chief place of a canton, in the district of Tournon; 15 miles N. of Tournon. The place contains 1524, and the canton 9416 inhabitants, on a territory of 115 kilometres, in 17 communes.

SERRIS, a town of Hindostan, in Bahar; 15 miles S.E. of Saferam. N. lat. 24° 51'; E. long. 84° 26'.

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 as follows: antennæ facetous; four unequal feelers; the anterior ones are longer, and deeply serrated, composed of four joints, the last very large, truncate, compressed, patelliform; the posterior ones are sublative; thorax margined, concealing the head, with a prominent angle on each side; the head is deflected; and the feet formed for digging. There are two Species.

STRIATUS. The body of this insect is brown; the shells bileate. It inhabits the island Runfale, and is described in the Stockholn 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 Elater aterrimus.

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 Stockholn Transactions already referred to.

SERRURIA, in Botany, a name rightly altered by Mr. Salisbury and Mr. Brown, from the Serraria of professor John Burmann, who, in his Planter Africænsis, 266, establishes the latter appellation, in honour of Dr. Joseph Ser- rurius, Professor of Botany at Utrecht; but it is not easy to discover the above author's meaning in thus perverting the word; for Serrurius is a locksmith, and has no reference to a saw, or sawyer.—Brown, Tr. of Linn. Soc. v. 111. Art. Hort. Kew. v. 1. 198 — Clade and order, Tetrameria Monegenia. Nat. Ord. Aggregate, Linn. Protonem. Jull. Brown. Eff. Ch. Coreollia in four deep segments. Stems of the concave tips of the segments. Nectary four buds beneath the
SERRURIA.


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-cleft, rarely undivided. Heads of flowers either terminal, or from the bobsoms of the uppermost leaves, either simple and solitary, or composed of several fistulous partial heads, or corymbose. Bracteas imbricated, membranous, most commonly shorter than the flowers, in a few instances longer, in some wanting. Flowers always fesille, purple. Petal the length of the corolla, with a club-shaped, rarely cylindrical, stigma. Nut oval, 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 fimple; the flower-flalks undivided or wanting.

S. pinnata. Wing-leaved Serruria. Brown. n. 8. Ait. n. 1. (Protea pinnata; Andr. Repof. t. 512.)—Heads falked, somewhat aggregat. Bracteas lanceolate, villous, nearly as long as the flowers. Corolla bearded. Leaves pinnatifid or three-cleft, longer than the heads. Stem procumbent, 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 1807. In a natural state the ftem 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 fegments. Heads of flowers red, about as big as a walnut, either solitary and terminal, or partially axillary; the young buds enveloped in the white silky hairs, which clothe the fips of the corolla externally.

S. cyanoides. Trifid-leaved Serruria. Brown. n. 10. Ait. n. 2. (Protea cyanoides; Linn. Maff. 188. Willd. Sp. Pl. v. 1. 507. Cyanus aethiopicus, rigidis capilascens tenuiflissim foliis trisidiis; Pluk. Maff. 61. Phyt. t 345. f. 6.)—Heads terminal, longer than their flalks. Bracteas roundish, pointed, villous. One segment of the corolla nearly smooth. Leaves spreading; the lower ones three-cleft; upper subdivided. 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-flalks foliary, downy, generally but half the length of the heads of flowers, which are the fize of a large cherry, rising above the upper leaves, and accompanied by membranous silky bracteas.

S. petersiana. Woolly-headed Serruria. Brown. n. 13. Ait. n. 3. (Protea petersiana; Ait. Repof. t. 264.)—Heads terminal, falked. Bracteas ovate, downy. Corolla curved, fathery; its inner segment ficky. Leaves twice or three pinnatifid, hairy, as well as the upright ftem.—Found in various filly situations at the Cape of Good Hope, where the soil is rather fertile. Meffrs. Lee and Kennedy are recorded as having first raised this species, in 1789, from seeds obtained from Vieuina. It flowers in fummer, and makes a handsome appearance, with its copious many-cleft leaves, and large heads of light reddish brown flowers, clothed with fine white plummy down. The anthers are yellow. Stigma blackish.

S. hirsuta. Hairy Serruria. Brown n. 15. (Protea phylloides; Thunb. Diff. n. 9. Prodr. 25. Willd. Sp. Pl. v. 1. 510, excluding the reference to Bergius.)—Heads terminal, longer than their flalks. Bracteas linear-lanceolate, hairy. Corolla fathery. Leaves doubly pinnafeate, about as long as the heads. Branches hairy. Stem erect.—Native of ftony hills at the Cape. Mr. Brown observed it near Simon's bay. It feems unknown in our gardens. This fbrub is two or three feet high, with ftraight umbellate branches, rough with spreading permanent hairs. Leaves copious, moderately spreading, an inch, or sometimes an inch and half, long, hairy when young only; their segments very sharp-pointed. Flower-flalks 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. Niveni. Niven's Serruria. Brown. n. 17. Ait. n. 4. (Protea decumbens; Andr. Repof. t. 349.)—Heads terminal, fesille. Bracteas lanceolate; the inner ones ficiary. Corolla bearded. Leaves doubly pinnatifid; the uppermost longer than the head, fomewhat smooth. Stem decumbent.—Discovered by Mr. James Niven, on Swartberg, a rocky mountain at the Cape of Good Hope, and fent 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 fotaly head, smaller than a hazel-nut, is encompafied with numerous, crowded, radiating leaves. Each leaf of the general foliage is about an inch long. Stigma hardly thicker than the fyle. Mr. Andrews's plate represents the branches as somewhat downy.

S. pflvicoidea. Phyllica-flowered Serruria. Brown. n. 24. Ait. n. 5. (Leucadendron phylloides; Berg. Cap. 29. Protea phyllochefta; Linn. Maff. 188. P. abrotanifolia; Ait. Repof. t. 507.)—Heads terminal or axillary, on fcaly flalks. Bracteas half as long again as the head, lanceolate, fomooth; the outer ones narrowfelt. Tips of the corolla bearded. Leaves twice compound, longer than the flower-flalks.—Native of the Cape, from whence it was fent to Kew, by Mr. Maffon, in 1788; flowering there in July and Augulf. This is a smooth upright fbrub, with redifh leafy branches. Leaves generally bipinnatifid, an inch or two long, moderately spreading. The flower-flalks, clothed with several lanceolate fcales, and either fotaly, or aggregate 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 longifh, deflexed, green, red-pointed bracteas. Corolla whitifh and fomooth, except the ends of the segments, which are red, and definely bearded. Stigma red, cylindrical.

S. florafa. Large-flowered Serruria. Brown. n. 25. (Protea florafa; Thunb. Diff. n. 2. t. 1. Prodr. 25. Willd. Sp. Pl. v. 1. 506.)—Bracteas longer than the flalked heads; the outer ones elliptic-oblanc, pointed, fomooth; inner concealed, linear-lanceolate, fringed. Leaves once or twice pinnatifid.—Thunberg and Maffon gathered this species on the mountains of Franche Hoek 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, fomooth, as well as the branches, which are of a puifh hue. Flowers many together, on corymbose fcaly flalks at the ends of the branches, large, remarkable for their beautiful red external bracteas, which are each an inch in length and half long, attended by smaller ones, of the same kind, flacked down the flalk, 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.

Sect. 2. Heads compound; partial ones crowded.

S. decumbens. Trailing Serruria. Brown. n. 27. (Protea decumbens; Thumb. Diff. n. t. 1. Prodr. 25. Wildl. Sp. Pl. v. t. 506. P. procumbens; Linn. Suppl. 196.)—Stem prostrate, smooth, as well as the three-leaved leaves, whose segments are undivided. Each partial head of about four flowers.—Native of the flaky stones 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, leafy, wavy branches. Leaves ascending, about two inches long, in twos or threes, thick, linear segments. Flower-flasks axillary and terminal, slender, flaky, each bearing a small roundish head, enveloped in ovate, pointed, rather silky bracts, and composed of four to fix smaller heads. Corolla flaky, very slightly curved. Mr. Brown remarks that some of the heads are, apparently from starvation or abortion, simple.


Sect. 3. Flower-flasks divided. Heads simple, corymbose or racemose.

S. burniana. Burmann's Serruria. Brown. n. 36. Ait. n. 7. (Protea serraria; Linn. Mant. 188. Wildl. Sp. Pl. v. t. 508. Leucadendron serraria; Linn. Sp. Pl. 137. Serraria folis tenuifilmindivis, floribus rubris apetalis; Burm. Afr. 265. t. 99. f. s.)—Abrotanoides arboreum, &c.; Pluk. Mant. t. 329. f. 1.)—Heads corymbose, each of about ten flowers. Corolla level-topped, more or less flaky, shorter than the partial flasks. Leaves doubly pinnatifid, bristle-shaped, longer than the flower-flasks. Native of low barren spots, about the sides of hills at the Cape, very frequent. Mr. Maslin sent it in 1786 to Kew garden, where it blossoms from May to July. A humble corymbose flower, with very slender acute leaves, which are slightly hairy. The heads are small, reddish, crowned with the long prominent styles. Mr. Brown mentions a variety, or possibly distinct species, whose leaves are rather flaky, heads more obtuse at their base, and bracteas, as well as flowers, altogether flaky.

S. triflora. Silvery-flowered Serruria. Brown. n. 37. Ait. n. 8. (Protea triflora; Thumb. Diff. n. 7. Prodr. 25. Wildl. Sp. Pl. v. t. 509. P. argentiflora; Andr. Repof. t. 447.)—Corymbs compound. Heads globose, many-flowered. Bracteas and partial flower-flasks flaky. Leaves three truncate, smooth as well as the stem.—Gathered by Mr. Niven, near the river at Roode Zant, Cape of Good Hope. Mr. Masson and Kennedy are said to have first raised this elegant species, about the year 1802. It blossoms from June to August. The leaves are five or four inches long, and as thick as a crow's quill, being larger, as well as more compound, than in most other species. Heads of flowers of a silvery white, flaky, numerous, each rather above half an inch diameter. Stigma obovate, yellow.

SERSALISIA, so named after a Neapolitan ecclesiastic, much commended by Fabius Columna (though in what part of his writings we are not informed), is a genus separated by Mr. Brown, in his Prodr. vol. 1. t. 529, from the Linnaean Sideroxylon; but the character does not seem to us very clear. One species of this new genus is Sideroxylon fericum, Ait. Hort. Kew. ed. 1. t. 526. ed. 2. t. 153; another is called Mr. Brown Sideroxylon, Linnaean. Both are natives of the tropical parts of New Holland. See SAPOTE and SIDEROXYLON.

S.R. T.S. in Geography, a town of Hindustan, in Oude; 25 miles E. of Bareit.

SERTA, GARLANDS, among the Ancients. See GARLAND.

SERTAM, in Geography, a town of Portugal, on the river Pera, in Estremadura; 24 miles N.E. of Thomar.

SERTINO, a river of Sicily, which runs into the sea, on the east coast.

SERTORIUS, QUINTUS, in Biography, a distinguished Roman commander, was a native of Naris, in the Picentine regions of Italy. His father died in his infancy, but by the care of his mother 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 Capio, against the Cimbrians and Teutones in Gaul. In an early engagement he was severely wounded, and would have lost his life, if he had not possessed sufficient vigour to swim across the Rhone, when encumbered with his armour. He next served under Marius, and exhibited proofs of valor and talents, which much ingratiated him with that general. Spain was the next great theatre of his exertions, where he served under Didius, and acquired much reputation in the campaign. On his return to Rome, he was made quaestor in Cisalpine Gaul; and when the socal 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 gloried, 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 tribunship, but was disfitted in his hopes by the overbearing interdict of Sylla: he accordingly joined the party of Marius in the succeeding civil war. He commanded one of the three armies which invested Rome, and honourably distinguished himself by abstaining from all acts of cruelty which disgraced the arms of Cinna and Marius. When Sylla gained the ascendency in Italy, Sertorius withdrew to Spain, of which country he had been appointed propraetor. Here he hoped to be able to revive his cause, and with this view he detached a body of troops to seize the palaces of the Pyrenees; but the murder of their commander induced them to abandon their spoil, and consequently left Spain open to Sylla's officers. After some various adventures, chiefly of the disfavour kind, Sertorius went into Africa, and affinity 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 caused him to be invited to Lusitania; and failing thither 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 Lusitanian nation. He exerted them in the arts of warfare, and introduced a rigid discipline among them; but Roman tactics being unfavourable to them, he adopted a service better suited to the nature and circumstances...
stances of the country. He defeated, with his new-trained armies, several Roman generals, who were sent against him, and inflicted a defeat in competition with that of Rome, and illuminated all the arms of the republic. He foiled the attempts of that eminent commander, Metellus, to reduce him; continually harass'ing his troops by sudden attacks and skirmishes, and intercepting his convey. He adopted the liberal policy of civilizing the Lusitaniacs and neighbouring Spaniards, and familiarizing them with Roman letters and customs. For this purpose he established a great school in the city of Oe
cs, 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 super-
fition, 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 whitherto he went, and was his constant companion; and he en-
couraged the belief that the animal was the gift of Diana, and intended by that goddess to convey information of the designs 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-
enna, 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 Sucro. He gave him a second defeat; but Metellus routed a separate division, and Sertorius was glad to take to the mountains. He then of-
ered 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 Mithri-
dates, the formidable foe of the Romans, offering him an advantageous alliance, provided he were suffered to re-
possess the provinces from which he had been expelled by Sylla. But Sertorius would not agree to more than his re-
coverry 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 patricians in his army, and they succeeded in exciting a revolt in several Lusitaniac towns. Incensed at this defection, he caused several of the children, whom he kept as hostages at Oe
cs, to be slain, 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 conseqnece of which he was kept in close confinement, while he was at a feast. 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 less turbulent period."” Univer. Hist.

**SERTULA CAMPANA**, in Botany, a name given by some authors to melilot.

**SERTULARIA**, in Natural History, a genus of the class Vermes, and order Zoophytes. The generic char-
acter is this: the animal grows in the form of a plant; the stem is branched, producing polypes from cup-shaped den-
ticles, or minute cells. There are nearly four-score species, divided into two divisions, A and B, of which the following is the description.

A. Stem hairy, tubular, fixed to the base, base with cup-shaped den-
ticles, and furnished with vesicles, or ovaries, containing polypes, eggs, or living young.

Species.

*ROSAE*. This species is paniced, with opposite, tubular, truncate denticles, and alternate branches; the ves-
icles are crowned with pines. It inhabits the European seas, and our own coasts, growing on shells, or creeping up other corallines; it is white; the vesicles resemble the blossom of the pomegranate.

*PULINA*. The denticles of this species are opposite, pointed, and recurved; the vesicles are obovate; the branches loose and irregular. It is found in the ocean, on fuci, particularly on the ferratus.

*OPERCULATA*. Denticles opposite, pointed, and nearly erect; the vesicles are obovate, covered with a lid; the branches are alternate. It inhabits the European and American seas, on fuci and shells. The twigs are about five inches long; the denticles are bicuspidate, with a short bristle on each side.

*TAMARISCA*. Denticles nearly opposite, truncate, three-toothed; vesicles ovate, two-toothed, with a short tube in the centre; the branches are alternate. This is found in most of the European seas, and is the largest of its kind. It is about four inches long, and is found adhering to shells.

*ABRETINA*. Denticles nearly opposite, tubular, oval; the vesicles are oval, and the branches alternate. It is found in the British and other European seas, the Mediterranean, growing to shells. It is five inches long, and often covered with small fperula; the branches are frequently pinnate.

*NIGRA*. Denticles nearly opposite, minute; vesicles large, placed all on one side, oval, quadrangular; the branches are pinnate. This is found on the Cornish coasts, adhering to the Mytilus margaritiferus. It is four inches long, blackish.

*FUSCESCENS*. Denticles nearly opposite, tubular; the vesicles are numerous, placed all on one side, minute, with three tubercles on each; the branches are pinnate. This is also an inhabitant of the Cornish coast. It resembles the last, but is of a greyish-brown colour.

*OBSELETA*. Denticles generally placed in eight rows, ovate, slightly heart-shaped, and disposed in a quincunx form; the branches are alternate and pinnate. It is an inhabitant of the Frozen ocean, is about five inches high, and of a horn colour, with the joints becoming more and more obsolete towards the top.

*PINUS*. Denticles sub-spinous, generally disposed in six rows; the vesicles are bottle-shaped, turgid, subdiphaceous, with a simple mouth; the branches are pinnate, nearly al-
ternate. It inhabits the White sea, fixed to shells.

*CUPRESSOIDES*. Denticles simple, obliquely truncate, with a slightly protruberant mouth; the vesicles are oval, with a subtubular mouth; the branches are dichotomous, loose, and with the trunk joined with two rings at the junctures. This is found in the White sea; is subdiphaceous, yellowish, and nearly half a foot long.

*CUPRESSA*. Denticles nearly opposite, obliquely truncate, and a little pointed; vesicles obovate, two-
toothed; branches paniced, and very long. It is common in all the European seas, and is found in a long pointed loose panicle.

*ARGENTEA.*
* Argentea.* Denticles nearly opposite, pointed; vessels oval; branches alternate, panicked. This is an inhabitant of the European and American seas; very much resembles the last, but the branches are shorter and looser, and the panicle is more obtuse.

* Rugosa.* Denticles nearly opposite, obsolete; vessels much wrinkled, and three-toothed; the branches are furred. This species inhabits the European seas, and is found growing on the Fuflra foliacea, and other fterulariae.

* Halecina.* Denticles alternate, tubular, and two-jointed; the vessels oval, each united along the side to a small tubular flake; the stem is alternately branched and pinnate. This is found in the European and Mediterranean seas. It is horned, and of a yellowish-grey; the denticles are nearly obsolete.

* Thulia.* The denticles in this species are arranged in two rows, closely adhering to the stem; the vessels obvate, margined; stem waved and fiff, 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 all one way. This is found in most European seas, and in the Mediterranean; it is about three inches long, pale and forny; the stem is rather angular, with arched proteruberances opposite the branches; the denticles are fcelled in a focket furnished with a short spine on the lower part.

* Hypnodes.* Denticles pointing one way, campanulate, toothed, and beaked; stems with pinnate branches, and very crowded subdivisions. It inhabits the Indian ocean, is fix inches high; in colour it is brown, with yellowish imbricate radicles.

* Speciosa.* Denticles campanulate, effuse, toothed, and fipulate; 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 gorongize; it is brown, forny, and from three to four inches long.

* Punctata.* The denticles of this species point all one way; they are imbricate and truncate; the vessels are ovate; the branches are pinnate and alternate. There is a variety of this species described by Ellis, in his work on Coralines. It inhabits the European and Indian seas, and is from three inches to a foot long; the stem is a little flexuous; the denticles in a fingle row.

* Pluma.* In this the denticles point one way, they are imbricate and campanulate; the vessels are gibbous and crefied; the branches are pinnate, alternate, and lanceolate. It is found on most European coasts, climbing up fucis; the branches are jointed; the denticles are ferrate at the margin, and supported in front by a small hollow spine; the vessels have a denticate margin, and generally five oblique crefed ribs.

* Echinata.* Denticles opposite, pointing one way, campanulate; the vessels are crefed; the branches pinnate, alternate, and lanceolate. It inhabits chiefly the fhores of Sweden, on fucis.

* Antennaria.* The denticles are vermiculate, in fours, fetectaceous; vessels obliquely truncate, vermiculate; the stems are generally fimple. 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 fetectaceous branches, on the upper fides of which are rows of small cup-shaped denticles; the vessels are placed on pedicles obliquely open towards the stem, and placed round it at the ferrition of the branches.

* Verticillata.* The denticles in this are obsolete; the vessels campanulate, toothed round the rim, on long twisted pedicles, and placed in fours round the stem; the branches are alternate. It is found on the British coasts; stem ribbed, very loosely branched; the denticles are not visible; the vessels are nearly ecret, and glutinous; the ovaries are oval, ending in a tubular mouth.

* Gelatinosa.* Vessels campanulate; stem with numerous decomposite spreading branches. It is found on the coasts of the Netherlands; is half a foot long, and of a grey-brown colour.

* Volubilis.* The denticles in this are obsolete; the vessels are alternate, campanulate, toothed round the rim, on long twisted pedicles; the branches are alternate. It inhabits European seas, climbing up other fterulariae; it is whitish and minute; the stem is loosely branched; the ovaries are egg-shaped and smooth, or tranfverfely wrinkled.

* Syringa.* Denticles obsolete; vessels cylindrical, mostly alternate, and placed on short twisted pedicles.

* Cuscata.* Denticles obsolete; vessels oval, axillary; branches opposite and simple. It is found in the European seas, adhering to fucis.

* Postulosa.* Stem with alternate dichotomous branches, obsolete denticulate on the upper part. It inhabits the shores of the Ife of Wight, and is four inches long. The stem is feen rising 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 fingle row on the inside 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, fimple, with an incurved tubular tip; the vessels 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.

* Penatula.* The denticles in this are in a fingle row, crefate on the rim, and supported by a flender, truncate, incurved horn; the branches are opposite. It is found in the Indian ocean; is five or six inches long; yellow-brown; the denticles have two opposite fpines on the rim.

* Filicula.* Denticles opposite, ovate, with a fingle crefed one at the junctures of the branches; vessels ovate, with a tubular mouth in the centre; the stem is zig-zag, with alternate branches. It inhabits the British fhores, is very tender, and the stem is much branched.

* Quadridentata.* Denticles in fours, opposite, at the joints of the stem; the stem is fimple, with the joints tapering and twisted towards the base. It inhabits the African fhores on the Fucus lengerus.

* Spicata.* Denticles in three, cylindrical, terminal, and nearly closed at the mouth; vessels ovate, axillary; stem tubular, panicked, annulate, with trihromous branches defcribed in whors round the rings.

* Evansii.* The denticles are short and opposite; the vessels are lobed, arifying from the branches which are opposite. It inhabits the British coasts, and is found on fucis; it is two inches high, very flender, and yellow, with fulvous vessels.

* Mutica.* The denticles of this species are pedicled, proceeding alternately from the joints of the branches; vessels oval, fipinous; the stem is jointed. It is found on the fhores of Scotland; the vessels are nearly globular,
placed on pedicles, and full of pointed spines from crested ribs.

Sertularia. Denticles in a single row, campanulate; the vehicles 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 brittle.

Misenexis. The denticles are alternate, very thin, spreading; the vehicles are ovule, peduncles axillary; stem much branched, dichotomous. It inhabits the Mediterranean, is very slender, pellucid towards the tip, and sometimes covered with the Cancer linearis.

Racemosa. Denticles scattered, pellucid; vehicles clustered; stem straight, round; opaque, horny, with finely curved branches. It inhabits the Mediterranean.

* Uva. Denticles oblonge; vehicles ovate, clustered; stem slightly branched, with alternate subdivisions. It inhabits the shores of this country and Holland, adhering to other zoophytes; vehicles transparent, with a white nucleus.

* Lendigeria. Denticles oblonge; vehicles cylindrical, arranged in a single row along the branches, and growing gradually less towards the top; the stem and branches arc jointed. This is found on the European coasts, on other zoophytes. The branches are subdivided and irregularly interwoven; the vehicles are placed in parallel ranks along the sides of the branches, and growing gradually shorter towards the top of the joints.

* Gexiculata. Denticles alternate, twisted; vehicles ovate, with a tubular mouth in the center; the stem is branched, jointed, flexuous. It inhabits the European coasts, adhering to fucil.

* Dichotoma. Denticles oblonge; vehicles ovate and axillary, on twisted pedicles; the stem is dichotomous, with twisted joints. It inhabits the British and Dutch coasts, and is nearly a foot long; it is white, but becomes tesselaceous with age.

* Spinosa. Denticles oblonge; vehicles ovate, tabulate; the branches are dichotomous and pinnate. It is found on most European coasts, as well as on those of this country, and is about eight inches long. The stem is composed of interwoven tubular fibres; the branches are flexuous, lofe, forked, with pointed tips.

* Pinna. The denticles of this species are oblong; the vehicles are oblong, and surrounded with a coronet of tubercles at the rim; stem simple, pinnate, and lanceolate. It is found in Europe and in India, and is about three inches high. The stem is pinnate, with alternate subdivisions; the vehicles are placed in clusters round the stem.

* Setaea. Denticles oblonge, remote, placed in a row on the upper side of the branches; vehicles oblong, axillary; the stem is pinnate, with alternate bent divisions. It inhabits the European coasts, and is about an inch and half high.

* Polyxenia. Denticles alternate, slightly toothed; vehicles oblonge, transversely wavy; the stem is lofe, branched. It inhabits mott sear, adhering to marine substances.

Pennaria. The denticles are placed in a row on one side the branches; the vehicles are oval; the stem is twifed, and doubly pinnate. It inhabits the Mediterranean sea, growing in tufts on rocks; the stem is straight, ascending, flexible, and almost white with whitish branches.

* Lichenastrum. Denticles alternate, obtuse, in two imbricate rows along the stem; the vehicles are ovate, in two parallel rows along the branches; the stem is pinnate, alternately pinnate. It is found in the Irish, Indian, Asiatic, and Armenian seas. The stem 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 Kamtschatka; the branches are dichotomous, subulate, with four rows of vehicles.

* Imbricata. The vehicles of this species are subulate, irregularly imbricate upwards; the stem is slightly branched. This species is described and figured in the 5th vol. of the Linnæan Transact. It inhabits the western coast of Britain, on the Fucus nodosus; it very much resembles the alga, but the vehicles are not placed in any regular series; it is about three inches high; the smaller branches have the vehicles placed bifurcately, but towards the tip they become imbricate.

Purpurea. Denticles subovate, tubular, in four imbricate rows; the vehicles are ovate and campanulate; the branches are dichotomous and square. It inhabits the sea around Kamtschatka, and is of a blackish-purple.

Articulata. Denticles pressed together; the vehicles are ovate, rather large, covered with a lid, and placed in a single row; the stem is jointed and pinnate. It is found in the Atlantic ocean, creeping on shells, and is about two inches long; pale yellow.

Fulicina. Denticles imbricate, placed on one side only; vehicles jointed; stem granulate, branched and pinnate, the subdivisions alternate. It inhabits the Indian ocean, is pale, and about three inches long.

Furcata. The denticles of this species are in a single row on one side; semi-campanulate; the stem is granulate, woody, with alternate fleshy subdivisions. It inhabits the American seas, like the fup. It is six inches long, and of a yellowish-grey.

B. The species of this division have a compound stem, including to fust, and composed of rows of cells; they have no vehicles, but in the place of these there are small globules.

* Dorsaria. Denticles opposite, compressed and truncate; the stem is branched, and dichotomous. It is found on the British coasts, adhering to fuel; it is minute, flexible, yallow; the denticles are carinate, with a small clavate tube at the top.

* Lorica. Denticles opposite, obliquely truncate, and nearly oblonge; the branches are erect and dichotomous. It inhabits the British coasts, on old furturiae.

* Fastigiata. Denticles alternate, pointed; branches dichotomous, eret. This is found in the British seas; the denticles are marked with a black spot in the middle.

* Articulata. The denticles all point one way, nearly opposite, and furnished with two mucronate appendages; the globules appended; the stem 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 green. It is very brittle.

* Nebitina. 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.

* Scurra. Denticles alternate, angular, xpinous; the branches are dichotomous and creeping. It inhabits most seas; 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, fastigiate, and strong.
strong. It is found in the Mediterranean, and is not half an inch long.

*CRISPUS.* This species is very much branched, dichotomous, elongated, and cripped, with depressed ovate joints, furnished with cells on one side. It inhabits the East, is large, flexible, and of a pale-grey colour.

*FLOCCOSA.* This is very much branched, dichotomous, fusiiforme, with wedge-shaped joints, having cells on one side. This is found chiefly in the Indian ocean; is large, whitish, with greyish flexible joints.

*REPTANS.* Denticles alternate, two-toothed; the branches are dichotomous and creeping. This is found in the European seas, adhering to the Flustra foliacea; it is not an inch long; white or pale-grey.

*PARASITICA.* The denticles of this species are vertical, turbinate, ciliate, and parafatical. It is found in the Mediterranean and North seas, adhering to other furticolor 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 substances; not half an inch high; it is whitish; the cells have wide mouths.

*EBURNEA.* The denticles are alternate, truncate, a little prominent; the vessels 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 furticolor and fuci; is about an inch high, and white.

*CORNUTA.* The denticles are alternate and truncate, with a single hair on the top of each; the vessels are gibbous, with a tubular beak; the branches are alternate. This inhabits, like the last and two following, the European and Mediterranean seas, on fuci; it is fomy, 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 cuneate row, pointing one way, with a margined mouth, horned beneath; the branches are alternate. It is found on fuci. The denticles are like inverted horns placed on each other, with a short hair on the top.

*ANGUINA.* The item is very simple, without denticles, but befet with very simple, obtuse, clavate arms, each with a lateral opening. This is found climbing up marine substances; it is white, soft, flexible, varying in form, and appears to connect the furticolor and hydras; the arms are tesselate.

*CEREHOIDES.* Denticles imbricate, with somewhat prominent mouths; the item is branched, jointed, and cylindrical. It inhabits the coast of Africa; is three inches high; whitish, fomy, aggregate, with short joints.

*TULIPIFERA.* Cells in threes on the upper part of the joints, and united together; item branched, with clavate joints. It inhabits the West Indies, adhering to fuci, about half an inch high, and clear white; the item is fomy and subepithanous; the cells are terminal.

*FLAGELLUM.* This species is fomy, 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 filiate on one side; the others are flat, with a triple row of cells.

*TERRATA.* Branched, dichotomous, jointed, creeping; the joints are angular at their sides, with three cells in the front of each. It inhabits the shores of Scotland; it is fomy, semitransparent.

*CHRATA.* Stony, jointed, flat, dichotomous, incurved, the joints are subciliate, ovate, truncate, flat, and having cells on one side. It inhabits the Indian ocean, is about two inches high, and is white; the joints are convex, and filiate on one surface; the other is flattened, with a double row of cells.

*OPUNTIOIDES.* Branches in threes, with cylindrical joints, covered with slightly prominent pores. It inhabits the Eastern ocean; is about half an inch high, erect, very much branched, white, fomy, with the pores disposed in a quincunx form.

*SERVA,* in Geography, a town of Persia, in Szigeti; 180 miles S.S.W. from Zareng.

*SERVAGE.* See Service.

*SERVAL,* in Zoology. See Felis Serval.

*SERVAN,* in Geography, a town of France, in the department of the Ille and Vilaine, and chief place of a canton, in the district of St. Malo. The place contains 8836; and the canton 10,617 inhabitants, on a territory of 50 kilomètres, in 4 communes.

*SERVANDONI,* John Nicholas, in Biography, an eminent architect, was born at Florence in 1605. 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 nobleness of 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 for to the latter capital on the rejoicings 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 Chrift. 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. Sulpice.

*SERVANT, SERVUS,* a term of relation, signifying a person who owes and pays a limited obedience for a certain time to another, in quality of master; in contradistinction to slave, over whose 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 mental servants; to be called from being intra mania, 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 concludes it to be hiring for a year (Co. Lit. 42. F. N. B. 168.); but the contract may be made for any larger or smaller term. All 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 homel 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 (flat. 5 Eliz. e. 4.); but they may part by consent, or make a special bargain.

Another specie of servants includes those called apprentices (which fee); a third sort belongs to that class denominated labourers. See Labour and Labourers.

And there is a fourth species, if they may be called servants, being rather in a superior capacity of service; such as managers, factors, and bailiffs, whom, however, the law considers
SERVANT.

called, tends according (houid hufbandry. promife but guelts, e. tetteady In Dia-
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general the may farm not their is vant, an afts in of fence For age, fa-
mages matter is (Abr. servant,Abr. mutt is servant at cxprelsly be his the fa-
damage and matter matter of the servant's ro/ and matter new to his im-
omly to law or duties of the servant, as upon Blacktt. Comm. book i. See
Larceny.

Much depends upon the fobriety, integrity, and diligence of servants; and the ease with which they obtain characters, or procure employment with such characters, real or fictious, as they gain, is very injurious both to their employers and to themselves. Characters are given with so little re-
servce 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 fervant's honesty, as upon one of these characters.” At the same time an-
other extreme should be avoided, which is that of obstruct

What the Christian scriptures have delivered concerning
the relation and reciprocal duties of masters and servants, breathes a spirit of liberality, 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—6.) “Servants be obedient to them that are your masters, according to the flesh, with fear and trembling; in singleness of heart, as unto Christ; not with evil-service, as men-pleasers, but as the servants of Christ, 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 fame shall he receive of the Lord, whether he be bond or free. And ye masters do the same thing unto them, for-
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 confidering 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 accountability, was no less feasible.

The Romans, besides their slaves, whom they also called
freyi, had another kind of servants, whom they called uexi and aditi, who were such as being in debt, were delivered
up to their creditors by the prince, 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, servus serv-
vorum Dei. The first who used the appellation, as Dion-
cusus tells, were pope Damatus, 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 ascenital. 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 business. Nothing, he contends, contributes more to facility and satisfaction in this fort of business, than a forecast towards 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, for every enjoyment. This kind of servant should, he thinks, have a forecast towards crops for three 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 to bring it to a degree of certainty, it is necessary to make out a list of the fields, or parcels of land, of which the farm consists; with the crops which each has borne 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 list, an arrangement of the crops that are intended for the ensuing year; clashing the fields, or pieces, according to the purposes for which they shall be intended: thus ascertaining the quantity of each crop, whether arable or grazing, 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 sown 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 hands be engaged, in time, to perform them in season, and with the necessary dispatch and certainty. And he further advises a fort of memorandum list to be kept of business 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 most requisite may be brought forward first; or another which is more suitable to the state of the weather, or other circumstances. In this, as well as other business, the great object to be aimed at is that of enuring success; 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 husbandry of crops, the rearing and fattening of live-stock, and the business 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 slovenly management, very much depends; such as keeping the home-fall 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 fitting that gates swing clear, and catch with certainty; equally to preserve them from injury, and to prevent loose stock 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 stock. Likewise to weeds, as well in grazing grounds as in arable lands, to see that not a chaff blows, nor any other weed manures its seed, either in the arable, or on the borders of fields, as great injury is done by their shedding their feeds.

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 refuges, and that the watering of the fields should be attended to as much as the nature of the situation will admit. And to the accumulation of manure an unremitted 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 prevalent 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 business of a managing servant lies in the field, in executing the plans he has formed, in passing from one set of work-peo-ple 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 it with the same care and affluence as against pillaring. 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 faggot 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 work-people 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 good 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 them 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 work people 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 occasion; nor to commend, without reason. Good fellows will not brook the former, nor will bad ones be endured 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;
and it is prudent to fling them with keen, rather than to load them with heavy, words: to endeavour to stir up their pride, rather than their malice or resentment. 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 irrevable rule for him to set 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 matter 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 eftem and attachment of good workmen, and of finifhing in a workman-like manner every thing he undertakes, than by making himself master of his busines; 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 effential. Method is the bell assistant of punctuality; and clear accounts are one of the best results of method. These should always be kept with exactness, and be fent, when required, to the proprietor, in weekly, monthly, and annual periods, so as to shew the daily income of the work; the monthly fiate of receipts and payments; and, lastly, the whole state 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 35l., and that of a boy 23l., supposing the man's yearly wages to be 100l. and the boy's 35l. 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 10l., 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 conveniency is not worth 7l. 10s. a-year. He therefore recommends putting a woman into a cottage, within about two hundred paces of the farm-yard, to take in lodgers; and to keep in the house no more farming servants than a buffer 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 fits 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 just 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 fattated, and who will return to his bread and cheese with perhaps equal health and equal happiness. He fits down to his master's table with a resolution to eat voraciously of the belt, to do himself justice; but at his own table eats sparingly of the meanest, to save his money. His motive in both cases 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 burden-some. He strongly recommends the employing of active young men; for one invalid or fluggish 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 playfulness of the boys. It is not prudent to employ many women with the men; and nothing but necessity can excite them. 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 truly conceited old fellow will check the goolipping 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, passes 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 losers by the way, the field-men or black-men must stand idle; if he spill or overturn his load, or if he breaks his waggon, or let his horses, the arrangement of the day is broken; and, perhaps, the damage done by the loss of time rendered irrepairable by the next day's rain. A good carter will not suffer
fuffer his waggone to be overloaded. The field-men, too, that is, the pitcher and affilant-loader, should be young and active, and well matched with the carter.

But since the above was written, the prices of servants have considerably increased in every district of the kingdom, and the expences of keeping them been very greatly augmented. This has led to fewer being kept, and especially in the house. It is rated, that in Hertfordshire the annual wages of a carter or ploughman was formerly from fix to nine guineas, boys from two to four guineas; and maid-servants 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-wages 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 25/- to 30/- 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 what it will; which is a ridiculous custom, and ought to be abolished without loss of time. What can be more absurd than for to a ploughman slopping his horfes 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 yokings are taken, say seven or eight hours, it may be necessary to feed both men and horfes 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 season allows, and five hours, or four hours, and a half, in short days, is considered to be as much as horfes are capable of sustaining, and yokings of this duration require no refreshment on the ground. And it is added, that the hours of labour for men are generally in summer from six to six, 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 is 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 business, 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 ther 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 he may be qualified.

In the manufacturing districts of Chefhire and Lancashire, the wages of house-farming servants run in this way:

<table>
<thead>
<tr>
<th>Type of Servant</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man to follow the team</td>
<td>£10 to £12</td>
</tr>
<tr>
<td>Lad of from 15 to 20, for</td>
<td>£8 to £10</td>
</tr>
<tr>
<td>the same purpose</td>
<td></td>
</tr>
<tr>
<td>Cow boy, or man, as the</td>
<td>£8 to £10</td>
</tr>
<tr>
<td>flock may be</td>
<td></td>
</tr>
<tr>
<td>Home-work servant, for</td>
<td>£10 to £12</td>
</tr>
<tr>
<td>hedging, mowing, thresh-</td>
<td></td>
</tr>
<tr>
<td>ing, &amp;c.</td>
<td></td>
</tr>
<tr>
<td>Head dairy woman, in pro-</td>
<td></td>
</tr>
<tr>
<td>portion to the size of</td>
<td></td>
</tr>
<tr>
<td>farm</td>
<td></td>
</tr>
<tr>
<td>Women servants of other</td>
<td>£4 to £6</td>
</tr>
<tr>
<td>kinds</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>£2 to £4</td>
</tr>
</tbody>
</table>

In the latter,

<table>
<thead>
<tr>
<th>Type of Servant</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men servants</td>
<td>£10 to £25</td>
</tr>
<tr>
<td>Lads</td>
<td>£6 to £10</td>
</tr>
<tr>
<td>Women</td>
<td>£5 to £8</td>
</tr>
<tr>
<td>Girls</td>
<td>£2 to £4</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 a 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 forts of work performed; and the farmers are, at the same time, the most free from trouble in their houfes and families. In the 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 the year, the inferior forts of farm bafines being often accomplished by parish apprentices; and in the latter, from eight to twelve guineas, with their board, for men, and from three to four pounds, with the fame, 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 fix in the morning to the fame 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>Type of Servant</th>
<th>Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waggoner,</td>
<td>£10 to £12</td>
</tr>
<tr>
<td>Bailiff or cattleman</td>
<td>£8 to £10</td>
</tr>
<tr>
<td>Dairy-maid,</td>
<td>£6 to £7</td>
</tr>
<tr>
<td>Under-maid,</td>
<td>£2 to £3</td>
</tr>
</tbody>
</table>

Likewise in East Lothian, in Scotland, the wages are mostly from ten to fourteen pounds per annum; but this class 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, many husbandmen, to secure a fixed number for that purpose, when they can be got, contract with villagers to affill 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, refume 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 number is not provided. These work only ten hours in the day, beginning at six 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>Former</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>besides bed, board, and washing, per ann.</td>
<td>from 13l. to 16l. from 20l. to 25l.</td>
<td></td>
</tr>
<tr>
<td>Wages of a maid servant, besides bed, board, and washing, per ann.</td>
<td>5l. to 7l. or 8l. to 9l. 10s.</td>
<td></td>
</tr>
</tbody>
</table>

But in Perthshire, 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 cafes the servants are maintained in the farmer’s family; but the practice of giving them fix and a half rolls of meal, together with a houfe, garden, and a cow’s grate, free of rent, and some fuel, is daily becoming more general. These farmers, who keep any married servants, have them all on this establishment of livery meal. The maid servants live all in their master’s family, and are engaged for between eight and twelve pounds, and three cafes 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 victuals. The various denominations of artificers charge according to the nicety of their art. The hours of labour from the vernal 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. Household servants are not so exact with respect to hours; in the long days, they continue to work after six at night; and in short days they get out of bed before day light, where there is much grain to thresh. 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 set up every year, in different parts of the county.

And in Argyleshire, within these 30 years, the price of labour is somewhat more than doubled. It still varies in different parts of the county, but may be estimated in general at the following rates: A man servant’s wages, per annum, with victuals, from 6l. to 8l. A maid servant’s, from 5l. to 4l. And that since 1795 the wages and the price of labour have been advanced more than one fourth, or from 25 to 50 per cent., and are still rising.

Further, in regard to regulating the rate of wages, it has been suggested in the Agricultural Survey of the West Riding of Yorkshire, that the only mode of making them proportional to the rise 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 infures 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, in the whole, better fed, live more comfortably, and rear healthier children than in those parts where, from being paid in money, the currency of the article facilitates the expenditure, and prevents them from laying by a stock of provisions for his support, when laid off work by casualties or distresses. 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. They, with the privilege of keeping a hog and a few hens, enable 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, in the whole, better fed, better drested, 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 into 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 peasantry 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 cafes of very large families, of unusual ilnesses, of scanty scawns, or any other real emergency; the measure, it is presumed, would stimulate industry and fidelity, would check dishonesty, and endeavour to a numerous classes their native taste.

The advance in the rate of farm-servants’ wages who live in the houses 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 district, 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, and no sort 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 distinct from the house upon farms of considerable size. And in cafes 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 provisons, for preparing and dressing them in, are not only requisite, but highly advantageous, both to the farmer and the men, as having much time, which would otherwise be lost in going to their meals, and keeping them together 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 great 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 lodging rooms, in all cafes, are the most proper and the safest, when made in a building quite detached and distinct from the other houses and offices; as per sons 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 is done in some of the midland counties, or brick, which is more easily laid. See Plaster Floors.

Molt 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 spun-yarn, rope-yarn, Jennit, 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 late ages. See his article.

It is impossible (says the translator of Moseheim'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 diminish his crime, is, that it was no easy matter for him to divest himself at once of that persecuting 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 Servetists has been given to some of the modern Anti-Trinitarians, because they follow the footsteps he had marked out.

* However, those who were denominated 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 Senenis 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 the Arians, yet he professes himself very far from their sentiments. He also opposes the Socinians in some things; and declares his different from the opinions of Paulus Samofatenus; though Sandius mistakenly charges him with having the same sentiments.

In effect, he does not seem to have had any fixed regular

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of the church, condemned in private the reigning super-

ofitions, 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 investigation, 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 con-

science 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 Basle in the year 1530. Here he was on a footing of friendly intimacy with Oeolampadius, 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 mat-

ters of small moment, alienated many persons from Servetus who had formed a high opinion of his talents and integrity. While he was at Basle, he put into the hands of a book-

feller a manuscript, "De Trinitatis Erroribus," which was printed in the year 1531. Servetus now went to Straffburg, in which city he became acquainted with two reformers, viz. Capito and Bucerus. 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 impres-

sion, and to avert a storm that seemed threatening to fall upon him, by publishing a work entitled "Dialogorum de Trinitatis Libri duo," in which he explained and de-

fended his opinions. The confessions of this second piece was, that many were exasperated against the author, while a few adopted his doctrines and spread them abroad. Oeol-

lampadius 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 offen-

sive 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 unorthodoxly speaks like a madman about justification; about the Trinity, ἡ τριαδής, you know that I have been always apprehensive that similar things sooner or later would break out. Good God! what trage-

dies will this quizzion excite among posterity?"

The circumstances of Servetus being now, he engaged for some time with the Frellons, eminent bookfellers at Lyons, as corrector of the press. From Lyons he went to Paris, where he studied physic under the celebrated Sylvius, Fernelius, 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 mathe-

matics, 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 practiced physic at Charlevue, near Lyons, whence, at the invitation of the archbishop of Vienne, he removed to that city, and had apartments near

the palace. He had, previously to this, viz. in 1544, superintended the printing of a Latin Bible at Lyons, to which he added marginal notes, under the name of Villanovanus.

During this time, Servetus was in constant correspond-

ence 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 con-

sulted him respecting his writings. Calvin afterwards made a base use of this confidence, by actually producing his let-

ters 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 "Christianissimi Refutatio."

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 Vienne should be informed of it. He was in consequence thrown into prison, and his death would have added an example to the num-

berless cruelties of Roman Catholic persecutions, had he not made his escape. His effigy and his books were con-

demned 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 feized, 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 asserted that Judea had been falsely extolled for its beauty and fertility, since modern travellers had found it to be sterile and unfavourably. That no doubt might be left whence the prosecution came, one of the main articles against the prisoner was, that in the person of Mr. Calvin, minister of the word of God in the church of Geneva, he had defamed the doctrine preached in it,uttering all imag-

inable 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 "Refutatio Christianissimi," together with Ptolemeus, and the edition of Pagnini's bible. At the second exami-

nation, 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 recompensed 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 proceed-

ing, with respect to one who was no subject of their's, nor a resident in their city, nor could he be accused of having committed any offence in their territory, and within their jurisdic-

tion. He was, in truth, kidnapped in his passage.

Moreover,
Moreover, it could not but appear strange, that men should
be associates in perfection, with those very people who
would infallibly burn them as heretics, should they fall into
their hands. They therefore thought it advisable to con-
front the magistrates of the Protestant cantons of Switzerland,
to whom they sent Servetus's book, with Calvin's reply.
The Helvetie divines, to whom the matter was referred,
unanimously declared for his punishment: they said that
Servetus's errors ought to be detested; and that great care
ought to be taken that the infection spread no farther, and
that the man ought to be retrained; but they, none of
them, said a word respecting capital punishment, nor do
they allude 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 frequent-
ly practised at Zurich against the Baptists.

Servetus was for some time kept ignorant of all the pro-
cedings against him; at length he discovered the inten-
tions of his enemies, and drew up, and caused to be pre-
rented, two petitions to his judges; in the first he endeavoured
to exculpate 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 plea, 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 impregnated an indelible stain on
his memory; and the only possible excuse now offered for it
arises from the provocation given by Servetus, "who ex-
ceeds all reason," according to Mosheim, "was accompa-
nied with a malignant and contumacious spirit, and an in-
vincible obstinacy of temper."

The theological fablem of Servetus is decried as singular
in the highest degree. The greatest part of it was a neces-
sary consequence of his peculiar notions concerning the
universe, the nature of God, and the nature of things,
which were equally strange and Chandler. 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 Rerstitutione Christianisi." It
clearly states the circulation of the blood through the
lungs. He purified, in his medical studies, anatomical re-
searches with the greatest ardour.

Servetus was a man of great erudition and unfeigned piety:
his mind was stored with a variety of knowledge, and
he stood very high, in the estimation 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, Oecolampadius,
Cephalic, Bucerus, and other reformers, with an eagerness
to discover truth which has never been surpassed.

The atrocious murder committed on him will not ad-
mit of a single excuse. His imprisonment was scandalous
and unjust. The senate of Geneva had no right to lay
violent hands upon a traveller, who had no intention of
remaining in their city, and who probably never uttered
within the precincts of their dominions one syllable of his
obnoxious opinions. Here Geneva stands condemned by all
citizens.

The affability of the manners of Servetus, and his vaft
learning, had procured him numerous friends in France, in
Germany, and in Italy; and his name will be handed down
to the latest posterity with compliment and respect. See
a life of Servetus, in a series of letters to Jedidiah Morle,
D. D., by Fr. Adrian Vanderkemp: in vol. v. of the
Monthly Repository.

SERUG, in Geography, a town of Asiatic Turkey, in
the province of Diarbekir; 12 miles S. of Urfa.

SERUGNANO, a town of Italy, in the Veronese;
8 miles E. N. E. of Verona.

SERVIA, a province of Turkey in Europe, part of
the ancient Panonia, or of Turkish Illyria, deriving its name
from its inhabitants, is bounded on the N. by Bosnia and
Slavonia, on the E. by Walachia and Bulgaria, on the S.
by Macedonia and Albania, and on the W. by Bosnia and
Dalmatia. It was formerly divided into Proper Servia, or
Serbia, and Rascia, and the inhabitants were distinguished
into Servians, and Rascians or Reitzes; and the former,
which constitutes the upper part, towards the Danube,
resembles the banat of Mafovia. The capital of Servia is
Belgrade; (which see). The Turks call it Lafi Vilayeti,
or Lazarus-land, because in the year 1365, when they
subdued it, Lazarus was prince of Serbia. See Ser-

VIAN.

SERVIAN, a town of France, in the department of
the Herault, and chief place of a canton, in the district of
Beziers; 6 miles N. E. of Beziers. The place contains
2200, and the canton 7319 inhabitants, on a territory of
1176 kilometres, in 9 communes.

SERVIAN, or SERBES, a branch of the Illyrian Slav,
who gave name to the province called Servia or Serbia.
In the Kuffian empire the Servians and Reitzes are colonists,
whom, in the year 1754, a considerable district was allotted
on the Dnieper near and upon the possessions of the Zaporagians.
This country, which got the name of New Servia,
was for the most part an uninhabited desert, extending to
what were then the Polish borders, by which it was sur-
rounded on three sides. The Serbians, who voluntarily
settled here in great numbers, were formed into a military
association, in order to protect the frontiers of the
Zaporagians. In the year 1764, the whole of this
tract of country was erected into the government of New
Ruthia, and at present forms a considerable part of the
province of Ekeenomofal.

SERVICE, or SERVAGE, Servitum, in Law, a duty
which the tenant, by reason of his fee, owes to the lord.
This is a pure, proper, and original feuds, was only two-
fold: to follow, or to do suit to, the lord in his courts in
time of peace; and in his armies, or warlike retinue, when
necessity called him to the field.

Ancient law-books make several divisions of service, viz.
into personal, real, and mixt; military and bafe, intrinsic and
extrinsic, &c. But, since the statute 12 Car. II., by which
all tenures are turned into free and common socage, much
of that learning is yet asid. Yet it may not be amiss to
mention how the several kinds of service are described in
our ancient law-books.

SERVICE, Personal, is that to be performed by the per-
corn. Such is that due from a slave to his master.
Personal service is a disagreeable sort of tenure, under which lands were formerly held, and in which the tenant did various sorts of work for the lord, and provided him with a variety of different articles. It is a custom which has long been abolished in this part of the kingdom, as being highly injurious 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, dres, and kill 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 perfic 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 disagreeable 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 distasteful and ruinous to tenants at particular feasons, 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 busineses, 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 interest of agriculture.

Service, Real, 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 ville, or the like.

Services, Rustic, are those due for grounds, where there is no building; such is the right of palleage through ways, &c.

Service, Mijt, is that due from the person, by reason of the thing, as an usufruit, &c.

Our ancient law-books tell us of lands held of the king, by the tenant's letting a part before the king on New Year's Day; others, by furnishing the king with horses, whenever he travelled that way; others, by bringing the king a mels of potage 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 palleage, 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 feris, out of doors; and extra servitium. We meet with several grants, in the Monasticon, of all liberties, with the appurtenances, falvo forensi servitio.

Service, Intrinsec, Servitium intrinsecum, that due to the chief lord alone, from his vassals within his manor.

Service, Frank, Servitium liberum, a service done by the feudatory tenants, who were called liberi homines, and distinct from vassals: as was likewise their service; for they were 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, Bafe. See Villenage.

Service, Bord. See Bondage.

Service, Foreign, Honorary, Knights, Rent. See the adjectives.

Service, Herit. See Heriot.

Service, Overly of. See Overly.

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: Eph. 5. 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 un-doubted testimony, that singing, which was practiced 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 Christianitv. However, the era 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 Antiphony.

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 forbidden 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 these 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 instituttor of the Ambrosian chant, established at Milan about the year 386; and Eusebius (lib. 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 Conftantine; and that St. Ambrose, who had long refrained 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 plain chant; and in Germany, and most other countries, by that of the cantus Gregorianus. 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 plagal were afterwards added.
added by St. Gregory. Each of these had the same final, or key-note, 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 key-note, and those in the four plagal, or relative modes, within the compass of the eight notes below the fifth of the key. See Mode.

Ecclesiastical writers seem unanimous in allowing, that pope Gregory, who began his pontificate in 590, collected the musical fragments of such ancient psalms and hymns as the first fathers of the church had approved and recommended to the first Christians; and that he selected, methodized, and arranged them in the order which was long continued at Rome, and soon adopted by the chief part of the western church. Gregory is also said to have banished from the church the canto figurato, as too light and dissonant; and it is added, that his own chant was called canto fermo, from its gravity and simplicity.

It has been long a received opinion, that the ecclesiastical tones were taken from the reformed modes of Ptolemy; but Dr. Burney 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 fifth 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 female tones used but those from E to G, 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 symphony and anaphony; and the latter was sometimes called responsaria, in which women were allowed to join. St. Ignatius, who, according to Socrates (lib. vi. cap. 8.), converted with the apostles, is generally supposed to have been the first who sung to the primitive Christians in the East the method of singing hymns and psalms alternately, or in dialogue; and the custom prevailed in every place where Christianity was established; though Theodoret, in his History (lib. 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 song, and a more elaborate and artificial kind of music, adapted to the hymns and lection offices 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 Roman 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 possession of harmony or counterpoint, which has been generally ascribed to Guido, a monk of Arezzo, in Tuscany, about the year 1022; 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 thence spread through Greece, Italy, France, Spain, and Germany, was brought into Britain by the fingers who accompanied Austin the monk, 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 Austin and the companions of his mission, had their first audience of King Ethelbert, in the aisle of Thanet, they approached him in procession, singing litaniæ; and that afterwards, when they entered the city of Canterbury, they sung a litany, and at the end of it, Alleluia. But though this was the first time the Anglo-Saxons had heard the Gregorian chant, yet Bede likewise 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. Austin. In 680, John, precentor of St. Peter's in Rome, was sent over by pope Agatho to instruct the monks of Wescomuth in the art of singing; and he was prevailed upon to open schools for teaching music in other places of Northumberland. Benedict Biscop, the preceptor 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. Austin his missionary, having established a school for ecclesiastical music at Canterbury, the rest of the island was furnished with masters 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 Reforma'tion: the first deviation from it is that which followed the reformation by Luther, who being himself a lover of music, formed a liturgy, which was a musical service, contained in a work, entitled, "Psalmodia, h. c. Cantica Sacrae Veteris Ecclesiae," printed at Norimberg in 1553, and at Wittenberg in 1561. 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 Roman service, with that artificial and elaborate music to which they were sung; and adopted only that plain metrical 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 of one part. In 1553, he divided the Psalms into panes or small portions, and appointed to 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 singing, were forbidden 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." These thirty-two commissioners, instead of reproducing church music, merely condemned figurative and operose music, or that kind of singing which abounded with fugges, responsive psalms, and a commixture of various and inordinate proportions; which, whether extempore or written, is by musicans termed decant. 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 statute 2 & 3 Edw. VI. cap. 1. 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 1660, 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 object 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 unobjectionable introduced, in an account of their public worship. Religious serpents, though in some respects unfounded and unwarrantable, when seriose avowed, are not fit subjects of ridicule. See on this subject Hawkins's Hist. of Music, vol. i. p. 404. vol. ii. p. 264. vol. iii. p. 58—468. &c. vol. iv. p. 44—347. Burney's Hist. of Music vol. ii. ch. i. pf. 11.

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 compositor 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 1782, Dr. Samuel Arnold, organist and compositor to his majesty's royal chapels, published, in the same splendid manner, a first volume, in continuation of this collection of services and full and service 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. Harley 7337, Plut. VI. B. a collection of English church music, in five volumes. All transcribed for and dedicated to the right hon. Edward lord Harley, by Dr. Thomas Tudway, music 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, FREE, in Botany, a corruption of the Latin Sorbus; see that article, as well as PYRAUS and MESPLUS.

SERVICE, FREE, WILD. See CRATAGUS.

SERVIENTES VIRGATORUM. 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 1115, and the canton 8567 inhabitants, on a territory of 265 kilometres, in 13 communes.

SERVILE, in Hebrew Grammar, the denomination of a class of letters used in contradistinction to radical. The last 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 serviles. The serviles are the other eleven letters, by means of which the whole universe of flexions is derivable, numbers, genders, persons, and tenses, is accommodated. But even these letters are somewhat limited in their servile power. For only two of them, viz. and , can be interposed or ingrafted between radical letters; the others must be either prefixed or suffixed to the root. The eleven servile letters are the following; , , , , , , , , , , , .

SERVIN, Louis, in Biography, a celebrated lawyer in France, who flourished at the sixteenth and beginning of the seventeenth centuries, was defended of a good family in the Vendomais. 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 1589 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 pretenions 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 Provence. The title of his work was "Actions notables et Plaidoyes." In
1590 he published a work in favour of Henry IV., who had succeeded to the crown, entitled “Vindicæ lecundam Libertatem Ecclesiæ Gallicane, et Defenso Regii Status Gallo-Francoorum sub Henrico IV. Rege.” In 1598, being joined in a commission for the reformation of the university of Paris, he delivered “a remonstrance” on the subject, which was printed. To live 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 animated remonstrances in favour of the right of parliament to regisler royal edicts. On another similar occasion, for the purpose of compelling the registry of foreign financial edicts, he was firmly but respectfuily making fresh remonstrances to his majesty, he suddenly fell and expired at the king’s feet, a memorable death, and such, says his biographer, as may in a measure entitle him to be enrolled among the martyrs to liberty. The particular character of this excellent magistrate was worthy his high public reputation, and few men of his time flowed 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 prevent its being chased. Riggins, Plate I. fig. 48.

SERVING the Riggins. See Mallet.

SERVING-Mallet, 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. Riggins, Plate I. fig. 49, a short board with grooves in it, is used for laying on small service.

SERVISTAN, in Geography, a town of Peria, in the province of Farfallan: 25 miles S.E. of Schuras.

SERVITES, an order of religious, so denominated from their wearing 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 Senar, 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 Monaldi, one of the seven, being simple prior of Mount Senar, was named general.

This order was approved of by the council of Lateran, and again by cardinal Raynarius, 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 very famous, in Italy, by the council of the council of Trent, of P. Paolo, a Venetian, who was a religious Servite. M. Hermant gives this order the name of the Annunziata, doubtless from this mistake, that in some cities of Italy they are called religious of the Annunziata, because in those cities their church is dedicated under that name. F. Archang. Giani derives the name Servites, servants of the holy Virgin, from hence; that when they appeared for the first time in the black habit given them by the bishop, the flunking children, as they say, cried out, Behold the servants of the Virgin. There are also nuns of this order.

SERVITIA, Per Quiz. See Per Quiz.

SERVITIS Acquiudantis, a writ judicial that lies for a man detained for services to one, when he owes and performs them to another, for the acquittal of such services.

SERVITIS Consuetudinibus. See Consuetudinibus.

SERVITOR, in the university of Oxford, a scholar or student, who attends and waits on another for his maintenance there.

Servitors of Bills, denote such servants or messengers of the marshal of the king’s bench, as were sent abroad with bills or writs, to summon men to that court. They are now commonly called tip-flower.

SERVITUDE, the condition of a servant, or rather slave. Under the declension 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 subjects to the first owners, upon condition of certain rents, and servile offices, to be paid in acknowledgment. Hence the names of servi consulis, aetipotitatis, and additatis: some of which were taxable at the reasonable discretion of the lord; others at a certain rate agreed on; and others were immemorially, 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 almost abolished in England. Such, however, was the original of our tenures, &c. See Slave.

SERVIUS, MAURUS-HONORATUS, in Biography, a grammatic 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 Stephen’s Virgil, but they are most correctly given in Burman’s edition in 1756. A tract on profody by this author, entitled “Centimetrum,” 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.


SERVIUS, Sulpicius Rufus, an eminent Roman jurist and statesman, was descended from the illustrious patrician family of Sulpicii. 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 clas, which were marked with the licentiousness of the time. He bore arms in the Maric 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 of distinction, that the former were accustomed to consult jurists upon all difficult points. Servius having once applied for that purpose to Quintus Macius, a very eminent lawyer, the latter perceiving that Servius did not comprehend his explanations, afflicted 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 reproof is said 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 to be compared with Servius Sulpicius;” and he farther 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 less diffident 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
one is a well-known consolatory epistle on the death of Tullia.

Servius passed through the usual gratitudes of honour among Romans of rank. He was first questor, then edile and praetor. When the troubles of the republic were impending, he was created interrex, in which quality he nominated Pompey sole consul. He was himself consul with Marcellus, in the year 51 B.C., and opposed the motion of his colleague to remove Caesar from his command, left it should immediately bring on a civil war. After the battle of Pharsalia he declared for Caesar, and was appointed governor of Achaea. When that chief was taken off he returned to Rome, and acted with the party who aimed at the restoration of public liberty. During the siege of Modena by Mark Antony, he was urged by the senate to undertake a legation to him, which, after pleading his age and infirmities, he accepted: but he forewarned it would be fatal to him, and he died in Antony's camp in the year 43 B.C. Cicero's ninth Philippic is entirely employed in pleading for a brazen statue to the memory of this excellent man, as for one who had left his life in the service of the republic, which was voted by the senate. Servius was author of a great number of volumes on legal topics, none of which have been preferred; but quotations from some of them are extant in A. Gellius.

Servius Tullius, the sixth king of Rome, was the son of Oenomaus, a native of Cornovium, who was made a captive when the Romans took that place. Tarquin the Elder presented Oenomaus to his queen Tanaquil, and having a son born while she was in a state of servitude, he was named Servius. 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 prince 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 Tarquinia, the king's daughter. On the assassination of Tarquin, Servius took possession of the throne, which event is dated in the year 577 B.C. As the sons of Ancus Marcius, 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 origin in his reign. Servius enlarged the city by taking two more hills into its limits: he added four tribes to the three old ones; he divided the whole Roman territory into tribes, with a pagus, or fortified poilt to each, and instituted a census, by which all the Roman citizens were distributed into fixed 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 grandsons 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 division 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, he attached herself to the other brother, her sister'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 incestuous union, they boldly and openly declared Servius an usurper, and Tarquin laid claim to the throne before the senate. The patriots generally came over to his interest; but the great masses 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 affuming the royal robes and insignia, and seated 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 son-in-law from the throne; but Tarquin seized the venerable monarch by the waist, and threw him down the steps of the temple. He was fortunate in his antagonist, and moving away the help of some by-standers, when his unnatural daughter Tullia arrived, who, having falsified her husband as king, suggested it him the necessity of dispossessing her own father. Tarquin sent perons to perpetrate the foul deed, and Tullia sealed her cruelty and impiety 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 sea-bird, a kind of mergus, very common about Venice, and called by Mr. Ray mergus cirratus jubatus, the brown-crested, or lesser-crested diver, and supposed to be the anas longirostris, or long-beaked duck of Giphorn. This is the red-breasted merganer 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 ferrugious, 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 scapular 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 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.

Serum, Alumifum, Suln-whey, a form of medicine prescribed in the late London Pharmacopoeia, 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° 31'. W. long. 96° 18'.
SESAMOID, in Anatomy, a name given to some small bones of the thumb and great toe. See Extremities.

SESAMOIDES, in Botany, a name first published by Clusius, as applied to Salamanca to two very different plants, neither of them bearing any evident resemblance to Sesamum. These are Silene Otites and Reseda Sesamoides; see Reseda and Silene. Tournefort has founded on the last-mentioned species, along with R. canescens and purpurascens, his genus Sesamoides, Linn. 424. t. 238, whose character depends on the deep divisions of the ripe fruit, each of which embraces a seed, and seems a distinct capsule. But this is only one instance, amongst others, of the proteine-like nature of the very peculiar genus of Reseda.

SESAMUM, an ancient Latin name, σεσαμοες in Greek, for which some vague derivations have been proposed, but which appears, as professor Martyn observes, to have been taken from Sesamum, the Egyptian name of the same plant, or grain, the use of which, as food, has been, from the most remote antiquity, common in the East. Those who have read the Arabian tales, will not forget the magic power of the word sesame.—Linn. Gen. 323. Schreb. 422. Willd. Sp. Pl. v. 3. 358. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 4. 52. Juss. 138. Lamarck Illust. t. 528. Gärtn. t. 110.—Clas and order, Didynamia Angio/permia. Nat. Ord. Luriz. Linn. Bignasia, Juss.

Gen. Ch. Cal. Perianth inferior, of one leaf, erect, short, permanent, in five deep, equal, lanceolate segments, of which the upper one is slightly shorter. Cor. of one petal, bell-shaped; tube roundish, as long as the calyx; throat inflated, spreading, bell-shaped, very large, declining; limb in five segments, four of which are spreading, and nearly equal, the fifth, which is the lowest, ovate, obtuse, twice as long as the rest. Stam. Filaments four, originating from the tube, shorter than the corolla, tapering, ascending, the two interiormost shorter; anthers oblong, acute, erect; there is an imperfect filament bidentate. Pist. Germin superior, ovate, hairy; style thread-shaped, anthering, rather longer than the filaments; stigmac lanceolate, deeply divided into two parallel plates. Peric. Capsule oblong, obscurely quadrangular, compressed, pointed, of two valves and four cells. Seeds numerous, nearly ovate.


Obf. Linnaeus remarks that the flower agrees with Digits, but the fruit is widely different.

1. S. orientale. Common Sefamum or Oily-grain. Linn. Sp. Pl. 883. Wild. n. 1. Ait. n. 1. (Sesamum feu Semplem; Alpin. Egyptian. 68. t. 190. S. five Sifamum; Ger. Em. 1232.)—Leaves ovate-oblong, undivided; the lower ones somewhat serrated.—Native of the East Indies.

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Sesamum is also a name given by some authors to the myrrhus, 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. 126, to a genus erected by him out of Eichynomeones, see that article; and continuing the Linnaean Ac. grandiflora, coccinea, and Sesan, with several others more recently discovered. These plants are mostly referred by Wildenow to Corollis, with which they do not all accord. They certainly cannot remain with the original species of Eichynomeones, which scarcely differ from Smith's, see that article.

Sesel, Poiret in Lam. Dict. v. 7. 130, the Ambonya name of a tree, which, according to Rumphius, assumes a very different appearance on the coast to what is usual in the adjacent plains; the leaves, always strongly three-rubbed and entire, lanceolate in the latter situation, being roundish-ovate, and much shortened, in the former. He speaks of this plant as allied to Metrosideros, the wood being so 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, subessentially brown, and the fruit seems a globose yellow berry, or drupa. See Rumph. Amboin, v. 3. 64. t. 36. 37.


Gen. Ch. General Umbel rigid; partial very short, of many rays, globoso. General involucre of very few leaves, or none; partial of several pointed leaves, about the length of the partial umbel. Perisianfs greatly dircernible. Cor. Universal uniform; florets all fertile; partial nearly flat, of five petals, whose inflexed points render them heart-shaped. Stam. Filaments five, awl-shaped; anthers simple. Pila. Germen inferior; styles two, distinct; stigma obtuse. Petio. Fruit ovate, small, fringed, separable into two parts. Seeds two, ovate, convex and fringed at the outer side, flat on the inner.

Ell. Ch. Umbels globoso, rather rigid. Flowers regular, all fertile. General involucre of one or two leaves; partial of several. Fruit ovate, fringed.

Obf. S. Hippomarathrum offers a remarkable exception to the above generic character, having a partial involucrum of one leaf, orbicular and toothed, like the wheel of a clock. That of S. gummiferum 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 stem 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 fringed rays, with a general involucre 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 involucre leaves, of the same length. The halfripe fruit is oblong, about as long as the flowers which support it, furrowed, crowned with a very evident calyx, of five awl-shaped, sharp, permanent, somewhat spinous, 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 few botanists would recognize it for a Sefal.


Native of the south of Europe. Cultivated by Linnaeus at Upsal. Perennial. Stem a foot high, slightly leafy, round, finely fringed, smooth, decumbent at first, but firmly erect as the flowers come to perfection, and bearing about three rather large umbels, which in a young flat droop, like those of Pinpinella Saxifraga. Radical leaves stalked, a span long, smooth, of a light glaucous green; their segments spreading, acute, entire, veiny, very uniform. Flowers white. Partial involucrum 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. Vind. v. 2. 59. t. 129. Carvifolia; Vail. Paris. t. 5. f. 2.)—Footstalks 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 footstalks. Stems erect, from one to three feet high, round, fringed, smooth, branched, leafy. Leaves doubly pinnate, three-leaf; the segments of the upper one longish, narrow, and most glaucous; their footstalks sheathing, close, fringed, 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 involucre leaf. Seeds obovate, one-fourth of the former, ribbed, minutely downy.


5. S. glaucum. Glaucous Meadow-faxifrage. Linn. Sp. Pl. 372. Willd. n. 5. Ait. n. 2. Jacq. Aurtur. t. 144.—Footstalks under the branches oblong, entire, with a membranous edge. Branches spreading. Leaflets linear, channelled, smooth, glaucous, longer than their footstalks. 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 forked, not fitting close to the mid-rib. The branches are more divaricated.
cated, and umbels more lax. Seeds rather shorter. In Jacquin's figures these plants appear very different, but the glaucum of most authors is merely montanum. Jacquin does not notice the hairy seeds.


A hardy perennial, flowering in June and July. Miller says the root is biennial. Leaves doubly pinnate; lobes very narrow, and finely divided. Stems strong, a foot and half high, furnish'd with hissing winged leaves, and terminated by pretty large umbels of white flowers. A specimen sent by Gouan for S. annum, which it certainly is not, seems to be the plant under consideration. The figments 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.


Foot tapering, wooly, crowned with fibres of decayed leaves, and having all the appearance of being perennial. Stem twelve or eighteen inches high, erect, stiff, somewhat zigzag, round, fringed, leafy, often purplish; its branches very little spreading. Leaves flat, 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 tapering parts reach beyond the flowers. Seeds elliptic-oblong, very convex, with three dorsal ribs, deliitute of pubescence in every part. We have this species from M. Du Cros as Haller's n. 762, to which it seems well enough to answer, but if so, Gouan mistakes Haller's plant.


9. S. Amnoides. Milfoil Meadow-faxifrage. Linn. Sp. Pl. 373. Wild. n. 9. Ait. n. 4. Jacq. Hort. Vind. v. 1. 20. t. 52. (Amnoides; Bauh. Pin. 159. Ammi; Matth. Valg. v. 2. 120. A. Mathiilii; Dalech. Hift. 695.)—Leaflets of the radical leaves imbricat; those of the upper ones a little 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, flattening, 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 wife unequal, much shorter, spreading rays. Involucral leaves bristle-shaped. Flowers white. Fruit minute, roundifoliate, inflated, smooth.

10. S. tortuosum. Crooked Meadow-faxifrage. Linn. Sp. Pl. 373. Wild. n. 10. Ait. n. 5. (S. maflillifera, fenzici folio, quod Dioecoris censetur; Bauh. Pin. 161. Funiculum tortuosum; Bauh. Hift. v. 3. p. 2. 16.)—Stem much branched, divaricat, rigid, furrowed and angular. Leaves of the partial involucrum ovate, membranous at the edges, somewhat combined at the base.—Native of the south of Europe. Root biennial, rather than perennial. This species is known by its remarkably rigid, repeatedly branched, trailing spikes, bearing great numbers of rigid, clumpy, spreading umbels, each frequently accompanied by a general involucrum of one leaf. The felif leaves are commonly very small, with a large, broad, abrupt, membranous-edged footstalk. Whether the leaflets of the radical leaves vary greatly in length and breadth, or whether Linnaeus has, under this, confounded several different species, we have not sufficient information to decide. The whole herbage is glaucous, of a thick rigid habit.

11. S. gummiferum. Gummy Meadow-faxifrage. Sm. Exot. Bot. v. 2. 121. t. 120. Ait. Epit. 374.—Stem furrowed, rigid, leafy. Partial involucrum of many linear leaves, united by a broad base. Flowers almost entire. Leaflets wedge-shaped.—Gathered by professor Pallas in the Crimea. It was observed by Mr. Lambert in the Oxford garden, about the year 1803, and communicated by him to his friends. The plant is biennial, hardy, flowering in summer and autumn. Stem three or four feet high, erect, branched, leafy, very flinty and rigid, furrowed, minutely downy; when wounded exuding a copious, yellow, fetid resinous gum. Leaves a span long or more, triplicate, glaucous, somewhat downy; their leaflets oblong or wedge-shaped, flat, decurrent, acute. Umbels terminal, erect, finely downy, flattish, from three to fix inches broad, of very numerous rays. General involucreus usually of one short frappshaped leaf; but in the large primary umbel of several: partial with a broad, simple, oblong-like base, fringed with copious, horizontal, linear, acute leaffetls, nearly equal to the flowers. Each partial umbel is flat when young, partly coloured with purple and white, but afterwards convex, confluent of insinmeraul almost lellife flowers, powdered over, as it were, with the white anthers. Petals red and white, inflexed, nearly regular. German furrowed, fefid. Fruit elliptical. The flowers have a faint smell, not unlike thoie of the Barberry. In Haller's letters, v. 2. 516, is one from Dillenius, dated Dec. 1746, in which he speaks of an umbelliferous plant, sent under the name of Sefeh from Siberia, which, being fown in the spring, flowered, but perished on the approach of winter, without producing seed. He conceived it to be allied to the Hippoparathrum of Rivinus, (see our next species,) on account of the simple-leaved partial involucrum, cut into fix or eight teeth. The general umbel had a felif frapp-like leaf to each ray. The seeds resembled thoie of Caraway, and were not winged. Might not this be our S. gummiferum? If so, Dillenius ought to be recorded as its original introducer.

SESELI.

high, nearly upright, rigid, round, smooth, roughy, somewhat branched above, bearing several oblong, sheathing, membraneous-edged footstalks, with only very short or abortive leaves. The proper leaves are radical, very numerous, stalked, two or three inches long, doubly pinnate and cut, linear, glaucous and smooth like the rest of the herbage. Umbels terminal, solitary, small and cloe, rigid, minutely downy, with several principal rays, and sometimes a sheath-like leaf at the base; the partial ones of many white, nearly sessile, flowers, chiefly remarkable for the simple, cup-like, partial involucre, 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 Clusius and Gerard. 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. Turbith. Turbith Meadow-faxifrage. Linn. Sp. Pl. 374. Amoen. Acad. v. 4. 310. Willd. n. 11. (S. que ferulce facie, Thapsia, five Turbith, gallorum ; Bauh. Hilt. v. 3. p. 2. 45. Boer. Lugd. Bat. v. 1. 50. Thapsia Dios; Lob. p. 779. T. tetonifolia ; Ger. Em. 1050.)—Leaves recurved three-clawed, divided, awl-shaped. General involucre of one or two awl-shaped leaves; partial of many short, pointed, membranous ones. Seeds villous, the length of the permanent lylles.—Native of Spain, and the south of France. The root is perennial, thick, discharging a milky juice, which, according to John Baulhin, to whom it was pointed out by his preceptor Rondelet, possesses a valuable purgative quality. Stem erect, branched, round, smooth, not so clumsy as in Baulhin's figure. Leaves chiefly opposite, with broad sheathing footstalks, spreading, repeatedly subdivided into divided, 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 involucre 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 brilly hairs, and crowned with the long spreading flutes, very timid at their base. Stigmas obtuse, but hardly capitate.

14. S. pyrenearum. Pyrenean Meadow-faxifrage. Linn. Sp. Pl. 374. Willd. n. 13. Alt. n. 7. (Selium pyrenearum, Gouan. Illit. v. 2. 316. Carvi alpinum ; Bauh. Prodr. 84. Lachenal Act. Helvet. v. 7. 352. t. 12.)—Leaves doubly pinnate, with many linear, acute, deciduous, flat segments. Partial involucre fetaeuse, equal to the flowers. Seeds smooth, nearly orbicular, with three cloe central ribs.—Native of the Pyrenees. Miller appears to have cultivated it in 1731. The root is perennial, the fize of the finger. Stem a foot high, erect, furrowed, smooth, scarcely branched, moss 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, deciduous, 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 cloe prominent ribs.

15. S. faxifragum. Slender Meadow-faxifrage. Linn. Sp. Pl. 374. Willd. n. 14. (Pimpinella faxifragia tetonifolia ; Bauh. Prodr. 84.)—"Stem thread-shaped, divaricated. Leaves doubly ternate, linear. Umbels of about six rays."—Plentiful about the lake of Geneva, according to C. Baulhin, who describes it with an oblong root. Stem a foot high, green, smooth, frutiated, bent, divided from the base, and subdivided into slender branches. Leaves in slender, afterwards almost capillary, segments. Flowers few, minute, whitish, in a small umbel. It is not possible to determine any thing from this description, nor have we seen an authentic specimen. Linnæus saw this species in Burfer's herbarium only. His account agrees with the above, only adding that the partial involucral leaves are bristle-shaped.

16. S. clatum. Tall Meadow-faxifrage. Linn. Sp. Pl. 375. Mant. 357. Willd. n. 15. Alt. n. 8. Gouan II.II. 16. t. 8.—Stem much branched, round, rigid, very smooth. Leaves twice ternate, with linear, feely, diffuse leaflets. Fruit smooth, ovate, with diffuse obtuse ribs. Partial involucrum awl-shaped, shorter than the flowers. Partial involucrum awl-shaped, shorter than the flowers. Native of Italy and the south of France. Specimens are in the Linnæan collection from Arduins and Gouan, as well as the garden plant alluded to in the letter to Linnæus, cited by Gouan. Théle, as well as Gouan's figure, prove the present species to vary greatly in luxuriance. The stems are from eighteen inches to fifty 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, feely, 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 or three to ten rays, smooth, without an involucre; partials of many short 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 Magnol, quoted in Sp. Pl. was afterwards referred by Linnæus to his Pimpinella glauca.

17. S. triternatum. Yellow Meadow-faxifrage. Pursh v. i. 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 spindled-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, divided. Footstalks of the stem-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. Here a fain high, rigid, smooth, rather glamous. Radical leaves twice ternate, with keeled three-pointed leaflets; those of the stem very small, and as if abortive. Umbels small, white.

19. S. capitojum. Tufted Meadow-faxifrage. Sm. Prodr. Fl. Græc. Sibth. n. 699.—Stem simple, nearly naked. Radical leaves tufted, flat, pinnate, cut; the terminal leaflet three-claw, deciduous. 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 stem-leaf has a membranous edge. General umbel
of about five rays. Fruit cylindrical, obscurely iri-ated, smooth.

Seseli-Seed, in the Materia Medica, the name of the seed of a plant, called also by some Libanotis, and growing three or four feet high, with leaves like fennel, but of a paler green. It is a native of warm climates. The seed ought to be chosen moderately large, of a longish shape, heavy, clean, and of a greenish colour, fresh, and of a graceful smell. It affords, by distillation, a very large quantity of an essential oil, and is hot and dry. It incides, opens, and discusses, and is cephalic, neurotic, pectoral, and nephritic. It is good against epilepsy, apoplexies, vertigo, and all disorders of the head and nerves. Lemery's Diet. of Drugs.

The seeds of the fejfei Cretum, or hart-wort of Crete, are diuretic, uterine, and good in all disorders of the breast and lungs. They are given in infusions of urine, and of the menes, and in all kinds of flatulencies; and are, among the German physicians, a common ingredient in medicines, intended to promote expectoration.

The seed of the French hart-wort, or fejfei Maffiflense, has been esteemed of great virtue in diseases of the head and nerves, in convulsions and epilepsies, and in weaknesses of the sight. It is also given in electuaries, intended against all disorders of the breast and lungs, in coughs, catarrhs, and apheresis, and in obstructions of the liver. Some have recommended it chiefly, as a medicine of great efficacy against obstructions of the menes; and Schruder tells us, that it has the credit of being an antidote to the poison of hemlock.

The common hart-wort is poissled of the fame fort of virtues with the other two, but its seed is more warm and acute than that of either of them. It is esteemed a very efficacious remedy in obstructions of the menes, and in all disorders arising from indigestion, crudities, and flatulencies. See Sermountain.

Seseli Pratense. See Saxifrage.

SESEME-QUIAN, in Geography, a river of the N.W. territory, in the United States of America, which runs into the Illinois.

SESEN, or Sesem, a town of the principality of Wolfsenbuttle; 12 miles S.W. of Goslar.

SESERINUS, in Ichthyology, a name given by Rondeletius, and some other authors, to a broad and short sea-fish, seeming the same with the lampgusa of Italian siftermen; and describ'd by authors in general, and by this very author in another place, under the name of stromatus.

Sesha, in Hindoo Mythology. Images of Naga, or Seraphs, in brahs, are said to be invoked in cases of ill-health, with appropriate ceremonies, and according to the author of the Hindoo Pantheon, they are very common in India, where the idea of the medicinal virtues of snakes appears to be of very old date. A Hindoo, attacked by a fever, or other disease, makes an image of a Naga in brahs, clay, or wax, and performs appropriate ceremonies in furtherance of his recovery. Such ceremonies are particularly efficacious when the moon is in the nakhapatra, or alterfin, called Sarpa, or the serpent. We have observed that the snake, in all mythological language, is an emblem of immortality; its endless figure, when its tail is inserted in its mouth, an astrological mysticm common to Asia and Europe; and the annual renewal of its skin and vigour afford symbols of continued youth, of duration, and eternity; and its supposed medicinal virtues, or life-preserving qualities, may also have contributed to the famed 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 sin, its first shape on earth. For some notice of fabulous relations connected herewith, see Kusa and Superflum. With the Hindoo, serpents are not always of ill omen. A day in the Indian calendar, called "nagapanchami," is sacred to the demi-gods in the form of serpents, who are enumerated in the Padasa and Garuda Puranas." Cities, towns, mountains, rivers, men, women, &c. are commonly, among the Hindoos, named after mythological personages. Nagpur, the capital of the rajah of Berar, properly Nagappuri, is after one of the common names of Sesha, as is also a town in My-fore, Naugmungalam, properly Naiga-mangala. See Man-gala.

One of the fables most commonly alluded to in Hindoo writings, is Vifiunu repos'd on Sesha, and it is a favourite subject with painters. In a beautiful ode, by Sir W. Jones, addressed to Lakshmi, the Magna mater of her sectarries, (see Laksimali,) her union with Vifiunu is introduced. On this occasion the bride roves from the churned seas, like our Venus, and choosing Vifiunu for her husband, the subject of this article formed a nuptial couch for her reception; thus poetically deserib'd.

"—Love bade the bridegroom rise:—
Straight o'er the deep, then dimpling smooth, he rush'd:—
And tower'd th'unmeasur'd snake — a stupendous bed:—
The world's great mother, not reluctant, led:
All nature glow'd where'er the smiled or blush'd:—
The king of serpents rush'd:
His thousand heads, where diamond mirrors blaz'd,
That multiplied her image as he gaz'd."

The operation of churning the ocean, alluded to above, is described under the article Kurmapatara of this work, and a poetical allusion to the reflecting gems or mirrors on the heads of Sesha, will be found under Siiaakotha. See also Loto.

Seshnaga, a name of a mighty mythological serpent among the Hindoos, otherwise called Sesha; which see.

Seshthi-Matriya, a name of Kartikya, the mytho-
logical commander of the celestial armies of Hindoo fable. The name means having six mothers. Shan-matriya has the same meaning, and is another of his names, and Shan-
matura. Shanmuka is another, and means with six faces or mouths. For the origin of these appellations, and for particulars of the hero to be distinguished, see Kartiya, and Skanda, another of his names.

Sesia, in Geography, a river in Italy, which rises in the Alps, on the borders of the Valais, and runs into the Po, a little below Cuzal.

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 Mafrans, in N. lat. 45° 25', E. of Doire; and contains 140 square leagues, and 210,445 inhabitants; it was divided into three circles, viz. Vercell, comprising 79,391 in-
habitants; Sannia, with 36,014; and Biele, having 89,040 inhabitants. The climate of this department is unhealthy; the eminences and hills are favourable for the culture of the vine; and the cultivated plains yield abundance of grains, fruits, and pastures.

Sesiala, a town on the N.W. coast of Timor. S. lat. 8° 55'. E. long. 125° 26'.

Seskara, a small island in the N. part of the gulf of Bothnia. N. lat. 65° 38'. E. long. 23° 39'.—Allo, a small island in the gulf of Finland. N. lat. 59° 57'. E. long. 28° 28'.
SESLERIA, in Botany, received that appellation from Scorpius, who in the first edition of his excellent Flora Carolina, says, 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 Seller, whose great diligence in observing and cultivating plants justly entitled him, in Scorpius's opinion, to this botanical commonnoration. A letter of his, describing a supposed new genus, under the name of Vitaliana, is subjoined to Donati's Storia Naturale del Adriatico, but Limmeus reduced the plant to Primula.—Scop. Carn. ed. i. 180. Sm. Fl. Brit. ii. Prodr. Fl. Grec. Beith. v. i. 52. Ait. Hort. Kew. v. i. 153. Julit. 31. Lamarck Dict. v. 7. 138. Illust. t. 47.—Clasf and order, Triandria Digynia. Nat. Ord. Gramina.

Gen. Ch. Cal. Glume of two, nearly equal, ovato-lanceolate, conceave, pointed valves, containing about three flowers. Cor. of two unequal, erect parallel, acute, valves; the inner folded, two-ribbed, closer, outer rather the longest, entire or three-cleft. Stam. Filaments three, capillary, longer than the flower; anthers pendulous, oblong, cloven at each end. Pfil. German superior, ovate; hyaline 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 variously pointed. Styles united at their base.


2. S. alba. White Moor-grafs. Sm. Fl. Grec. Beith. v. i. 56. t. 72. v. 2. 2. (Carex dubia; Sibth. MSS.)—Spike ovate-oblong, imbricated. Bractes alternate. Outer petals lanceolate, acute, undivided.—Discovered by Dr. Sibthorp, in woods about the village of Belgrad, near Constantinople. The general aspect of this grass, so like some of our common species of Carex, with compound androgynous spikelets, 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 Sceliria, 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 bases of old leaves. The spikelets are twelve or fifteen inches high, and the foliage nearly as tall. Spike of a greenish-white, rather shining, faintly branched. Spikelets two or three together, filked. Calyx three or four-flowered, membranous, taper-pointed; the middle florets filked. 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 divericate, awl-shaped, clothed with short pubescence. This Sceliria serves greatly to confirm the genus, and to indicate its true essential character.

3. S. sphaerophila. Round-headed Moor-grafs. Arduin. Spec. 2. 20. t. 7. Poiret in Lam. Dict. n. 2. Lamarck Iluiftr. t. 47. f. 2. (Cynorurus sphaerophila; Jacq. Mifc. v. 2. 71. Ic. Rar. t. 20. Wild. Sp. Pl. v. 1. 414. C. microsphora; Hoffm. Germ. 49.)—Spike capitata, globose, bracteate at the base. Outer petals with three teeth; the middle tooth awned.—Native of the lofty 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 filiated sheath, 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, colour'd bractes, not half its own length. Spikelets imbricated every way, of a blueish-purple, nearly fiddle. Each calyx contains two or three florets. The petals are divided as in S. carulea, 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 rest. Wulffen, who communicated this species, and its description, to Jacquin, observed what he supposed 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 Haenk and Hopp, has made it a distinct species, by the name of Cynorurus sphaerophila, calling our's microsphora. We do not fee sufficiently permanent characters to authorize this. Haller makes another Sceliria, at his n. 1447, which is Poa disticha, Jacq. Mifc. v. 2. 74. Ic. Rar. t. 19. Wild. Sp. Pl. v. 1. 400. Allioni has given it the barbarous appellation of P. microsphora. This plant is unquestionably a true Poa, see that article.

SUSOSTRIS, in Biography, king of Egypt, of whom the accounts are so mixed with fable, and so obscured by antiquity, that it has been found extremely difficult to form a confident and probable story. Historians are even divided as to the identity of the name Sesostris with that of some other resembling names in the Egyptian history, and several hold him to be the same with the Sesac or Shehmac of the Hebrew scriptures. The following is regarded as the most probable account of this monarch. He is generally placed by chroniclers 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 sent, 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 Armais regent, he marched with a numerous army into Ethiopis, which he rendered tributary, penetrating near to the straits of Babemaneb. 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 courts of Phcenicia, Cyprus, and several of the Cyclades, and with the latter he sailed into the Indian gulf, and made himself master of its coasts. Then, pursuuing 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 Colchos, but Thrace was his farthest progresl wellward. On his arrival at Pelusium, after an absence of nine years, laden with spoils, and attended with a vast number of captives, he was received by his brother Armais with pretended joy and submifion, though he had formed a plot against him. For this traiterous attempt he expelled Armais from Egypt, and then, difbanding his army, he set 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 Arabians, and he dug a number of canals, branching from the Nile in all directions, for the purposes both of commerce and navigation. He is said, in the height of his pride, to have harforded tributary kings to his chariot, till one of them, pointing out to him the rotation of the wheels, by which each part was successively 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 Ifaac Newton has endeavoured to prove that Sphinxis is the Ofiris of the Egyptians, and the Bacchus of the Greeks, as well as the Serac of scripture. Univer. Hilts.

SESQUI, a particle often used by old masters and theoricsts, in Myfics, in the composition of words to express different kinds of measure. They called sesqui-alterate 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 minimi, &c.

In Indian treatises by old theoricsts, sesqui is much used to express a kind of ratio, particularly in different species of triples; 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 flop in the organ, implying a whole and a half. In large organs this flop 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.
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 globular; 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. Pet. German superior, small, oblong; style terminal, thread-shaped, the length of the stamens; stigma of two unequal lobes. Peric. Capsule cylindrical, slightly curved, as long again as the calyx, of one cell, and two cleft valves. Seeds numerous, imbricated, oblong, compressed, each enfolded with a membranous border.


1. S. stipulata. "Fl. Peruv. v. 2. 9. t. 115. f. B."—
"Leaves lanceolate, or heart-shaped. Clusters panicked."—
Native of cool situations, on the mountains of Peru, flowering in June and July. A folid shrub, five or six feet high, having the aspect of a Cestrum. The branches are straight, leafy, alternate. Leaves alternate, flaked, 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. Siphules at the base of the footstalks, equal to them in length, opposite, large, oval, obtuse, sessile, a little heart-shaped at the bottom, deflected at the fides, deciduous. Panicles terminal, composed of straight, downy clusters, with corymbose flanks, of yellow downy flowers, accompanied by small, awl-shaped, deciduous bracteas.

2. S. dependens. "Fl. Peruv. 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, simple, and pendulous, slightly zigzag. The flowers are usually placed three together, in alternate sessile tufts. Calyx powdery. Corolla with a black tube, and yellowish limb, externally downy. Capsules black.

Both species are esteemed emollient anodyne. Poison.

Sessei, in Geography, a town of Bengal; 5 miles N.E. of Doela. N. lat. 23° 40'. E. long. 84° 58'.

Sesnenhorth, a town of Germany, in the principality of Cuimbach; 10 miles N. of Bayreuth.

Sessery, a town of Hindoostan, in Oude; 13 miles S. of Lucknow.

Sesile, 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, sessile flowers, on the branches; very few at the root, like Crocus, Colchicum, and Amarys. It is not unusual for the fruitification, though sessile at the flowering period, to become flaked as the fruit advances toward maturity. The germs are so usually sessile, as seldom to require to be so described, it being sufficient to notice a flaked germ, whenever such occurs, as affording most an important generic character. For folia sessilis, sessile leaves, see Leaf.

Sesile Roots, such tuberous roots as adhere to the base of the flalk. See Root.

Session, Sesio, denotes each fitting, or assembly, of a council.

In quoting councils, we say, in such a session, such a can-
non, &c.

Session of Parliament, is a session, or space, from its meet-
ing to its prorogation, or dissolution. See Parliament.

Session, in Law, denotes a sitting of justices in court, upon their commission. As the session of oyer and terminer, of gaol-delivery, &c. See Assizes, Justices of Assize, Justices of Gaol-delivery, Justices of Oyer, &c.

Sessions of Wales, Great. See Courts of Wales.

Quarter-sessions, called general sessions, or open sessions, stand opposite to special, otherwise called petty sessions, which are procured upon some special occasion, for the more speedy dispatch of justice. See Quarter-Sessions.

Statute-sessions, are those kept by a high-committee of a hundred, for the placing of servants, &c. See Statute.

Sessions for Weights and Measures. In London, four justices from among the mayor, recorder, and aldermen, (from whom the mayor or recorder is to be one,) may hold a session to enquire into offences of selling by fall weights and measures, contrary to the statutes; and to receive indict-
ments, punish offenders, &c. Char. K. Cha. I.

Session, The Court of, otherwise called the college of jus-
tices, is the supreme court in Scotland for all civil causes.

It consists of one confant president, who has an annual salary of 1300l. and fourteen other judges, at 700l. per annum each, who are lords by their office, which they hold by patent quamdiu je bene geferiet. The lord high chancellor presides here when present. The king names several other extra-
ordinary lords, who sit, but are not obliged to give attendance, because they have no salaries; but they may vote among the rest.

The court sits from the first of November, old style, to the last of February, and from the first of June to the last of July, all inclusive; which holds of all the inferior courts or judicatories in Scotland. In time of session, or term, they sit from nine o'clock to twelve in the forenoon, every day in the week but Sunday and Monday; sometimes they sit in the afternoon, to end concluded causes, or to hear such long debates as the forenoon was too short to hear, which gives a great dispatch to causes that come before them.

The lords, both ordinary and extraordinary, when in the inner house, sit on a semicircular bench in their robes; where the advocates debate their clients' causes before them. There are six principal clerks belonging to this court. Nine of the lords make a quorum in the inner house, otherwise they cannot vote in any case, except such as are referred to one or more of the whole lords; and one of the ordinary lords (the president being always excepted) is weekly appointed judge in the outer house, for discharging of ordinary actions, and has fix under clerks to attend him. He meddles with no extraordinary causes, except where it is remitted to him by all the lords, to be discharging in the outer house for dispatch.

That the lords may have time to read informations, pe-
titions, &c. and the suitors be eaid of the trouble of going with them to their houses, every lord has a box standing upon the table in the waiting room in the inner house, from two to four o'clock in the afternoon, every day; wherein all who have papers to offer, may put them by a slip in the cover. Each of the principal clerks has also a box, and parties must put in their bills, answers, or informations of causes to be reported, into the clerk of the proces's box.

The rolls of the court bring in all causes in their due order. Causes of the greatest confluence are at first ad-
viced by the whole lords in the inner house. Other causes are called of course before an ordinary in the outer house, who decides the controversy, if clear, without further trouble or expense; and, in case of difficulty, takes some little time
to advise itself, or to advise with the whole lords upon it. And if any 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 this court to the house of lords.

The lords of session were first appointed by James I. of Scotland, who selected, among the elates of parliament, a certain number of persons, and distinguished them by this appellation. They were empowered to hold courts for determining civil causes three times a-year, and forty days at a time, in whatever place he pleased to name. James IV. on the pretense of remedying the inconveniences arising from the short terms of the court of sessions, appointed other judges, called lords of daily council. The session was an amelioratory 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 last, James V. erected the new court that still subsists, and which he called the college of justices, the judges or senators of which were called lords of council and session. Robertson's Hist. of Scotland, 1776, vol. i. p. 40.

Sessions, Kirk. See Kirk.

Sessach, in Geography, a town in the duchy of Wurzburg; 50 miles N.E. of Wurzburg.

Sesoo, a town of Bengal; 21 miles S. of Doesa.

Sesta, a town of the Ligurian republic; 5 miles N.W. of Brugneto.

Sesta, ItaL, the interval and conflation of the sixth, in Manic. See Hexachord, and Hexachordon.

Sesterce, Sesterctus, a silver coin, in use among the ancient Romans, called also simply nummus, and sometimes number foliarius.

The sesterce was the fourth part of the denarius, and originally contained two as and a half.

The sesterce was at first denoted by LLS; the two L's signifying two libra, and the S half. But the librarians, afterwards converting the two L's into an H, expressed the sesterce by HS.

The word sesterctus was first introduced by way of abbreviation for sestertius, which signifies two, and a half of a third, or, literally, only half a third; for in expressing half a third, it was understood that there were two before. Hence sesterctus came to be the great estimate of Roman money. Some authors make two kinds of sesterces: the lea, called sesterceus, in the masculine gender; and the great one, called sesterctus, in the neuter: the first, that which we have already defined; the latter containing a thousand of the other. Others will have any such division of great and little sesterces unknown to the Romans: sesterctus, lay they, was an adjective, and signified as sesterctus, in two as and a half; and when used solely, as in quinuagesima sesterctus, or sesterctus, 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 sesterctus to which sesterctus referred is either as, or ponctus; and sesterctus is, in two as and a half; sesterctus ponctus, two ponders, and a half, or two hundred and fifty denarii. When the denarius passed for ten as, the sesterce of two as and a half was a quarter of it; and the Romans continued to keep their accounts in these sesterces long after the denarius passed for sixteen as; 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 sesterctus indifferently, as synonymous terms. And sometimes both together, as sesterctus nummus; in which case, the word sesterctus having lost its original signification, was used as a substantive; for sesterctus nummus was not two nummi and a half, but a single nummus of four as. They called any sum under two thousand sesterces so many sesterctus in the masculine gender; two thousand sesterces they called duo or bina sesterctus, in the neuter; so many quarters making five hundred denarii, which was twice the sesterctus; and they said dena, vicena, &c. sesterctus, till the sum amounted to a thousand sesterces, which was a million of sesterces. But, to avoid ambiguity, they did not use the neuter sesterctus in the singular number, when the whole sum amounted to no more than a thousand sesterces, or one sesterctus. They called a million of sesterces, decies nummum, or decies sesterctus, for decies centena millia nummorum, or sesterctorium (in the masculine gender), omitting centena millia, for the sake of brevity. They likewise called the same sum decies sesterctus (in the neuter gender) for decies centes sesterctus, omitting centes for the sake of brevity; or simply decimals, omitting centena millia sesterctus, or centes sesterctus; and with the numeral adverbs, decies, vicena, centes, millia, and the like, either centena millia, or centes, was always understood. These were their most usual forms of expression; though for bina, dena, vicena sesterctus, they frequently said bina, dena, vicena millia nummum. If the confinal denarius contained sixty five grains of fine silver, it was worth somewhat more than eight pence farthing and a half pence; and the as, of sixteen to the denarius, a little more than a halfpenny. To reduce the ancient sesterces of two as and a half, when the denarius passed for sixteen, to pounds sterling, multiply the given number by 5427, and cut off six figures on the right hand for decimals. To reduce nummi sesterctus, or quarters of the denarius, to pounds sterling; if the given sum be confinal money, multiply it by 5772, and cut off six figures on the right hand for decimals; but for imperial money, diminish the said product by one-eighth of itself. Phil. Trans. vol. li. part ii. art. 48. See Denarius and Drachm.

To be qualified for a Roman knight, an estate of four hundred thousand sesterces was required; and for a senator, of eight hundred thousand.

Authors also mention a copper sesterce, worth about one-third of a penny English.

Sesterce, Sesterctus, was also used, in Antiquity, for a thing containing two wheels and a half of another: as was taken for any whole, or integer.

Sestini, La Signora, in Biography, engaged as a prima buffa in the comic opera, arrived in England from Lisbon in 1774; and her first performance was in Auffoli's comic opera, entitled "La Marchesa Giardimier." 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 the song 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 Cecco 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 Lionardo da Vinci; and in the Ambrosian library was a head by him often attributed to Lionardo. In some of his works he also

Xx

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 Panaro; 17 miles S. of Modena.

SESTOS, a fortress of European Turkey, in the province of Romania, opposite to Abydos; 34 miles S.S.W. of Gallipoli. N. lat. 40° 6'. E. long. 26° 25'. Abydos (which fec) and Sestos were two towns, opposite one another at the most narrow part of the Hellespont: they were famous for the love-adventures of Leander, who lived at Abydos, and Hero, a priestess of Venus, at Sestos. Leander swam across the Hellespont to visit his mistress, guided by a torch, which she 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 waters. Hero, in true despair, threw herself into the sea, in order to share the fate of her lover. Procopius places Sestos in the cove nearest to Abydos; and he adds, that the emperor Julianus caufed a citadel to be built near that city: the remains of this citadel are still to be seen close to the sea-shore. On the declivity of the hill, the walls of the ancient city may very easily be traced. Four miles from Sestos, on ascending the channel, is another harbour, near which is seen only a single habitation of dwarves, occupied by three or four Mussulman monks.

SESTOS, a river which rises in the mountains of Sierra Leone, traverses the Grain Coaft, and runs into the Atlantic, N. lat. 5° 30'.

SESTRE, Grand, or Great Paris, a town of Africa, on the Grain Coaft, being one of the largest commercial towns of the country. N. lat. 4° 16'. W. long. 8° 20'.

SESTRE, Petit, or Little Paris, a town of Africa, on the Grain Coaft, near Grand Sestre.

SESTRE-KRO, or SETTRA-KRO, a town of Africa, being the chief town of the Kroo country, which extends along the Grain Coaft, between Cape Mount and Cape Palmas, from 5° 54' 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 fine 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 this 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 fo among them. One of the most singular parts of the character of the Kroomes, is their extreme love for their own country, and their confident belief in its vall 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 afe 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 displaying 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, Ital. in Music. See SEXTUPLA.

SESVAH, or RAMBUR, in Geography, a town of Hindoothan, in Bahr; 22 miles E.S.E. of Bettiah.


Gen. Ch. Cal. Perianthe inferior, of one cell, bell-shaped, deeply cleft into five, ovate, acute, withering segments, coloured on the inside. Cor. none. Stamus. Filaments numerous, awl-shaped, shorter than the calyx and inserted at its base; anthers roundish. Pet. Germ. superior, oblong, at the bottom of the calyx, triangular at the upper part; stigmas three, capillary, erect, the length of the flaments; styleg simple, Peric. Capsule ovate, of three cells, bursting all round. Seeds rounded, flat, with a base at the margin.


1. S. Portulacaorum. Purflane-leaved Seufvium. Linn. Sp. Pl. 684. Jacq. Amer. t. 95. (Portulaca aizoides mari- tima procumbens, flore purpureo; Sloane Jam. v. 1. 204. Crithmus indicus; Rumph. Amboin. v. 6. 165. t. 72. f. 1.)—Stem round. Leaves opposite, oblong. Flowers stalks solitary, much shorter than the leaves.—Native of the Weft Indies, in maritime situations; flowering in July and August.—Root perennial. Stems succulent, four or five inches long, round, thick, diffuse, branched, at first procumbent, then erect. Leaves on short stalks, fleshy, bright green; their stalks sheathing, 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 abounds with a neutral-alcalafeant falt, which is easily extracted, and would probably serve as a substitute for Kali.


SET, a term used for a pole or shaft, ufed to fhoat 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 alfo signifies a cutting of any fort of fleshy root, shrub, or tree of the fruit kind. Likewise any fort of young plant from the seed-bed to be planted out.

Set-off, in Law, is an act, by which the defendant ac- knowledge
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 condemnation, or stoppage, of the civil law, and depends upon the statutes 2 Geo. I. cap. 22, and 8 Geo. II. cap. 24.

SET-off, in Inland Navigation, is a reeves, as I K (Plate I. Canals, figs. 3 and 6.), on the bank of a canal, and has the same meaning with bench or bern.

Set-Bolts, in a Ship. See Bolts.

To SET fail. See SAIL, and SETTING.

SETACEUS VERMIS, in Natural History, a name given by Dr. Lister to that long and slender water-worm, which so much resembles a horse-hair, that it has been supposed by the vulgar to be an animated hair of that creature. These creatures, supposed to be living hairs, are a peculiar sort of insects, which are bred and nourished within the bodies of other insects, as the worms of the ichneumonflies are in the bodies of the caterpillars. See AMPHIBESA.

SETAH, in Botany, a name used by the oldest writers for the acacia. It is an original Hebrew word, and is explained by the lexicographers, by a thorn growing in the desert. It is rendered by Theodotion acantha, one of the names of the acacia.

SETAPOUR, in Geography, a town of Hindoostan, in Golconda; 30 miles N.N.W. of Rachore.

SETARIA, in Botany, from sata, a bristle, a name given by Acharius, in his Prodromus Lichenographicus, to the 27th tribe of the great genus Lichen. It comprehends several species, of what have usually been termed filamentous lichens, as jubatus, chalybeformis, &c. See LICHENES.

SE-TCHEOU, in Geography, a city of China, of the first rank, in Koei-tcheou, in a mountainous country, yielding cinnabar and quicksilver; 982 miles S.S.W. of Peking. N. lat. 27° 10'. E. long. 103°.

SE-TCHIN, a town of China, of the second rank, in Quang-fi; 1157 miles S.S.W. of Peking. S. lat. 22° 48'. E. long. 136° 31'.

SE-TCHING, or Se-TCHIN, a city of China, of the first rank, in Quang-fi; 1100 miles S.S.W. of Peking. N. lat. 24° 17'. E. long. 105° 54'.

SE-TCHUEN, a province of China, bounded on the N. by Chen-fi, on the E. by Hou-quang, on the S. by Koei-tcheou, and on the W. by the kingdom of Thibet and some other neighbouring countries. This province comprehends, besides a great number of forts and strong places, 10 cities of the first class, and 88 of the second and third. The great river Yang-tse-kiang traverses Se-tchuen, which is opulent, not only on account of the abundance of silk it produces, but also for its mines of iron, tin, and lead; its amber, fugar-canes, loadstone, lapis lazuli, musk, and horses, which are in great request; also for its rhubarb, and the root fui-lin, which the Chinese physicians introduce into all their prescriptions; and for a thousand other useful productions, which would be tedious to mention. This province, which is at a great distance from the sea, obtains the salt which it consumes from its mountains, where the inhabitants dig pits, that furnish them with it in great abundance. Its capital is Tching-tou; which see. The population of this province, according to Sir John Staunton, is estimated at 27,000,000.

SETEEF, a town of Africa, anciently called Suipha and capital of a part of Mauritania, which made a stout resistance against the Saracens. There is scarcely one fragment left, either of the ancient walls, pillars, or cisterns 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 Constantina. N. lat. 35° 58'. E. long. 5° 30'.

SETERRA, or SETRES, a town of Africa, on the Grain Coast.

SETHIANs, SETHIDiANS, Sethians, or Sethinians, in Ecclesiastical 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 Chrift; 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 fables in their faith. 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 manifold fallacies, which yet they called Apocalypfe, or Revelation. The book called the "Little Genesis," very anciently 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 Horaa. Some imagine, they borrowed a great many of their fictions from the Helleniff Jews.

SETHRON, in Geography, a town of Egypt, on the S. coast of the lake Menzalah; 16 miles W. of Tinh.

SETICAUDAE, in Natural History, a term used to express such flies as have one or more hairs growing out at their tails. There are many species of these distinguished by their having one, two, or three hairs.

SETER, See SEPTER.

SETINES, in Geography. See Athens.

SETIO, a mountain in the E. part of the Tyrolese.

SETIANA, a town of Hindoostan, in the circuit of Siroy; 35 miles N.W. of Siroy.

SETLE, a town of Turkifh Armenia; 30 miles S.W. of Aklaziké.

SETLEDGE, a river of Hindoostan, which rises in the mountains of Thibet, and runs into the Indus, near Veh, anciently called Hysudrus.

SETON, a river of Spain, which runs into the Gallege, in the province of Aragon.

SETON, Setaceum, denotes, in Surgery, a skein of silk or thread, introduced through a part of the flesh by means of a needle, and left there so as 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, setones 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 seton, passed through the track of the disease, will sometimes excite a salutary kind of inflammation, which brings on the healing process. Great judgment, however, is necessary in the application of a seton to this purpose; for, unless the sinus 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 seton is also sometimes employed as a means of dif-
charged 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 fets hinder the external air from getting into the cavity of the abscesses, and, as prejudice and exaggeration have filled their minds with serious apprehensions upon this subject, they are perhaps more attached to the practice than any recommendations which it really possesses would justify.

Formerly, fets 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 feton excited the requisite degree of inflammation in the cavity of the tunica vaginalis tesi, and the adhesion of its opposite surfaces to each other. See HYDROCELE.

The common mode of making a feton is with a flat broadish 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 integuments 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 assistant 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 second aperture: the needle may now be removed. The next object is to fix the ends of the filk, which is usually done with adhesive plaster.

The wounds are then to be covered with plastes, and a retentive bandage. The oil prevents the skin from adhering to the flesh, and facilitates its passage through the wound; for, as soon as suppuration has taken place, that part of the skin which is in the wound is to be drawn out and cut off. The same method is to be repeated every day, and the same plan of dressing continued. When the skin of the fik is exhausted, a new one, oiled in the above manner, is to be introduced by means of an eye-probe.

Fetons, unless kept exceedingly clean, and dressed with much tendernefs, sometimes excite a great deal of irritation, and prove very troublesome to the patient. The thread is also apt, with the leaf neglect, to cut its way out, and leave an ugly sore.

When a feton 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 skin of filk, is introduced downwards; and the end of the instrument being felt against the infide 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 feton for the cure of hydroceles has been described in a former volume. See HYDROCELE.

The like operation is frequently practiced on horfes, &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, confof 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 advantage for the fets which produce the plants, in some cafes, to have a large substance for their early nourishment and support, as in the case of the potato; as though the small parts, called "eyes" or "buds," will grow and produce crops, they are far from being equal to those where the fets are of a large size. In short, the result of various experiments has shown that crops of this fort prove, ceteris paribus, abundant or otherwise, nearly in proportion to the size of the fets. Therefore, as there is no material saving produced by the use 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 bushels the acre, the practice of employing such small fets in planting should be discontinued in all situations; and for the very reason that heavy well-fed corn, when otherwise in good condition, should, in all cafes and circumstances, be preferred to that which is light. See POTATOES and SEED.

SETSE, in Botany, the name of a Chinese tree, called also chufs, and much esteemed by the people of that country for its beauty, and for the goodness of its fruit. In the provinces of Cantong and Honan there are whole plains covered with these trees, many of which grow to the size of our walnut-tree. The fruit ripens every where in the East, where the tree grows, but it is of a much more delicious flavour in some places than in others. The leaves are of the colour and shape of the walnut-tree, only that they are more round at the ends. The fruit is sometimes round, sometimes pointed at one end, sometimes oval, sometimes flat, and not frequently composed of two pieces, as it were, and resembling 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 size of the orange, and the skin is very tender and thin, and the fruit has a mixed taste of the sharp and the juicy. It is very wholesome and good.

SETTE, in Geography, a town of Africa, and capital of a country of the same name, subject to Loango, on the river Sette; 160 miles north of Loango.—Allo, a country of Africa, south of cape Lopez Gonfalvo, watered by a river of the same name. This country is governed by a mani, who is subject to the king of Loango.—Alfo, a river of Africa, which runs into the Atlantic, S. lat. 2° 15'.

SETTE, in Sea Language, a vessel, very common in the Mediterranean, with one deck, and a very long and sharp prow. They carry, some two, three, some three, without top-masts. They have generally two masts, and are rigged and navigated like xebecs or galleys, with fettees, instead of lateen sails. The lenth of them are of forty tons burden. They ferve to transport cannon, and provisions for ships of war, and the like. These vessels are peculiar to the Mediterranean sea, and are usually navigated by Italians, Greeks, or Mahometans.

SETTEFRA TRI, in Geography, a town of Naples, in Abruzzo Ultra, 10 miles N. of Teramo.

SETENIL, a town of Spain, in the province of Grenada; 8 miles N. of Ronda.

SETTER, among Farmers. A fetter, is to cut the dew-lap of an ox, or cow, and into the wound to put the root of the hellebora; by which an illume is made, for ill humours to vent themselves.

S E T T E R - Wort, in Botany. See HELLEBORE.

SETTIA, in Geography, a province of the island of Candia, occupying the whole eastern part of the island; it is the most extensive, but the least peopled, and the least productive,
productive, 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 incon- siderate injustice of the agas, and almost every other circumstance, 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 spoliation of the agas. The town is situated on a flat shore, which with a cape not much advanced, and three islets 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 thence that which was necessary to supply the wants of the inhabitants. At this day none but small boats may be seen at Settia. The population has diminished considerably, and the fortifications are in the greatest disorder. It is the see of a Greek bishop; 44 miles E.S.E. of Candia. N. lat. 35° 3’. E. long. 26° 3’.

SETTIAVARAM, a town of Hindoostan, in the cir- cuit of Cicascole; 30 miles S.W. of Collimottta.

SETTIMA, Ital., in Mufic, the interval of the seventh; which fee.

SETTIMANA SANTA, Ital., passion-week, during which holy time, the sacred mufic of the highest clafs used to be performed in the most perfect and imprefive manner in the pontifical chapel. See Miserere and Allegri.

SETTIMO, in Geography, a town of France, in the department of the Po; 8 miles N. of Turin.—Also, 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.

Alphornmen and poets make three different kinds of fetting of the stars: cosmical, acroical, and heliacal.

To find the times of the setting of the fun and stars, fee Globe.

SETTING, in Navigation. To set the land, or the fun, by the compas, is to observe how the land bears on any point of the compas, or on what point of the compas the fun is; likewise the act of observing the situation of any distant object by the compas, in order to discover the angle which it makes with the nearest meridian: as at feven poll meridian, we set the tower of Arabia near the port of Alexandria, and it bore S.S.E. distant four leagues by estimation. (See BEARING.) Also, when two ships fall in fight of one another, to mark on what point the chafed bears, is termed setting the chaf by the compas.

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 turning sea, setting to the north-west.

SETTING, when applied to the falls, is the loosening and expanding them, so as to give the ship motion, or to accelerate her velocity, when she is already moving, and perhaps give a new direction to her motion. It is used in contradiftinction to taking-in the falls, as loosening or heaving-out is opposed to furling or lowering them.

SETTING, in the language of Sportmen, 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 long hafl-spaniel, taught by nature to hunt partridges more than any other game, and in his utmost range running over the fields in search of them, with an acnility that is truly wonderful; yet by art this creature is brought under a fuch excellent command, that he will, in the midft of his highest career, attend to the left hem from his master, and fand still to look in his face, and take his orders by the flighteft signals; and when he is fo near his game, that it is almost in his mouth, he will fand still, or lie down on his belly till his master arrive, and he receives his directions.

The setting-dog being taken to the haunt of the partriges is to be call’d off, and sent to range; but he muft be made to keep near the sportman, and not to run wildly on, but to beat all the ground regularly. On being reproved for ranging too widely and too far, 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 fpot of a sudden, the sportman is to make up to him, and as there is certainly game before him, he muft be ordered to advance; if he refuses this and look back, and shake his tail, it is a signal that they are clofe before him, and the sportman is then to take a circumference, and look with a carelcss eye before the dog’s nofe to see where they are, and how they lie; then going up, and flaking 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 nofe, he is to spring them, and they will be en- tangled and taken as they rife. It is a rule with fair sport- men, when they take a covert in this manner, always to let the cock and hen go.

SETTING, among Cock-Majfers, is the placing a cock that has fought fo that he cannot fland, 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 to the sportman whereabout fowls are. See SPANIEL and DOG.

SETTING-up, in Ship-Building, is raising a ship by fhores and wedges from her blocks, the act of extending the throns, itays, and back-irays, to secure the masts, by the application of tackles, &c.

SETTING, or Setting-to, the act of making the planks, &c. hay or fet close to the timbers, by driving wedges between the plank, &c. and wain-iraff. Hence “let, or let away,” means to exert moreifhrent. The power or engine used for this purpofe is fimple, and called a jetf, and is compofed of two ring-bolts, and a wain-iraff, cleats and lathing, or fhores.

SETTING, in Agriculture and Gardening, the buifines of putting fets of different kinds into the ground, as thofe of the potatoe, hop, madder, liquorice, lavender, and many other kinds.

SETTING out Plants, the praticife of thining and reducing them; in the former, to their proper diftances, in order to fland for crops, as in the turnip, cabbage, and many other forts of plants; and, in the latter, the buifines of putting them into the ground as crops; it being praticied for a great many different forts of plants that are raifed on feed- beds, as all the cabbage kind, lettuces, endives, heets, and many other plants of a fimilar nature. It is ufually performed as foon as the plants have acquired a proper state of growth in the feed-beds, and molly when the weather is cloudy and rather moist, as it can then be done to the greateft
greatest advantage, in so far as the plants are concerned. They are commonly put 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 lucres, 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 indifferently larger, without any dwarfish or small corn; the grain is of a larger fathom, and specially heavier per bushel than when fown. It furnishes employment for aged persons and children, at a leaven when they have nothing else to do; it leaves to the farmer fix pecks of feed-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 set an acre a day.

The lands on which this method particularly succeeds, are either after a clover rubbish, or those on which trefoil and grafs-feed were fown the spring before the laft, and on which cattle have occasionally pastured during the summer. These grounds, after the usual manuring, are once turned over by the plough in an extended flag or turf, at ten inches wide; along which a man, who is called a dibber, with two setting-irons, somewhat bigger than ram-rods, but considerably bigger at the lower end, and pointed at the extremity, dips backwards along the turf, and makes the holes about four inches asunder 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 sowing 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, choosing, and selecting those which are the best formed, and most perfect for the purposes of breeding, forming the flock, and keeping as flock; the others, or the refuse ill-formed sheep, being sold off, or sent to be fattened in the proper pastures. The practice is extremely useful and necessary, where good flock 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 flock. 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 Farm.
forth end is an entrance down into a small cave, which communicates with the larger one by a subterraneous passage, "where the delphinous visitant fees, influing from a large aperture in the rock, an immense cataraft, falling above 20 yards in an unbroken sheet, with a noise that flutes 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 cataraft, and sometimes a small vivid rainbow appears, which for colour, size, and situation, is scarcely any where else to be equalled."

But the most sublime features of this romantic district are the mountains of Ingleborough, Pennington, and Wharfedale. 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 a confused assemblage of hills, gradually diminishing in height till they vanish in the horizon. Pennington, 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. Wharfedale is within the distance of six miles, and Snowdon and Crof mell are clearly visible in the back ground. Towards the west the flat country of Lancashire lies as in a map, and the prospect extends far into the Irish sea, the nearest point of which is 24 miles from Ingleborough. Beauties of England and Wales, vol. vi. by John Bigland, 8vo. 1814.

SETTLEMENT, Aa of, in Britsh History, a name given to the statute 12 & 13 W. III. cap. 2. by which the crown was limited to his present majesty's illusrious house; and some new provisions were added, at the famine fortunate era, for better securing our religion, laws, and liberties; which the statute declares to be the birth-right of the people of England, according to the ancient doctrine of the common law. See Right of Crown.

SETTLEMENT, Marriage. See Marriage.

SETTLEMENT of the Poor. See Poor.

SETTLING a Deck, at Sea, a term for taking a deck lower than it was at first.

SETTLING the Land, denotes sinking it lower, by failing farther out to seaward, and is used in the same sense with laying the land.

SETTORE, in Geography, a town of Bengal; 56 miles N.W. of Burdwan.

SETTOVITONE, a town of France, in the department of the Dora; 4 miles N. of Irea.

SETTS, powers made use of, where force is required, to bring or unite two or more pieces together. The operation is performed by screws, shores, crofs-letts, or cleets.

SETTS, Crofs, are made by two short pieces of spars, about four or fix feet in length; one is laid across on the upper side, and the other on the under side, of any two pieces that are to be brought together, and their ends lathed together on each side with several turns of rope, taken round each end alternately: wedges are then driven in between the upper crofs-piece, and the side or part of the milt.

SETTS for Saws, instruments for setting their teeth, when out of order.

SETUNA, in Geography, a town of Africa, on the Grain Coast.

SETUVAL, or St. Ubes, a strong sea-port town of Portugal, in the province of Estremadura, situated in a bay of the Atlantic, at the mouth of the river Sandao, with a good harbour, capable of receiving any ships of burden. This town was founded on the ruins of the ancient Codo-

briga, which was destroyed by the Moors. The environs abound in corn, wine, and oil. Besides the old walls and towers, it is strengthened with eleven whole and two demi-bastions, with several other out-works. It has likewise a strong citadel, called "St. Philip," in which is a spring of excellent water, and the strong fort of Outao, near the harbour, which also serve for a light-house, exclusive of which it has two smaller forts. It contains four churches, two hospitales, ten convents, an academia problematica, founded by John V., and about 10,000 souls. In 1796, the number of vessels which entered this harbour was 558; and the same number failed from it; 15 miles S.S.E. of Lisbon. N. lat. 30° 20'. E. long. 8° 53'.

SEWELL, in Botany, a name sometimes used for a species of valerian.

SETZINI, in Geography, a town of Poland, in the pa-
latinate of Sandomirz: near it are some silver mines, and some lapis-lazuli; 16 miles W. of Malogocz.

SEV, a river of Russia, which runs into the Dnina, near Trubeckov, in the government of Orlov.

SEU, a river of Malacca, which runs into the Chinefe sea, N. lat. 6° 45'. E. long. 10° 19'.

SEVAJEE, in Biography, a distingisht person in the history of Hindoostan, the founder of the modern Mahratta empire, was the son of Shawjee, who, from an humble situation, had raised him by his talents to be guardian to a minor of the house of Nizam Shah. On a Mogul invasion of the country, being closely pursued by the troops of his father-in-law, Jadoo Row, with whom he was at 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 banditti, who pillaged all the neighbouring dis-

tribets, which so affected the person who had beenentrusted 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 Vifiapour, which sent a powerful army against him, and brought him to submission. Sevajee asked pardon for his offences, and, by the humility of his deport-

ment, 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 dif-

persed. Shawjee, the father of this desperate young man, was now high in office at Vifiapour, and though he pre-
tended entirely to have renounced his son, a correspondence between them was suspected, and a plan was formed for feizing his person, and putting him to death. He was,

however, saved by the intercession of a patron, and at length restored 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 manifester 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 com-

tribution, he afterwards entered into an alliance with a potent-

tate against the Mogul and the king of Vifiapour, 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, Eccojees, was now king of Tanjore; and the different branches of the people were pillaged by a large portion of the south of India.

The principal dominions of Sevaze 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 Guts; from which he was, at all times, able to infude and ravage the plains country, while it was impossible to force him from his fastnetes; hence he was denominated by Aurungzebe the mountain rat. Sevaze 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 Persian 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 Pereltop. N. lat. 44° 43'. E. long. 33° 24'.

SEUBELS DORF, 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.S.E. of Bayreuth.

SEUCKENDORF, a town of Germany, in the margravate of Anfach; 4 miles E. of Langenzien.

SEUDRE, a river of France, which runs into the sea, opposite the isle of Oleron, N. lat. 45° 49'. W. long. 1° 5'.

SEVE, a town of France, in the department of the Seine and Oife, celebrated for its manufacture of china; 14½ pole S.W. of Paris.

SEVEKTI, or SEVIKTE, 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 AGES, 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 Hispaniola. N. lat. 19° 53'. W. long. 72° 35'.

SEVEN CATES. See SEBIA Rous.

SEVEN HEADS. See CORK.

SEVEN ISLANDS, a promontory of the county of Cork, Ireland, well of Courtmaferry bay, and 6 miles W.S.W. of the old head of Kinfale. N. lat. 51° 34'. W. long. 8° 41'.

SEVEN ISLANDS, a cluster of small islands in the East Indian sea. S. lat. 1° 9'. E. long. 105° 21'.

SEVEN ISLANDS, a cluster of islands near the west 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 Zante, Cephalonia, Corfu, Cep, Curzola, St. Maura or Leucadia, and Teaki, 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. 37° 40'. W. long. 78° 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 PACODAS, 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.

SEVENNAER, or SEVENNAER, a town of Germany, in the duchy of Cleves; 10 miles N. of Cleves.

SEVENBERGEN, a town of Dutch Brabant; 8 miles N.W. of Breda.

SEVENNES, or SEVENNES, mountains of France, crossing the department of the Lozere, particularly memorable as being the strong hold of the Protestant in the 17th century, and beginning of the 18th.

SEVENOKS, or SEVENOAKS, a market-town, in a parish of the same name, hundred of Cosseheath, lathe of Sutton at Hone, 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 Seuanacea, 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 Lambard, the celebrated Kentish antiquary, whose family had a seat in this parish. Here are an alms-house and free-school, originally built and endowed by Sir William de Sevenoaks, in the beginning of the 15th century. They were subsequently incorporated under the title of the free grammar-school of queen Elizabeth, and now possess a revenue of nearly 1000l. a-year. The school-house was rebuilt in 1727, at which time the alms-house was substantially repaired. The former has six 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 affairs were frequently held during the reign of queen Elizabeth, and where the petty sessions for the lathe of Sutton at Hone 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. Sevenoaks town and parish constitute a liberty, governed by a warden or bailiff and four assiduous, who are not, however, empowered to hold any court of record for pleas. According 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 Halsted, £vo. 1797, vol. iii. Beauties of England and Wales, vol. viii. by E. W. Brayley, £vo. 1805.

SEVENTH, Septima, in Music, an interval, called by the Greeks heptachordon; of which there are four kinds.

The first, called by Zarlino, and the Italians, semiditaino con diapason, or setimo minor, is composed diatonically of seven degrees, and six intervals, four of which are tones, and the rest greater semitones, as from ut to fis; and chromatically of ten semitones, six of which are greater, and the rest minor: it takes its form from the ratio quadruplaria quintas, 9 to 5.

The second, called by Zarlino, and the Italians, semiditimo con diapente, or setimo minore, is composed diatonically of seven degrees, and six intervals, four of which are tones, and the rest greater semitones, as from ut to fis; and chromatically of ten semitones, six of which are greater, and the rest minor: it takes its form from the ratio quadruplaria quintas, 9 to 5.
of the octave; as from $\frac{1}{2}$ to $\frac{5}{6}$; and chromatically of eleven semitones, five 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 semitone and a lesser, as from $\frac{5}{6}$ to $\frac{1}{2}$: so that it only wants a comma of an octave; that is, so much as it wants to render its second semitone 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 basses the seventh, whether double, simple, major, or minor, is marked by a figure of $\frac{7}{5}$ if it be accidentally flat, or minor, thus, $b \frac{7}{5}$, or $\frac{7}{5}$. If sharp, major, thus, $a \frac{7}{5}$, or $\frac{7}{5}$. Again, if it is naturally minor, it must be marked with a flat, it must be diminished.

See **FUNDAMENTAL**.

**SEVERAC le Chateau**, in **Geography**, a town of France, in the department of the Aveyron, and chief place of a canton, in the district of Millau; 21 miles E. of Roses. The place contains 2,113, and the canton 6,051 inhabitants, on a territory of 212 square kilometers, in 7 communes. N. lat. $46^\circ 19'$. E. long. $3^\circ 19'$.

**SEVERAL**, in **Agriculture**, the same as dole. See **DOLE**.

**SEVERAL Tail**, or **Inheritance**, in **Law**. See **INHERITANCE**.

**SEVERAL Tenancy**, Tenura separata, a plea, or exception taken to a writ that is laid against two persons as joint tenants, who are several.

**SEVERALTY**, **Estates in**. He that 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 flat, 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 singling 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 non-fitted; here severance is permitted, so as, notwithstanding the non-fit of the one, the other may severally proceed.

There is also **severance of the tenants in affriff**; when one, two, or more diffuse appear upon the writ, and not the other.

And **severance in debt**, where two executors are named plaintiffs, and the one refuses to prosecute. We also meet with **severance of summons, severance in attainants**, &c.

An estate in joint tenancy may be severed and restored 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 tranflation. But, 2. The joint-tenant's estate may be destroyed, without any alienation, by merely diminishing their possession. 3. Thejointure may be destroyed, by destroying the unity of title. And 4. By destroying the unity of interest. Blackett. Comm. book II.

**SEVERANCE of Corn.** The cutting and carrying it from the ground; and sometimes the setting out the tythe from the eld of the corn, is called severance.

**SEVERIA**, or **SIEVERINZ**, in **Geography**, a town of Auerian Poland, in Galicia, capital of a duky held by the duke of Teschen to the bishops of Cracow; 4 miles N. W. of Cracow.

**SEVERIA**, a town of European Turkey, in the Morea; 14 miles N. E. of Mistra.

**SEVERIANS**, or **SEVERIANI**, in **Ecclesiastical History**. There were two sects of heretics thus called: the first, 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 Monophysite, or Eutychians; their leader, Severus, was preferred to the see of Antioch in 513, where he died his untimely to set aside the council of Chalcedon.

**SEVERIK**, in **Geography**, a town of Asiatic Turkey, in the government of Diarbekir; 50 miles W. of Diarbekir.

**SEVERIN**, or **SZEZYNY**, a town of Walachia, on the Danube, founded by the emperor Severus; 12 miles E. of Orfova.

**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 Tarra, in Calabria, in the year 1580. His early inclination led him to the study of 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 cenured the inerths 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-six. He was a man of bold and original mind, but somewhat attached to paradox; and was the author of several publications, of which we have the following catalogue. "Historia Anatomica, Observativa medica eiviscerata hominis;" 1629. "De recitanda abscissu naturae Libri octo;" 1630, which passed through many editions. "Vesper Pythiæus, id est, de Vesper natura, venen, et medicina;" 1643. "Zoologiæ Democritae, id est, Anatomie generalis totius animantium opificii, Lib. v.;" 1645, containing the result of his dissection of a great many animals. "De efficaci Medicina, Libri iii;" 1646. In this work he extols the advantages of fire and blood in the cure of diseases. "De Lapide fungifero, de Lapide funginappa, Epipoloe duæ;" 1649.
SEVERN, in Geography, the second most important river in England, is supplied by some antiquaries to derive its name from the Britishe word, sibrin, sandy, or muddy; but others, with greater probability, consider it as a corruption of the Saxon term, sifere, which signifies seaflowing. This river has its source from a large bog on the top of Plimlinnon-hill, in Montgomeryshire, North Wales, whence running down with a swift current, and being joined by many lesser torrents, it presently appears considerable; and passing by Llandyfas and Newtown, becomes navigable near Welsh-Pool, where the river Veren joins it with a stream little inferior to its own. From thence proceeding gently to Shrewsbury, which it almost surrounds, it flows on to a rich vale, with many extensive windings, to Benthall 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. Afterwards 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 Tewkesbury 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 150 miles from its mouth, without the assistance of any lock. Upwards of 100,000 tons of coal are annually shipped by the collieries about Madeley and Brokeley, 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, whereas various kinds of goods are brought in return. This traffic is carried on with vessels of two sorts, the larger ones being called trows, and the lighter ones barges, or frigates. In May 1756, 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 defending 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 contest is called the higre, or eage, 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 Higre wildly raves,
And frights the raggling flocks, the neighbouring shore to fly.

Afar, as from the main it comes with hideous cry,
And on the angry foam the hideous foam doth bring.

The billows gainst the banks when fiercely it doth fling,
Hurling the slimy ounce, and makes the sealy brood
Leap maddening to the land, afrighted from the flood;
O'turns the toiling barge, whose steerer doth not launch,

And thrills the furrowed barge into her ireful paunch."

Rudder, in his "History of Gloucestershire," remarks that the bailiwicks of the Severn are 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 unfavourable 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 scenery on its banks, see the articles MONTGOMERYSHIRE, SHROPSHIRE, WORCESTERSHIRE, and Gloucestershire, also Welsh-Pool, Shrewsbury, and Worcester.


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 Hudson's bay, with a settleament at its mouth, called "Severn Houfe." —N. lat. 56°. W. long. 88°. —Alfo, a river of North America, which runs from lake Simcoe to lake Huron. —Alfo, a river of Virginia, which runs into the Cheapeak bay, N. lat. 37° 23'. W. long. 7° 27'.

SEVERNDROOG, a fea-port town and forrefts of Hindooftan, in Concan, taken by the English in 1756; 68 miles S. of Bombay. N. lat. 17° 55'. E. long. 72° 30'.

SEVERUS, LECIUS-SEPTIMIUS, in Biography, a Roman emperor, was born at Leptis, in Africa, in the year 146 of the Christian era. His father, Septimius Geta, was of a Roman equinquant family, and his two paternal uncles were raised 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 raised to the offices of advocate of the treafury, and feator. His youth was licentious; he however palled with credit through the offices of quaefitor, tribune of the people, and praetor, in consequence of his active and regular performance of his public duties. After his quaefitorship, he went into Africa, as lieutenant of the proconful, where he shewed his fene of the dignity of office, and the importance of strict discipline, by cauling an old acquaintance of ordinary rank to be scourged for greeting him familiarly, as he was walking, preceded by lictors. After he had completed the praetorian year, he was sent to Spain with the command of a legion. He palled some time in retirement at Athens, at the beginning of the reign of Commodus; after this, however, he was raised.
SEVERUS.

raised to the highest honours, being successively appointed governor of the district of Lyons, confid, and 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 himself to be declared emperor by his Pannonian legions, in the year 193. Sensible that nothing was so essential to his success as celerity, after preparing his troops, he immediately commenced his march, which he performed on foot, at the head of a select body of guards, sharing with the meanest soldier all the hardships of his rapid advance.

He entered Italy without meeting with any re- sistance, Julianus being incapable of any confidient and effective measures. On his approach to Rome, his competitor was deposed and put to death, and Severus received the decree of his election to the empire. His first act of power was to inflict a just punishment on those of the praetorian guards who were immediately concerned in the murder of Pertinax, which was the only blood that his elevation hitherto cost. Though he spared the lives of the rest of that mutinous and diffident body, he determined to disband them, and with this view he summoned them on a plain near the city, ordering them to come without arms. He now re- proached them for their want of discipline, stripped them of their ornaments, and ordered them, on pain of infall death, to depart to the distance of one hundred miles from the capital. Severus was not secure on his throne, having to contend with two formidable rivals, Pefcanius Niger, governor of Syria, and Clodius Albinus, commander in Britain.

Niger being the more powerful, Severus made the first attack upon him; and in the mean time, to secure himself against the attacks of Albinus, he flattered his vanity, conferring upon him the title of Cæsar; and in a letter conceived in terms of apparent respect and friendship, he requested him to partake with himself the toils of government, which age and infirmity rendered him unable to undergo without an absorb.

In this manner he disarmed the unfurtupecting soldier. Severus now marched out to encounter Niger, whom he defeated in several battles, of which the last was at Iffus, in Cilicia. Severus was now freed from further contest by the death of his rival, who was slain in his flight to the Euphrates, but he ued his victory with great rigour; he banished and afterwards put to death the sons of Niger, severely fined all the towns which had taken his part, and executed all the senators who had been officers in his army.

Taking Byzantium after a long siege, he dismantled and reduced it to the condition of a village, confiscating all the property of the inhabitants. He remained in Asia some time after the victory over Niger, and made an expedition into Meopotamia, where he obliged the Parthians to raise the siege of Nisibis, and gained other advantages over the Barbarians on the frontiers.

Severus was now too great to think of sharing his power with a partner: he accordingly deprived Albinus of the prerogatives attaching to the title of Cæsar, 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 destroyed himself. This event took place in 197. Severus being now undisputed master of the empire, indulged without restraint 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 inflict to that body, he conferred divine honours on the tyrant Commodus, whose memory they had declared to be detestable 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 says, of forty-one of the most distinguished members, whom of his own accord he pronounced guilty of favouring the enemy. Conscious of having thus made himself odious to the superior classes, he endeavoured, by all the means in his power, to ingratiate 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 studiously cultivated the affection of the soldiery, 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 praetorian guards, whom he had disbanded, by a more numerous body, selected from all the legions, and confiding, in great part, of the natives of barbarous nations; and he conferred unusual authority on his 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 Meopotamia, and threatened Nisibis, he hastened into the East, and not only relieved that city, but took Seleucia and Ctephphon. He then marched towards Armenia, the king of which country sued for peace, and obtained it. Some successful incursions into Arabia concluded his eastern expedition, from which he returned in the year 203, after an absence of five or fix years. He celebrated his victories by many splendid spectacles; and in the same year he married his son Caracalla, whom he had some years before created Augustus, to the daughter of Plautianus; his second, Geta, had been elevated to the rank of Caesar, and both those princes had received their honours at a very early age. This union, which seemed likely to exalt the favourite minister Plautianus to the summit of fortune, was the cause of his destrication, for Caracalla, who had acquired a great ascendancy over his father, divorced his bride, and hated her father, and procuring an accusation against 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 sons, and the ferocious character of the elder, who was sources of the utmost disquietude 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 razing Geta, as well as his brother, to the rank of Augustus. It was chiefly with a view of removing these princes from the licentiousness 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 sons 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 island.
nland. 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 these forts. The attempt 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 66th 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 perjury towards his competitors, his cruelty to vanquished enemies, and the general severity of his administration, justified a very unfavourable view of his moral character, it is not denied that he possessed 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 caused more or less violence, according to Dodwell, two years, and according to Bagnette, 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 "Aetna," 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 Seneca the orator. It is to him that Ovid is supposed to have addressed one of his Pontic elegies, in which he is termed "Vates magnorum maxime regum." An elegant edition of the remains of this writer, was published with notes at Amsterdam in 1703, by Le Clerc; and they are printed in Mattaire's "Corpus Poëtarum."

SEVERUS, SANCTUS, a Christiain 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 Veneris" of Pitheus, and has been several times republished. Gronovius gave an edition of it, with a preface, under the title "Severi Sancti five Endleichei Rhetoris de mortibus Baum Carmen, ab Elia Vineto et Petro Petheo iertatum, cum notis John Weitzii et Wolfgang. 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.W. of Milan.

SEVIMALLY, a town of Hindoostan, in the Carnatic; 19 miles W. of Trichinopoly.

SEVIER, a county of Tennessee, Hamilton district, containing 3449 inhabitants, of whom 162 are slaves.

SEVIERVILLE, a post-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 Morlaas.

SEVIGNE, MARIE RABUTIN, Marquise de, in Biography, a distinguished lady, was born in 1626. Her father, baron of Chantel and Bourbilly, died while she was very young, leaving her heirefs of the house of Bulk Raboutin. Her rank, and the graces of her person and conversation, procured her many admirers, and in 1644 she married the marquis de Seignié, 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 so high a reputation, though she had many other correspondents. Many of M. de Seignié's letters are of a domestic nature, but others are enlivened 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 preservation 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 much 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 sense of religion, but wished to conciliate it with the polite world, the manners and maxims of which, according to the rigid system of the Catholics, were entirely at variance with it. She has been cenured for want of taste in her inflexibility to the poetical merit of Racine, but this has been imputed to her propensities in favour of Corrville. 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 Manche. The sylv 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 gargonelle. See BANQUET.

SEUIL, in Geography, a town of France, in the department of the Ardennes, on the Aifne; 12 miles S.E. of Rethel.

SEVILLE, a province of Spain, commonly called the kingdom of Seville, is now exclusively, but improperly, denominated Andalufsia, and occupies the western part of ancient Bactica. Its size 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 long 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 Grenada; to the S. by the Atlantic and the Straits of Gibraltar; to the W. by the kingdom of Algarva, &c.; and to the N. by Estramadura. There are two sea-ports in this province, the one in the Mediterranean at Algeciras, and 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 sea-port; Santa-Maria, a sea-port; Xeres, Cordova, and Alcañiz, inland towns. Its rivers are, the Saltes, Guadiana, Tinto, Odiel, Chanza, Verde, Barbate, Guadix, Guadaliquivir, Xeni, Guadiano, Guadaira, Las Fuegos, Cendon, and San-Pedro.
SEVILLE.

SEVILLE, in Spanish Sevilla, and in Latin Hispaniae, the capital of the above kingdom, is a large handsome city, one of the first in Spain, and so ancient, that it is mentioned by Strabo, Pomponius Mela, Pleyte, 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 Phenicians; 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 sovereign and its form of government. It was formerly subject to the Gothic kings, who made it the place of their residence; and in 582 it took part in the rebellion of Ermenegild, son of king Leudigill. 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. Restored 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-hut, 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 resistance, to surrender 23d 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:

"Considit Alcides, renovavit Julius Urbem,
Relluitu Christianus 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 fuburbs, amount to 11,820 in number. The number of inhabitants is stated by Mr. Townshend at 80,268, contained in 30 parishes, 84 convents, and 24 hospitals. Larobe estimates the present population, since the decline of its commerce, at 96,000. 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 best of which are La Lonja, or the Exchange; the Hotel de Ville; the Arsenal, at the entrance of the harbour, with the Cuflom-house and the Gold-house, in which the gold and silver brought from the Indies are deposited; here are also several fine fuburbs, and a handsome promenade, called Alameda, having three walks planted with trees, and ornamented with seats and fountains. This city is the seat of an archbishop; and of the public celfedifical edifices, the first that demands attention is the cathedral, chiefly admired for its tower, constructed by Guever the Moor; originally, in A.D. 1568, 350 feet high, and afterwards raised 100 feet. It is so lofty, as to admit, 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 1½ ton, and yet turns with the slightest variation of the wind.

The dimensions of the cathedral are 420 feet, by 263; and the height is 126 feet. It was built A.D. 1501. It receives light by four core windows with painted glase, the work of Anio 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 S. Ifidore and S. Leonor, and a cufmodia or tabernacle for the host more than four yards high, adorned with forty-eight columns; yet these are trifling 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 striking, 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 latter 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 sacristy, are his much admired pictures of S. Ifidore with his brother S. Leander; and in another sacristy his Holy Family, and an Electric 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. Christopber, and merits particular attention.

To the cathedral belongs a library of 20,000 volumes, collected by Hernando, fon to Chrofbob 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 five feet by three and a half. These communicate with five other pairs united by a bar; and the latter are so contrived, that when they are in danger of being overtrained, a valve is lifted up, and gives them relief. Falling 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 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
Twenty prebendaries, with an income of thirty thousand reals each.

Twenty-one minor canons, at twenty thousand reals each.

Befide thefe, there have twenty chanters, called Vienteneros, with three affiliants, called Sochantres, two beadles, one matter of the ceremonies, with a deputy, three attendants to call the roll and mark the absentees, thirty-fix boys for singing and for the service of the altar, with their rector, vice-rector, and music-masters; nineteen chaplains, four curates, four confellors, 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 thefe, it overlooks works, which in other situations would rivet the attention, and every where 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 miftaking of the Rock in Horcle; the Pool of Bethsaida; the Reception of the returning Prodigal; Abraham adreftring the three Angels, and prefuming them to enter his habitation; the Deliverance of Peter from the Prifon; and Charity, in the perfon of Elizabeth, washing the wounds and curing the difeafes of the poor. Befide thefe, in the fame hospital, is the Anunciation of the bleffed 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 thefe the composition is more simple than in the former, yet they may be confidered as fome 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 Francifcans. Thefe do much credit to his pencil; and not inferior to them, are many preferved in other convents, fuch as, an Ecce Homo, and the bleffed 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 fubjects in S. Maria de la Blanca; and S. Augustin writing, with S. Thomas of Villanueva, ftriping himfelf to clothe the poor, in the convent of the Augustin Friars, near the gate of Carmona. In the opinion of Mr. Townend, the moft matterly of all his works is in the refefitory of an hospital defigned for the reception of supernumerary priets. It represents an angel holding a ballet to the infant Jesus, who, standing on his mother's lap, takes bread from it to feed three venerable priets. No representation ever approached nearer to real life, nor is it possible to fee more effraction, than glows upon that canvas. In the parochial church of Santa Cruz are two pictures in a superior style, a Stabat Mater Dolorofa, which excels in grace and softnefs; and the famous Defcent 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 exacts of imitation he was equalled; in claro obfcuro, 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, which is upon the moft extensive scale belongs to the Francifcans. It contains fifteen cloifters, many of which are elegant and spacious, with apartments for two hundred monks; but at prefent they have only one hundred and forty in their community. These, 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 initering about four thousand pounds, amounting to twenty-eight pounds eleven flillings and five-pence for each. But then out of this must be deducted the expence of wine, oil, and wax, with the alms distributed daily to the poor, which altogether is coniderable.

Among all the hospitals, Mr. Townend 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 neatness.

Our limits will not allow our introducing particular descriptions of other public buildings; fuch as the Torre del Oro, the Plaza de Toros, the Aqueduct 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 confideration. The name of Arias Montanus, who lies buried at the convent of St. Jago, is alone fufficient to give celebrity to this feminary. 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 undergraduates here is about five hundred.

We meet at Seville with the favourite institutions of count Campanones, his academy for the three noble arts of painting, sculpture, and architecture, and his economical society of the friends of their country. Both these have been attended with success, and have given affifance 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 coniderable amount. The silk manufacture was formerly very flourishing in this place; fo that in the year 1248 it employed 16,000 looms, and 130,000 persons; and fuch 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 fifteen months' siege, and many who remained after their fellow-citizens were gone. But in confequence of the accumulation of taxes and other circumftances, the number of looms has been very much diminished; fo that A.D. 1740, the looms for wide silks amounted to 462, and for other purposes to 1856.

The country round the city to a coniderable distance lies fo low, that it is frequently overflowed, and upon some occasions the water has been eight feet high, even in their habitations. The foil is rich, and being at the fame time very deep, its fertility is inexhaustible. The produce is corn, leguminous plants, hemp, flax, lemons, oranges and liquoric. The quantity of this exported from Spain is said to be annually not less than four thousand quintals, or nearly two hundred tons, a coniderable part of which
is supposed to be purchased by the porter-brewers in London.

In consequence of vapours and misfurnace, occasioned by
flaming water, and by frequent floods, the inhabitants of
Seville and its neighbourhood are subject to tertians, to
putrid fevers, and to hystericai disorders. The predisposi-
tion to such diseases may be likewise sought for in the
quantity of cucumbers and melons consumed by them all
the year, in consequence of which they are likewise in-
fecked with worms, accompanied with epilepsies, especially
in the more youthful subjects. Other diseases arise from
heat, whenever they have the Solano wind, that is, when-
ever the wind blows from Africa, they become liable to
pleurisy, and also a very pernicious irritability of nerves.
N. lat. 37° 12'. W. long. 6° 8'.

**SEVILLA del Oro.** See MACAS.

**SEVILLE Plantation,** a place on the N. coast of Jamaica,
W. of Mammea bay, where are the ruins of an ancient town,
called "Sevilla Nueva," founded by Efigival on the spot
where Columbus refitted after his shipwreck in the year
1503.

**SEVILLET A,** 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 lan-
guages, in company with the abbé Fourmont the elder.
He became an associate of the Academy of Belles Lettres
in Paris in 1714. He was lent in 1728, by the king's com-
mand, with the abbé Fourmont the younger, to Constan-
tinople, in search of MSS., of which he brought back a
considerable number, and was, in 1737, presented with the
device 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
Inscriptions."

**SEVION,** in Geography, a river of North Wales, which
runs into the Clyde; 3 miles N.W. of St. Aphant.

**SEVIR,** among the Romans, an officer who, according
to Peticus, commanded a whole wing of horse; though
others make him only the commander of a troop, turnis,
and division answering to our regiments.

**SEVIRI** were also magistrates in the colonies, so called,
from their being fix in number.

**SEURAH,** in Geography, a town of Hindoostan, in
Bundesland; 18 miles N. of Callinger.

**SEVRE,** or Severe Nantofe, a river of France, which
rises about eight miles W. from Parthenay, passes by Mor-
tagne, Tiffauges, Clifton, &c. and runs into the Loire,
opposite to Nantes.

**SEVRE Nantofe,** 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 dioces
of Verfailleux. The place contains 2643, and the canton
3485 inhabitants, on a territory of 50 kilometres, 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. 45° 30', containing 6337½ kilometres,
or 305 square leagues, and 242,658 inhabitants. This
department comprehends 4 districts, 30 cantons, and
563 communes. The districts or circles are, Thouars,
including 43543; Parthenay, 53,020; Niort, 84,923; and

Melle, 61,167 inhabitants. Its capital is Niort. According
to Haffenrath, the extent is 32 French leagues in
length, and 12 in breadth; the number of circles in 6, and
of cantons 50, and the population is 259,122. The con-
tributions in the 11th year of the French era amounted to
2,556,115 francs; and the expenses for administration,
j ustice, and public instruction, to 233,694 francs 66 cents.
The soil of this department, in general, is fertile, yielding
grain, wine, fruits, and pastures. The S.W. district is
marshy.

**SEVRI,** a river of Natolia, which runs into the Sa-
karia, near Sevrilar.

**SEVRIHI SAR,** a town of Asiatic Turkey, in Natolia,
at the conflux of the Sevri and Sakaria; 60 miles W. of
Angora. N. lat. 39° 53'. E. long. 32° 2'.

**SEURRE,** a town of France, in the department of
the Côte d'Or, and chief place of a canton, in the dioces
of Beaune; 21 miles S. of Dijon. The place contains 2777,
and the canton 11,546 inhabitants, on a territory of 280
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.

**SEVYNVEY,** a river of South Wales, which runs into
the Clethy, in Pembrokehire.

**SEW,** in Sea Language, the situation of a ship when the
water first leaves her resting on the ground, or blocks in a
dock. Thus, if a ship runs a-ground on the tide of ebb,
or by the reflux of the tide she rests on her blocks; and if
it be required to know she hasfewed, or how much she has
fewed, 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 fewed.

**Sew** is also a term applied to a cow, signifying to go dry.

**SEWAD,** or SOWIAD, in Geography, a province of
Candahar, situated on the W. side of the Indus, which
separates it from Puckholi; 40 coffes long and 15 broad.
This province, as well as Bijore, is very mountainous, and
abounds with pails 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 Asf раге, or Asf раге, answers to Sewad; Afsagenur
being the ancient name of Sewad; or rather Sewad was one
of the subdivisions of Afsagenur. At present Sewad in-
cludes 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 palls by
the town of Bijore, the Penjakoresh 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 SEWA-LUCK, a chain of mountains
forming the northern boundary of Hindooistan, and sepa-
rating the country of Lahore from Thibet.

**SEWAN,** or ALLIJUGNE, a town of Hindooistan, in
Babar; 32 miles N.N.W. of Chaprah. 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 Eym, in Derbyshire, and prebendary of Litchfield,
where he died in 1790. He was a man of taste and learn-

ing.
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, his father being appointed canon refiendary 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 its if open and interrupted attempts to cultivate an art of which she had so strongly imbued the rudiments. As she advanced in life, she of course followed more freely the bent of her genius, and in 1780 she published an "Elegy on Captain Cook," a performance of great merit, as well from the harmony of its construction, as the beautiful and appropriate imagery with which it abounds, and the force and delicacy of its sentiments. The contrast between the different manners on this event, queen Oebera, 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 fear 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 supprave the feelings of humanity. Mis s 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 defunctary performance, but it contains much entertaining matter, enriched with some judicious criticism on Dr. Darwin's poetical character. Miss Seward died in March 1809. A collection of her letters has been published since her decease, in six volumes. Athenaeum. 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 good fortune, he devoted his life to literary cafe, 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.

Sewary, in Geography, a town of Hindooftan, in the circuit of Surgooja; 22 miles E. of Surgooja.

Sewee, a country of Asia, between Peria and Hindooftan, on the W. side of the Indus.

Sewee, Bay, or Bull's Harbour, a bay of the Atlantic, on the coast of South Carolina. N. lat. 32° 58'.

Sewestan, a country of Hindooftan, between Sewee and the Indus, about 110 miles long and 50 broad.

Sewel, among Sportsmen, denotes any thing that is fast or hung up, to keep a deer out of any place.

Sewel, Coronde, a name given by the natives of Ceylon to a species of cinnamon, which, when chewed, is of a mucilaginous nature, like the cashia: this dries well, and is very firm and hard, and has the appearance of a very fine cinnamon; but it has very little taste, and a disagreeable smell. The natives take advantage of the circumstance 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° 499.

SEWEB, formed from the French seubier, esquire, gentleman, or usher, in the Houehold, an officer who comes in before the meats of a king, or noblemans, to place and range it on the table. Of these officers there are four in the king's household, and eight, called fewers of the great chamber.

Sewers, in Building, are shores, conduits, or conveyances, for the suillage and filth of a house.

Sewers, Clerk of the. See Clerk.

Sewers, Commission of. See Commission.

Sewin, in Ichthyology. See Grey.

Sewl, in Agriculture, provincially a plough. It is sometimes written sole. See Plough.

Sewnady, in Geography, a town of Hindooftan, in the circuit of Ruttunpore; 35 miles N. of Ruttunpore.

Sewn, a town of Hindooftan, in Goondewar; 60 miles N. N. E. of Nagpore.

SEX, Sexus, something in the body, which distinguishes male from female. See Generation.

The number of persons, 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 Mofes, to disguise the sex.

SEXAGENERY, Sexagennarius, something relating to the number fixity: more particularly a person arrived at the age of fifty years.

Some caluils depend on sexagenerians for not falling: the Papian law prohibits sexagennarius from marriage; because at that age the blood and humours are frozen.

SEXAGENERY Arithmetic. See Sexagesimal.

Sexagenerary Table, are tables of proportional parts, shewing the product of two sexagesimaries that are to be multiplied; or the quotient of two to be divided.

Sexagesima, the second Sunday before Lent, or the next to Shrove Tuesday; so called, as being about the sixtieth day before Easter.

Sexagesima is that which follows Septuagesima, and precedes Quinquagesima.

Sexagesimal, or Sexagenerary 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.

Sexagessimals, or Sexagenerary Fractions, are fractions, whose denominators proceed in a sexagene ratio; that is, a prime, or the first minute = 1/60; a second = 1/3600; a third = 1/21600.

Anciently there were no other than sexagesimals used in astronomical operations, and they are still retained in many cafes; though decimal arithmetic is now much used in astronomical calculations.

In these fractions, which some also call astronomic fractions, the denominator being always 60, or a multiple of it, is usually omitted, and the numerator only written down: thus, 4° 59', 22° 50', 16°, is to be read, 4 degrees, 59 minutes, 22 seconds of a degree, or 56 parts of a minute, 50 thirds, 16 fourths, &c.

SEXANGLE, in Geometry, a figure having fix sides, and consequently fix angles.
SEX

SEXDRA, in Geography, a town of Sweden, in Wett Gothland; 38 miles E. of Goteborg.

SES of Plants, in Vegetable Phylogony. See Fecundation, and Fructification.

SEXTA, in Geography, a town of France, in the department of Mont Blanc; 2 miles S.E. of St. Maurice.

SEXTA Pars Lat. a fixation vocal part in the metotti and madrigals of old masters.

SEXTAN, Sextant, a fixation part of certain things. The Romans divided their as, which was a pound of brass, into twelve ounces: the ounce was called unica, from unum; and two ounces extant, as being the fixation part of a pound. See As.

Sextant was also a measure which contained two ounces of liquor, or two cyathi. Hence, “Sextantes, Calitae, duo infundi Falerii.”

Sextan, 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 Britanic catalogue 41 stars. See Constellation.

Sextant, in Mathematics, denotes the fixation 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 fame 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.

Sextery-Lands, are lands given to a church, &c. for maintenance of the sexton.

Sextile, Sextis, the position or aspect of two planets, when at sixty degrees distance; or at the distance of two signs from one another. It is marked thus (*).

See Aspect.

Sextilis, in Chronology. See August.

Sexton, a church-officer, thus called by corruption of the Latin sacerdote, or Saxon, Sagerplane, which denotes the fame. His office is to take care of the vesels, vestments, &c. belonging to the church; and to attend the minister, churchwarden, &c. at church. He is appointed by the minister or others, and receives his salary according to the custom of each parish.

Sextons, as well as parih clerks, are regarded by the common law as persons who have freehold 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 partibus, to him on whom he confers the pall. He takes the title of prefect of the pope's sacristy, and has the keeping the vesels of gold and silver, the relics, &c.

When the pope's mass is, the sexton always takes the bread and wine first. If it be in private he says mass, his holmens, of two wafer, gives him one to eat; and, if in public, the cardinal, who affords the pope in quality of deacon, of three wafer, gives him two to eat. When the pope is dangerously sick, he administers to him the sacrament of extreme unction, &c. and enters the conclave, in quality of first conclave.

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 pharmacuetic writers to express the fixation part of an ounce, that is, four scruples, or one drachm and one scruple.

Sextupla, Ital. Sexta, Fr. and Eng. in Musiv, implies a compound time of triplets, mixed with binary time. Sextuple time is never properly used but in the farandol, consisting of six even crotchets, or quavers, expressed by 3, or 3; where triplets are out of the question. All other indications of compound measure, or, as formerly called, jig time, are at present the following: 4, 4, 4, 4, 4, 4; all which measures confit of triplets.

Old authors mention five different species of sextuple time: as,

Sextuple of the Semi breve, by the French called triple of 6 for 1, as being denoted by those two numbers 6; 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 2; which flew, that six minims are here required to a measure, instead of two.

Sextuple of the Crotchet, called by the French triple of 6 for 4, because denoted by 4, or 4, which flew, that there must be fix crotchets to a measure, in lieu of four.

Sextuple of the Chroma, by the French called triple of 6 for 8, as being denoted by 8; which flew, that fix quavers here make the measure, or semibreve, instead of eight.

Sextuple of the Semibreve, or triple of 6 for 16, so called, because denoted by 16; which flew, that fix quavers are here required to a measure, instead of sixteen.

Sextus, Sextilis, in the Canon Law, denotes a collection of decreets, made by pope Boniface VII. usually thus called from the title, which is “Liber Sextus;” as if it were a fixth book added to the fixe books of decreets, collected by Gregory IX.

The Sextus is a collection of papal constitutions, published after the collections of Gregory IX. containing those of the fame 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 Berenger, bishop of Beziers; and Richard of Sienna. See Canon Law.

Sextus, in Biography, an ancient philosopher of the hystorical sect, was a native of Choronea, and the nephew of Plutarch. He is celebrated as the preceptor of the emperors Lucius Verus and Marcus Aurelius.

Sextus, Empiricus, in Medical History, a Roman physician, of the empiric sect, who followed Heraclides and others in the adoption of that system which Serapion and Philinus began. He is said to have been the pupil of Herodotus, 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 “Sexti Placitum;” 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 Choronea, who was of the Platonic school, a nephew of Plutarch, and preceptor of the emperor Marcus Aurelius. See Le Clerc, Hist. de la Med. p. ii. chap. 8.

Sextus Oculi, in Anatomy, a name given by Fallopius to one of the muscles of the eye, called by Albinus, and others, the obliquus oculi inferior, and by some, the obliquus oculi brevis.

Sextus Thoracis, a name given by Fallopius, and others,
SEX

to a muscle, now generally known by the name of the tria-
ngularis fterni.

SEXUAL System, in Botany, denotes that sys-
tem, 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 same tree, or upon different trees of the same species. This system is suggested and confirmed by the analogy observable between the eggs of animals and the seeds 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 prolific powder of the male, it bears no fruit; insomuch that as often as the communication between the sexual parts of plants has been intercepted, 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, assign 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 anther is the stigmatic, and the duft of the anther correspond to the sperm and seminal animalculae; and as to the female, the stigma is the external part of the female organ, which receives the duft; the style answers 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 ancients, 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 secured the ripening of the fruit; which might else, on account of unfavourable fesions, or the want of a proper intermixture of the trees of each sex, have been precarious, or at least not to have been expected in equal quantities. The ancients had also similar notions concerning the fig. Theophratus (Hist. Plant. lib. iii. cap. 9.) observes, that the characteristic and universal difference among trees is that of their gender, whether male or female. And Aristotle (De Plantis, lib. i. cap. 23.) says, that we ought not to fancy, that the intermingling of sexes in plants is the same as among animals. However, there seems to have been a difference of opinion among the ancients 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 Arit. de Generat. Anim. lib. i. c. 23.) called plants oviparous; for the seed 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 see that nature, when they would produce, 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-
lific duft contained in the flower of the male; and they re-
marked, that the fruits of trees never come to maturity till they had been impregnated with that duft. Upon this subject Aristotle says (De Plant. lib. i. cap. 6.) that if one shakes the duft of a branch of the male palm-tree over the female, her fruits will quickly ripen; and that when the wind sheds this dust of the male upon the female, her fruits ripen apace, just as if a branch of the male had been suspended over her. And Theophratus (Hist. Plant. lib. ii. cap. 9.) ob-
erves, 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 selec
t 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 soon to perfect maturity. Pliny also informs us (Nat. Hist. tom. i. lib. xiii. c. 7.) that naturalists admit the distinction of sex, not only in trees, but in herbs, and in all plants. Yet this is no where more observable, he adds, than in palms, the females of which never pro-
igate, but when they are fecundated by the dust of the male. He calls the female palms, deprived of male affluteness, barren widows. He compares the conjugation of these plants to that of animals; and says, that to generate fruit, the female needs only the abscision of the dust or down of the flowers of the male.

Zaluziækii 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 observations on the impregnating dust of the ilamina. Grew's Anatomy of Plants, published in 1682.

Camerasius, towards the end of the last century, observed, that upon plucking off the ilamina 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 paffes in the flowers of plants, between the organs of different sexes. Many authors afterwards applied themselves to improve this system; the principal of whom were Murland, Logan, Van Royen, Bradley, Ludwig, Blair, Wolius, &c. But Linnaeus had the honour of applying this system to practice, by reducing all trees and plants to particular classes, distinguished by the number of their ilamina, or male organs. See Dutens' Inquiry into the Origin of the Discoveries attributed to the Moderns, 1769, chap. vii. Phil. Trans. vol. xxvii. art. 25.

The sexual hypothesis, on its first appearance, was re-
cieved with all that caution which becomes an enlightened age; and nature was traced experimentally through all her variations, before it was universally attented to. Taurine
tort refuted to give it a place in his system; and Pontedera, though he had carefully examined it, treated it as chimerical. The learned Dr. Alton, professor of botany in the university of Edinburgh, violently opposed it; but the proofs which Linnaeus has given amongst the aphorisms of his "Fundamenta Botanica," and farther illustrated in his "Philosophia Botanica," are so clear, that the mind does not hesitate a moment in pronouncing animal and vegetable conception to be the same; but with this difference, that in animals fruition is voluntary, but in vegetables necessary and mechanical. The impregnation of the female palm by the farina of the male, related by Mylius, in his letter to Dr. Watfon (Phil. Trans. vol. xviii. art. 25.) establishes the fact attested by the ancients con-
cerning the palm-tree; and as the fructification in other vegetables, though it may differ in particular circumstances, has nevertheless a general conformity to that of the palm-tree, with respect to the parts supposed to be the organs of ger-
eration, which are discoverable either on the same or in a sep
cate flower, we may, from this single experiment, deduce
an argument by analogy for the confirmation of the whole sexual hypothesis. Besides, a very striking proof of the analogy between plants and animals may be drawn from observations made in their infant states, at which early period they seem nourished and protected in a similar manner. Those who desire farther satisfaction, may see the several demonstrations collected, and methodically connected, in the "Spongia Planatarum" of J. G. Walkborn, published in the "Amoenitates Academicae," at Leyden, in 1749. See Botany, Classification, Fruktification, Plants, and Vegetation.

SEXUALISTE, among Botanical Authors. See Botany, Fruktification, and Sexual System.

SEXUNX, in Pharmacy, the weight of six ounces, or half a pound troy.

SEYBO, or SEYVO, in Geography, a settlement in the southern part of Hispaniola; 70 miles N.E. of St. Domingo.

SEYBORSWORP, a town of Prussia, in the province of Oberland; 6 miles S. of Liebfat.

SEYCELLEWS, 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 would serve for masts and yards for ships, as they are large and straight; among the trees are great quantities of rose-wood, and cocoanut trees. Wild goats, land-tortoises, and Guiana-fowl, are found in plenty; and in the harbour abundance of good fish.

The harbour is well sheltered from the south-east wind. When the winds are from the north and north-west, it is rather an open road, but the ground seems to hold well. The tide runs about six feet, and sets about S.S.W. High water full and change, thirty minutes past live. S. lat. 4° 34'. E. long. 55° 35'.

SEYIWA, or SEDAU, a town of Saxony; 10 miles E. of Wittenberg. N. lat. 51° 55'. E. long. 12° 59'.

SEYDE. See Saino.

SEYDEWITZ, a river of Saxony, which runs into the Elbe, near Pirna, in the margravate of Meissen.

SEYER. See Pulo Seyer.

SEYER. See Seyer.

SEYER, 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. 53° 53'. E. long. 11° 11'.

SEYFFERSWORP, a town of Silexia, in the principality of Groetkau; 3 miles N.N.E. of Groetkau.

SEYFERTESWORP, a town of Prussia, in the province of Ermeland; 9 miles S. of Heilberg.

SEYGR, in the Materia Medica, a name used by some authors for the wormwood.

SEYGER, in Geography, a town of Prussia, in the province of Oberland; 4 miles N.E. of Salcfeld.

SEYFOLNE, a town of Hindoostan, in Oude, seated on a river which runs into the Goomty; 15 miles S.E. of Barely.

SEYMAN, an island in the Red Sea. N. lat. 15° 20'. E. long. 57° 30'.

SEYMORE, Edward, in Biography, brother of Lady Jane Seymour, in Henry VIII. (see his article), and 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 protector 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 assumed by the influence which his relationship to the king gave him, he procured a patent from Edward, by which he overfed the meaning and intent of the late king's will. In this patent he named himself protector, with full regal power, and appointed a council entirely of those persons whom he thought he could trust. The protector became the warm friend of the reformation, and consulted Cranmer on the best means of promoting the object he had at heart. He appointed a general visitation to be made in all the dioceses in England, the visitors confining of a certain number of the clergy and laity, and they had their different circuits assigned them. The chief purport of their instructions was, besides correcting the immoralities and irregularities of the clergy, to abolish, but with a very lenient hand, ancient superstitions, and to bring discipline and worship somewhat nearer the practice of the reformed churches. Somerset made war upon Scotland, and upon his return in Nov. 1547, he called a parliament, and being elated with the success which he obtained over the Scots, he procured from the young prince a patent, appointing him to sit on the throne, upon a floor at the right hand of the king, and to enjoy the same honours and privileges that had usually beenpolled 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 precedence enacted during the reign of his father. If, however, the protector gave offence by affirming too much flate, he devolved 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 constitution. All laws were repealed which extended the crime of treason beyond the statute of the twenty-fifth of Edward III.:

"By these repeals," says Hume, "several of the most rigorous laws that were ever passed in England were annulled, and some down, both of civil and religious liberty, began to appear to the people."

A bout this time, most violent differences subsisted between the protector and his brother, Thomas Seymour, admiral of England. The ambition of the latter was inestimable: he was besides arrogant, assuming, and implacable; and though exalted to the highest capacity to the protector, he did not possess the fame degree of confidence and regard of the people. By his flattery and addresses, he had so far impartially himself into the favour of the queen-dowager, that she 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 dukes of Somerset, who, uneasy that the younger brother's wife should have the precedence, employed all the credit she 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 attainted of high treason, and executed by a warrant, which was signed by the hand of his brother, whose own disgrace was at no great distance.

After the death of Somerset had obtained the patent, investing 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 latter he had created a court of requets 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
Sureft 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 decay his conduct. The attainer 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, Welling- 

minter, and to employ the stones for the fame purpose, but the parishioners role in a tumult, and chafed away the protector's tradesmen. He then laid his hands on a chapel in St. Paul's church-yard, with a cloister and charnel-house belonging to it, and these edifices, together with the church called the St. John of Jerusalem, were made use of to raise his palace. All these improprieties were remarked by Somer- 

sset's enemies, who revolved, when an opportunity offered, to take advantage of them to his ruin. A conspiracy was soon formed against him, and he resigned his office, hoping that with this concession his foes might be satisfied, but he was mistaken, they determined to pursue him even to the scaffold. He was committed to the Tower, with some of his adherents, and articles of indictment were exhibited against him, of which the chief was his usurpation 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, unlimited by any law, was never objected to him, because, says Mr. Hume, "according to the sentiments of those times, that power was, in some degree, involved in the very idea of regal authority." Somer- 

set was prevailed upon to confess on his knees, before the council, all the articles laid to his charge, and he imputed these misdemeanors to his own rashness and indiscretion, not to any malignity of intention. He even subscribed a paper which contained a full confession of his guilt; he was accordingly fined two thousand pounds a-year in land, and depriving of all his offices, and here the matter for the present ended; the fine was remitted, and he recovered his liberty. After this, he was re-admitted into the council, and soon obtained a considerable portion of popularity, which rendered him an object of jealousy to the duke of Northumberland, who planned his destruction. Under pretence of an intended insurrection, he had him feized, with his friends, and committed to the Tower. He was now brought to trial before a jury of twenty-seven peers, some of whom were his avowed enemies, and was of course found guilty, and condemned to death. Care was taken to prepossess the young king against his uncle, and left he should relent, no accesse was allowed to the duke of Somerset's friends, and the prince was, by a continued series of occupations and amusements, kept from reflection. 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 last. A vast multitude of those friendly to him were the witnesses of his death. Many of them dipped their handkerchiefs in his blood, which they preferred as a precious relic; and some 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 these symbols of his crime. "Somer- 

set, indeed," says Hume, "though many actions of his life were exceptional, 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 those cabals and evictions to which that age was so much addicted."

Somer set left three daughters, Anne, Margaret, and Jane, who were distinguished for their poetical talents. They composed Latin dittics on the death of Margaret de Valois, queen of France, which were translated into the French, Greek, and Italian languages, and printed in Paris in 1551. Anne, the eldest of these ladies, married first the earl of Warwick, the son of the duke of Northumberland, already mentioned, and afterwards Sir Edward Huntson. 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 Dundie, husband to Mary queen of Scots. Her mother was daughter of Sir William Cavendish of Chatsworth, in Derbyshire. Her affinity to the crown was the cause of her misfortunes. Several projects were formed for placing her on the English throne, so that she 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 raise her to the crown. She was first cousin to the king, being the daughter of a younger brother, which shews how rash 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, Sir 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.

SEYM, among Farriers. See SEAMS.

SEYNE, in Geography, a town of France, in the de- 

partment 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 307½ kilometres, in 8 communes.

SEYNE, a town of Lithuania; 38 miles N.N.W. of Greudno.

SEYPOUR, a town of Hindooistan, 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 XIII. of France. He attended in the name of that prince at the council
council of Lateran, and was promoted to the bishopric of Marfelles in 1510, 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 Eufebius's Ecclesiastical History, Thucydides, Appian, Diodorus, Xenophon, Justin, and Seneca. He is said to have been the first who alleged the Salic law as influencing the succession to the crown of France. His "Grand Monarchie de France," published in 1519, and translated by Seilhan 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 Lewis XI., whose vices are exposed by way of contrast.

SEYSSEL, in Geography, a town of France, in the department of the Ain, and chief place of a canton, in the district of Belley, situated on the Rhone, which here becomes navigable, and divides it into two parts; 13 miles N. of Belley. The place contains 2260, and the canton 6632 inhabitants, on a territory of 1231, kilometres, in 5 communes.

SEZANE, or CEZANE, a town of France, in the department of the Oise, on the Dour; 7 miles E. of Briandou.

SEZANNES, a town of France, in the department of the Marne, and chief place of a canton, in the district of Epernay; 45 miles W. of Vitry-le-Francais. The place contains 4749, and the canton 12,203 inhabitants, on a territory of 350,000, kilometres, in 30 communes. N. lat. 48° 42'. E. long. 3° 48'.

SEZARNIK, a town of Hungary; 4 miles W. of Kaposdor.

SEZENEA, a town of Ruffia, in the government of Viatka; 16 miles N.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; 15 miles E.S.E. of Roma.—Alfo, a town of Naples, in Lavora, the seat of a bishop, suffragan of Capua; 29 miles N.N.W. of Naples. N. lat. 41° 19'. E. long. 13° 34'.

SFACCIA, a town of European Turkey, in Albania; 8 miles N. of Duecigno.

SFACHIA. See SPIACHIA.

SFALASSA, a river of Naples, which runs into the sea; 4 miles E. of Cape Scglio.

SFASACCA, a town of Japan, on the S.W. coast of Nippon; 18 miles E. of Amanguc.

SFAX, or El Sfaxiff, a town of Africa, in the kingdom of Tunisia, surrounded with walls. The trade of the inhabitants in oil and cloth is considerable; 45 miles S.E. of Cairo. N. lat. 34° 49'. E. long. 10° 56'.

SFORZA, GIACOMEZZO, in Biography, named also Attendolo, founder of the illustrious house of Sforza, was born in 1360 at Cotignola, 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 soldiery, when throwing his spade on a 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 Albéric 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, jealousy 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 7000; he obtained the office of gonfalonier to the holy see, and by pope John XXIII. he was created count Cotignola, an 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 countable of the kingdom. In marching to the relief of Aquila, he was drowned in the passage of the river Aterno or Pescara, in the year 1424. He is represented to have been robust in body, and when elevated to his highest rank, that he preferred the peafant's disregard 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 viceroy to Louis, duke of Anjou, who had been 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 successfully 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, Rene, duke of Anjou, and made himself master of several places in the Marche of Ancona. He even feized some of the pope's possessions, 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 Vifconti, 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 1414, by which he made peace with the Venetians, and gave his daughter to Sforza, with Cremona and its territory for her portion.

The father and son-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 dfficres of the city occasioned a popular commotion, the leaders of which proposed the execting 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 duchy, 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 shown himself a brave and skilful commander; but with several traits of grandeur in his character, he was not a man of principle, and was ready to change sides as suited his interest. Mod. Univ. Hift.

SFORZA, CATHERINE, an heroine of the same family, the natural daughter of Galeazzo Sforza, duke of Milan, who was aUiliated in 1476. She married Jerome Riario, lord of Forlì 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 Forlì was besieged by the duke of Valentinois, son of pope Alexander VI. but the defended the
the fortresses 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 the soon recovered her liberty, and was married to John de Medicis, to whose family she 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 Hortensiö Landi.

Sfrondati, 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 1550. 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 1600.

Sfuggito, It. in Musie, to flun, avoid, go out at the common way: as canzana sfuggito, a disappointed cadence. This happens when the base seems preparing for a full close; instead of falling a 5th or rising a 4th, it rises only one tone or semitone, or falls a 3rd; or in other words, when all 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.

Sgigata, Stgizata, or Stora, a town of Africa, in the country of Algiers, anciently called Ruscada; situated near the coast of the Mediterranean. A few cemeteries are the only remains of its ancient splendour; 30 miles W. of Bona. N. lat. 36° 48'. E. long. 6° 40'.

Sgigatcche, or Shigatcehe, a town of Thibet, situated in a narrow valley, on a ridge of rock, fo 35 to command the road near the river Painam-tchieu; 130 miles W.S.W. of Lassa. N. lat. 25° 5'. E. long. 88° 52'.

Sgraffita, or Sgraffiata, in Painting. See Scratchwork.

Shaab al Yadzun, 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, situated at the end of a great bay, far out to sea. There is a secure harbour on the tide towards the land.

Shaal Stone, in Mineralogy. See Tabular Spar.

Shab, in Agriculture, a disease of sheep. See Scab.

Shan, or Shek, in Geography, a town of Africa, in the country of Nubia; 450 miles S.S.W. of Cairo. N. lat. 23° 35'. E. long. 30° 30'.

Shabadpour, a town of Hindeoosl, 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 Surabhi; which see.

Shabale, in Geography, a mountain of Turkifhan; 70 miles N.N.E. of Toncat.

Shabamoushwon 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 Chasraim; 95 miles S.S.E. of Urgheuz.

Shabaygan, a river of Canada, which runs into lake Michigan. N. lat. 48° 30'. W. long. 86° 45'.

Shabazpour, a town of Hindeoosl, in Allahabad; 16 miles S.E. of Corab.

Shabran, a town of Perifia, in the province of Shirvan; 40 miles N.E. of Schamachie.

Sha bury, a town of Peria, 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 Cufions, 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, provincially to shed as grain at harvest. See Harvesting Grain.

Shack, or Shack-corn, a provincial term applied to the waffe corn left in the fields at harvest: also the flock turned upon the stubble after harvest, and likewife to such grounds as lie open to common fields. Pigs are the flock usually employed in gathering this, and in some parts flocks of geese and turkeys. Where pigs are clovered through the hummer, they are filled with the shacks and the acorns; but some farmers are so provident, as neither to feed their clovers in that advantageous way, nor even keep pigs enough to pick up the waffle 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, provincially a wooden fork for shaking straw off the barn-floor, made of forked willow, &c.

Shackleford, in Geography, a poft-town of America, in Virginia; 143 miles W.S.W. of Washingto.

Shackles, in Ship-Building, the small ring-bolts driven through the ports, or scuttles, and through which the lashings or an iron hook passes 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; 67 miles S. of El Colter.

Shad, Alada, in Ichthyology, the name of a sea-fish, called also the mother of herrings, and by some authors clupea and triphos, by the ancients trichis, or trichias, and the clypeus alofis 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 slopes 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 dorsal 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 dusky 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 thefe 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 shoals together.

In Great Britain the Severn affords the shad in higher perfection than any other river; where it first appears in May, but in very warm feasons in April, and continues about
about two months. The shade at its first appearance, especially near Gloucester, is esteemed a very delicate fish, and sells dearer than salmon. The London fishmongers deliver it from that of the Thames, by the French name of alof. 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 roe. 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 inipid 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 disrepute 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 shad 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 sort 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, any thing 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 Lewitown.

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 feed-beds, &c., from the sun: It is a necessary work on many occasions, in warm, dry, sunny weather in spring and summer, &c., in pricking out various sorts of small young plants from feed-beds, into nursery-beds, pots, &c., as well as small cuttings, slips, above-ground off-sents, pipings, &c., as likewise occasionally in transplanting any kind of more advanced plants, flowers, &c., into beds, or pots, in a hot, dry season, and sometimes to feed-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 feed-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 litter sifted in over feed-beds, which by screening the surface from the parching sun, and preserving 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 lightly 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 loose, long litter, shaken lightly over them, till 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 warmest time of sunny days, generally longer to plants, cuttings, &c., which have not fructified, 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, where occasional shading is necessary, it should be discontinued on evenings, mornings, and nights, that they may enjoy the benefit of the full bright 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 unfadened 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 fructified good root, and begin to advance a little in a renewed growth, the shading should be mostly 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 neccesary in longer continuations, 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 most young plants, cuttings, &c. pricked 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 fruct is all they require.

The sorts 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.N.E. of Termed.

SHADOW, in 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 shadows makes a considerable article in optics, astronomy, and geography; and is the general foundation of dialling.

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 confines 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.

SHADOWS from opaque Bodies, Laws 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
The intensity of the shadow is measured by the degree 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 illuminates, the shadow this latter projects will be a cylinder; and, of consequence, will be propagated till 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 less opaque sphere, illuminated by a larger; let the semidiameters of the two, as C G and I M, (Plate XX. Optics, fig. 1.) and the distances between their centres G M, be 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. Consequentially, 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 PM to MH 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 subtracted 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, subtracted from a quadrant, leaves the arc I Q, which is the measure of the angle I M P. Since then, in the triangle I M P, which is rectangular 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. g. If the semidiameter of the earth be M I = 1; the semidiameter of the sun will be F M = 1 11/10; and of consequence M H = 2 17/20; since then M P is found by calculation to be 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 :: fine of 16° : radius, i.e. :: 217 : 1, nearly; and as M H is about 217 times M I, P M 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. Consequentially, 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. g. the fun above the horizon, viz. the angle S V T, and that of the body, being given. Since, in the rectangular 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 rectangular 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 fine to the tangent of the sun’s altitude above the horizon. Thus, if T S be 30 feet, and T V 45, T S will be found 41° 49’.

10. If the altitude of the luminary, e. g. 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 isecles.

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 smaller 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. g. 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 stick, and measure the length of the shadow A C; another 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 324 yards.

13. The right shadow is to the height of the opaque body, as the cosec of the height of the luminary to the sine.

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 S B to its opaque body B D. Hence, 1. The opaque body is to its vered shadow, as the cosec of the altitude of the luminary to its sine; consequently the vered shadow A D is to its opaque body A C, as the sine of the altitude of the luminary to its cosec.

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 sine and cosec are equal; and, therefore, the vered shadow is equal to the length of the opaque body.

15. A right fine is to a vered fine of the same opaque body, under the same altitude of the luminary, in a duplicate ratio of the cosec to the sine 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 thin 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 shadows; by means of which the ratios of the right and vered shadow of any object, at any altitude, are determined. This instrument is usually
Let the scheme, No. 1. (Plate I. Shadows, fig. 1.) represent the vanishing plane, and No. 2, the plane of the picture.

In the vanishing plane, No. 1, let V 1 be the vanishing line, e the point of sight or place of the eye, A and B the intersection of the original vertical plane, inclined to the plane of the picture in the angle A G 1. Let A D be the base of 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; make B K equal to D F, and join A K, which is the feat of the line on the vertical plane. Draw e 1 parallel to A B, and draw I h perpendicular to V 1: in v 1, make 1 m equal to 1 e, and make the angle 1 m h equal to B A K, and h will be the vanishing point of the feat of the line. Draw e v parallel to D A, and v 1 perpendicular to v 1: make v n, in the vanishing line, equal to v e; make the angle v n i equal to the angle D A F, which the original line makes with the plane of the horizon. Draw e o perpendicular to v 1, meeting v 1 in g.

In the plane of the picture No. 2, let V L be the vanishing line answering to v 1, No. 1: in V L make choice of any convenient point, O, for the centre of the picture: make O L equal to 0 1, No. 1, and O V equal to v o, No. 1: draw L H and V I perpendicular to V L, then H is the vanishing point of the feat of the line, and I the vanishing point of the line itself.

The points H and I will be both on the same side of the vanishing line of the horizontal planes.

This problem is the same when the horizon and altitude of the picture are given, and the inclination of a vertical line to the plane of the picture; to find the vanishing point of a ray of light, and the vanishing point of the feat of the fun's rays.

When the fun is on the same side of the picture with the spectator, the vanishing point of the feat 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 feat will be above V L.

The following problem unites that of finding the vanishing points of the feat of a line, and the vanishing point of the line itself, with the vanishing point of the feat of the fun'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 feat and inclination of a straight line, and the feat and inclination of the fun's rays, both to the plane of the horizon; to determine the vanishing point of the feat of the fun's rays, the vanishing point of the feat of the line on the vertical plane, as also the vanishing point of the fun's rays and vanishing point of the line itself.

It is evident, that the vanishing point of the feat of the fun's rays, and the vanishing point of the feat of the line, are both in the vanishing line of the plane, which is a straight line perpendicular to the vanishing line of the horizon; since the original of the feat of a ray, and the original of the feat of the line, are both in the original plane; and if the line be parallel to the original plane, the vanishing point of the feat of the line will be in the intersection of the vanishing line of the vertical plane with that of the horizon.

Join V S, (fig. 2.) and let it meet A B in s; draw b i and a S, cutting each other in e, and b e is the shadow of the line required.

For the vanishing point of the line that projects the shadow and the vanishing point of the fun's rays, are in the vanishing
vanishing line of the plane of shade; and because the plane of shade is supposed to cut the original plane, the intersection, 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 shade is thrown.

This problem is general for planes and lines in all situations, but in the following examples the centre 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 absolute 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 AB (figs. 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 AB. Let S, therefore, be the vanishing line of a plane of shade, occasioned by any line of concourse, S being the vanishing point of the sun's rays, and s 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, ba, mn, be the edges of the solid: join bs and  

\[aS,\] cutting each other in e; and bc is the shadow, occasioned by the edge or line of concourse ba. Draw dc and ds, cutting each other in e; or, if necessary, produce them to cut in e, and ce is the shadow, occasioned by the edge ad, parallel to the plane of the original plane; also draw ce and sf, cutting each other in i; or, if necessary, produce them to cut each other in i, and ei will be the shadow of the edge df.

Lastly, draw is, which will complete the shadow of the prism, as required.

Fig. 3. shews the shadows of the object when the sun is before the picture: fig. 4. shews the shadow when the sun is behind the picture; and fig. 5. when the sun 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 ac and bd, that form the end of the building, also of ef, g, b, which represent the horizontal lines forming the sides of the break. Let the sun be supposed to be in the plane of the picture, or its rays parallel thereto, and let the lines ef, bgf, which are produced by the sun, and the plane egbf will throw a shadow upon the plane ablk, and the plane abde upon the horizon. As the sun'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 LM perpendicular to VL, then LM is the vanishing line of the plane ablk, on which the shadow is to be thrown; through V draw VM parallel to the sun's rays, or make the angle LVM equal to the angle which the sun'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 ablk; therefore, to find the shadow of the line bg, join Mb, and produce it to m; and draw gm parallel to MV, then m will be the shadow of the point g, and bm of bg. Draw mn parallel to ge, and mn will be the shadow of ge; therefore hmnf will be the whole shadow of the plane bgfs, upon the plane ablk.

To find the shadow of the end abcde upon the plane of the horizon: draw ao parallel to LV, and bo parallel to MV; then ao is the shadow of the vertical line A B; join oV, and draw dp parallel to MV, and op is the shadow of bd; join pL, and draw ry parallel to MV, and pqr will be the shadow of the line dr, not seen: join ar, or draw it parallel to LV, then aopqr will be the shadow of the building upon the plane of the horizon.

Many more examples of shadows might be given, but if the principles here shewn are understood, the artist 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 circumstances 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 it 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 intersection 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 on which the shadow is to be thrown; by continuing the line that throws the shadow, and the intersection 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 ao obtained; and since the point a is the beginning of the shadow of the line bd, produce ac and bd to meet in V; join oV, and draw the ray of the plane dp, then op is the shadow of bd; produce dr and es to meet in L, and join pd; draw the ray r from r, then pq is the shadow of dr, 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-houfe DE N P Q; V is the vanishing point of all horizontal lines, in the gable A B L I K of the main houfe, and also of the gable D M Q C of the pent-houfe; L is the vanishing point of all the horizontal lines in the parallel fronts B F G L and D E M N; and as all vertical planes have vertical vanishing lines, VR is the vanishing line of the parallel gables A B L I K and C D M Q; LU the vanishing line of the fronts B F G L and D E M N; I L G H is the representation of the roof of the main building, and O M N P that of the pent-houfe.

Produce LI to meet VR, its vanishing point, in S; draw SL, which will be the vanishing line of the inclined plane L G H I, for S and I are the vanishing points of two lines in that plane; produce MQ to meet VR in T; and draw TL; then TL is the vanishing line of the inclined plane M N P Q of the roof of the pent-houfe, because T and L are the vanishing points of two lines in that plane.

Let WX be a pole, rising upon the end of the houfe in the same plane with the gable A B L I K; and let \( \odot \) be the vanishing point of the sun's rays: produce the pole X W to meet VR in R, then R is the vanishing point of the pole, or of the line that throws the shadow; therefore by drawing \( \odot Y \odot R \), \( \odot \) 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,
L, U, the vanishing line of the vertical planes BFGI and DEMN 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-house, 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 falls upon the ground or horizontal plane: draw XY, cutting DE in a; draw Ua, cutting DM in b; draw bH, cutting MQ in c; draw cZ, cutting PQ in d; draw Ud, cutting GI at I; and draw IZ, cutting the ridge LI at f; then Xabcdef will be the whole shadow of the pole.

For, 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 upon 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 DEM; now LU is the vanishing line of the plane DEM; and U is the point where the vanishing line of the plane of shade cuts LU; therefore U is the vanishing point of the shadow upon the plane DEM. 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 MNQP, 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 MNQP; therefore Z is the vanishing point of the shadow on the plane MNQP. The next surface on which the shadow is projected is the plane BFGI of the wall; but U has already been thrown 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 falls upon the plane BFGI, drawn from the vanishing point U, through the point d, that it will meet the pole at 1, 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 is most 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 shewn 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 said to be at an infinite distance; and, therefore, instead of the vanishing point of the line being joined to the vanishing point of the fun's rays, draw a straight line from the vanishing point of the fun'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 line of the plane of shade with the vanishing line of the line 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 inclined to the picture. This case is similar to that of the fun's rays being parallel to the picture: for here also the vanishing point of the rays is at an infinite distance; but as the plane of shade will still have a vanishing line, this line will be found by drawing a straight line through the vanishing point of the line that throws the shadow parallel to the fun's rays, as already shewn in a former example.

**Shadow projected from a given Point; as by the Light of a Candle Lamp.**—It is evident, if the representation of the luminous point be given, and its seat 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 seat of the luminous point through the seat 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 seat, and the representation of a point in space with its seat, 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, confiding internally of the vertical planes, AHI, EJ, FKI, GCI, and of the horizontal planes AEGFB and DHIKC; also, let L be the luminous point, and M its seat in the plane AEGFB. In order to form an idea of the point L, in respect of the other planes, it is neccesary 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 determined, 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 EI, in d. Draw ef parallel to NO, the vanishing line of the plane AH; and df parallel to RS, 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, cd, ef, and df, are all parallel to the picture, and in a plane passing through the luminous point L.

Given the representation of any straight line UT, 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 UT.

Draw WV, cutting PQ, the vanishing line of the plane AG, in Y; and draw YX 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: whereas YX is the vanishing line of the plane, which passes through W.
Now let W Y cut the plane AX in Z; and in this example the vanishing line, Y X, is parallel to the vanishing line of the plane E F: therefore the planes, represented by F E and X U W Y, 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 E F.

Given the vanishing lines, A B, C D, E F, (fig. 3.) of three planes, G H I K, L M N O, and M N I Q R, the common intersection, N O, of the planes G H I K and L M N O; also the intersections, N I and M N, of the planes G H I K and L M N O; the point of light, e; c d, a line parallel to the picture; and d, the point where it intersects the plane M N I Q R; to find the shadow of the line on the plane G H I K.

First, find the representation of a ray of light parallel to the picture, thus: draw d e parallel to A B, cutting M N at e; draw e f parallel to E F; then if a b be not parallel to e f, produce a b to f, and join f e, which is the ray required. Secondly, find the vanishing line of a plane of shade passing through the line a b, and the ray f e, thus: produce a b to meet C D in D, which is the vanishing point of a b; through D draw D F parallel to f e, and D F will be the vanishing line of the plane required. And, lastly, find the shadow of A B upon the plane G H I K, thus: produce O N and a b to meet in g; from g, through g, draw the line F h; and from the point of light, e, draw e b h and c a i; then h i will be the shadow of the line, as required.

For d e being parallel to A B, the vanishing line of the plane M N I Q R, d e will be parallel to the picture; and since e f is drawn parallel to E F, the vanishing line of the plane L M N O, e f will be parallel to the picture; and because a b meets e f in f, f e is a ray of light parallel to the picture, meeting the line a b; and because C D is the vanishing line of the plane L M N O, and a b is in the plane L M N O, therefore the vanishing point of a b is in C D, and consequently at D, where a b produced meets C D, and because D is the vanishing point of a b, the vanishing line of the plane of shade will pass through D parallel to f e; but F is the vanishing line of the plane of shade, with the vanishing line E F of the plane G H I K, on which the shadow is projected, therefore F is the vanishing point of the shadow on the plane G H I K; and because a is the intersection of a b with the plane G H I K, the shadow will commence at a, and consequently drawing F g h i gives the direction of the shadow; and lastly, because e is the luminous point, the rays c a i and e b h will terminate the shadow.

As D would be the vanishing point of all lines parallel to the original of a b in the plane represented by L M N O; and as different representations could not meet the line e f in the same point, the ray e f will have different positions, and consequently D F, 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 feet of the light on one of the planes; to find the feet of the light on the other two planes.

Let the three planes be A B C D, A B C F, A F E D, (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 concurrence; 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 edges C D, B A, G F, of the two adjoining planes A B C D, A B G F, and they will all meet in V, their vanishing point; and produce the edges D E, A F, B G, of the two adjoining planes D A F E, F A B G, and they will meet in W, their vanishing point; likewise produce the edges C B, D A, E F, and they will meet in X, their vanishing point.

Let L be a luminous point, and S its feat in the plane A B C D; draw S X, cutting A B in a; draw a W, and draw L X, cutting a W in S; then S is the feat of the luminous point in the plane A B G F; draw S V, cutting A D in b; draw b W, and L V, cutting each other in S; therefore S is the feat of the luminous point in the plane A D E F.

Because the plane A B C D 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 in V; therefore S a and A B represent a right angle in the plane A B C D. For the same reason, a S represents a right angle in the plane A B G F, and since the planes A B G F and A B C D are at right angles, the angle S a S' will represent a right angle; and because S a represents a perpendicular to A B, a S' and S L will represent parallel lines; and since L S' and S a have the same vanishing point X, the original of L S' is parallel to the original of S a; but S a represents a perpendicular to the plane A B G F, therefore L S' also represents a perpendicular to the plane A B G F; and because the point S' is in the plane A B G F, S' is the feat of the luminous point L, in the plane A B G F. In the same manner it may be shown that S is the feat of the luminous point in the plane A D E F.

Given the representation c d of a line perpendicular to the original of the plane A B C D, and the vanishing point W of the line, and the point d, where the line meets the plane A B C D, a luminous point L, with its feat S, also upon the plane A B C D; to find the shadow of the line C D upon the said plane.

Draw S d and L c to meet each other in e, then d e will be the shadow of the line c d, as required. In the same manner, if f g represent a line perpendicular to the plane A B G F, and g the point where it meets the plane A B G F, g h will be the shadow of the line, by drawing L f and S' g 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 A B C D (fig. 5.) be the inside of a room, showing five sides, one, E F G H, 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 feat upon the floor; then to find the feet of the light on all the other four sides. Through S draw a b parallel to V L', the vanishing line of the horizon, cutting B F at a, and C G at b; draw a S' and b S' parallel to Y Z, the vanishing line of the two vertical planes; through L, the point of light, draw S' S, then S' is the feat of the light in the plane A B F E, and S' is the feat of the light in the plane C D H G. Produce C S to meet B C in c; draw c d parallel to Z Y, and join d C'; draw S S' parallel to Z Y; then S' is the feat of the light in the plane A E H D; let C S cut the line F G in e; draw e S' parallel to Z Y, cutting L C' in S, then S' will be the feat of the light on the plane E F G H. Then to project a prism standing perpendicular to any of these planes, suppose that
that which stands on the floor. From the feet S draw S, meeting CG in a; draw or parallel to ZY, and draw the ray Lm, and r will be the shadow of the point m; draw SH, cutting CG in p; draw p, parallel to YZ, and draw LN, cutting p at s; then s is the shadow of the point n; also draw SG, meeting CG in q; draw q, parallel to ZY, and draw LK, meeting q, at t, then t is the shadow of the point k; join rs and st, 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 on inspection. The truth of the method has already been flown.

Shadow, in Geography. The inhabitants of the globe are divided, with respect to their shadows, into Aequi, Amplificii, Heteroceri, and Periferici.

Shadow, in Painting. denotes an 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 supposed to enlighten the piece. The management of the shadows and lights makes what painters call the chiaro-oscuro, the laws of which lie under the article Clair-obscur.

Shadows, Genus of Curves by. See Curve. Shadows, Blue. See Blueness.

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 Lanton-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 those counties viz. Middlesex, Norfolk, and Suffolk, and discharged the duties of the office with distinguishing 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 resolved 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 was not long before he became eminent in dramatic poetry, and he appeared before the public as the writer of a comedy entitled "The fallen 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 eulogium, and his works have long since disappeared from the stage, yet some of his delineations are said to display much real humour. Lord Rocheller has given him a respectable place among his contemporaries; he says,

"None feel to touch upon true comedy,
But ha'ly Shadwell, and flow 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 Parallel, and a contesterion was raised both against Shadwell and his friend Hunt, who himself in it, and who on this occasion was forced to fly into Holland. Dryden, by way of revenge upon Shadwell, wrote the bitterest satire against him that ever was penned; this was the celebrated Mac-Flecknoe.

In 1688 Shadwell was appointed to succeed his rival Dryden in the laureate ship, 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 Cheltenham, and was interred in the church there. Dr. Nicholas Brady preached his funeral sermon, in which he affirms, "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 sense 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, containing of those plays and miscellaneous poems, was printed in 1720, in four volumes.

The Earl of Rochester, in speaking of Shadwell, says, "If he had burnt all he had written, and printed all he spake, 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 Offallton, 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 is supposed from a spring dedicated to St. Chad, and constituted a hamlet in the parish of Stepney, still separated from it, and made parochial, in 1669. The extent of this parish is very small, being only 910 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 adjoins the Thames, and is called Lower Shadwell, is chiefly inhabited by tradesmen, and manufacturers connected with the shipping; such as ship-chandlers, biscuit-bakers, wholesale butchers, malt-makers, saw-makers, anchor-smiths, coopers, &c. A market which had been formerly held at Shadwell under the authority of a charter of King Charles II., but which was long disused, 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 gift of the dean of St. Paul's. In Shadwell's Place is a meeting-house for Presbyterian dissenters, opened only on Sunday evening, when sermons are delivered by diftinguishing ministers of different denominations, for the support of a charity-school, in which 50 boys and 30 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 100 children. A third charity-school, founded in 1712, and partly endowed by queen Anne, provides clothes and education for 80 boys and girls.

The Shadwell water-works, which were established in 1669, 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 sustained a high character for its medicinal qualities,
qualities, but it has lately fallen into disrepute. Barracks for the accommodation of the Chinese and Lascars, during their stay in England, have been recently erected here, and frequently lodge upwards of a thousand persons. According to the parliamentary returns of 1811, Shadwell parish contains 1694 houses, and 6855 inhabitants. Lyons' Environs of London, 140. 1795. Supplement, 1811. Stow's History of London, folio.

SHADWICKS, a town of America, in North Carolina; 10 miles W.S.W. of Hilliborough.

SHAFITEs, in the History of Mahometanism, the followers of Mohammed Ebn Edris al Shafei, the author of the third orthodox feets, who were formerly spread into Mawara'nahr, and other parts eastward, but are now chiefly of Arabia. Al Shafei was born either at Gaza or Afcalon, in Palestine, in the year of the Hijra 150, on the same day in which, as some fay, Aba Hanifa, the founder of the Hanefite, the first of the four orthodox feets, 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 Abulceda says he lived 58 years. This doctor was very highly esteemed for his excellency in all parts of learning, infomuch that his contemporary, Ebn Henbel, used to say that he was as the sun to the world, and as health to the body. Al Shafei is said to have been the first who discoursed of jurisprudence, and methodized that science; and accordingly it was wittily said of him, that the relations of the traditions of Mahomet were asleep, till Al Shafei came and awoke them. He was a great enemy to the feholatic divines. It is said of him, that he used to divide the night into three parts; one for study, another for prayer, and the third for sleep. It is also related of him, that he never so much as once swore by God, either to confirm a truth, or to afford a falsehood; and that being once asked his opinion, he remained silent for six months; and when the meaning of his silence was demanded, he answered, "I am considering first whether it be better to speak or to hold my tongue." The following saying is also recorded of him, "Whoever pretends to love the world and its creator at the same time is a liar." Sale's Koran, Int.

SHAFERS, in Geography, a town of Pennsylvania; 48 miles N.E. of Easton.

SHAFT, in Building. The shaft of a column is the body of it; thus called from its straightness; but by architects more frequently the flue. See the dimensions under COLUMN.

Shaft is also used for the spire of a church-tower; and for the flank or tunnel of a chimney.

Shaft, or Tunnel-Pit, is the well through which the flue, excavated from a tunnel, is drawn up to the surface.

Shaft of a Mine, is the hollow entrance or passage into a mine, fish or dug to come at the ore.

In the tin-mines, after this is sunk about a fathom, they leave a little, long, square, place, which is called a fiambique.

Shafts are sunk some ten, some twenty fathoms deep into the earth, more or less. Of these shafts, there is the landing or working-shaft, where they bring up the work or ore to the surface; but if it be worked by a horse engine or whim, it is called a whim-shaft; and where the water is drawn out of the mine, it is indifferently named an engine-shaft, or the rod-shaft. See MINE and QUARRY.

SHAFT, in Agriculture, a name provincially applied to a handle of a tool; as a spade, fork, &c.

Shafts of Cart and Wagons, the parts or poles be-
tween which the thill-horses draw. The manner in which the fore-horses are attached to these shafts, when there are more than the thill-horses in the teams, is a matter of great conformation; as the weight or pressure on them is more or less, according to its nature, and the way in which it is performed. See THILL-HORSES and WAGGON.
is supported by Camden, upon the evidence of an inscription mentioned by William of Malmesbury, which seems to point out Alfred himself as the founder, and is certainly much more probable than those which rest on the fanciful speculations of Jeffrey of Monmouth. There are circumstances, however, indicating Roman habitation on the site of Shaftesbury; and affuming this as a fact, some later writers contend that the words of the inscription, “Aelred rex fecit hanc urbem,” are only intended to denote that Alfred renewed or repaired this city. But whatever may have been its condition previous to that monarch’s reign, it was then only that it first attained any authenticated degree of celebrity, by the foundation of a monastery for nuns of the Benedictine order. This convent was indubitably the work of the great prince above-mentioned, as the charter of foundation, appointing his daughter Ethelgisa abbess, is yet extant. It was originally dedicated to the Virgin Mary, and became one of the richest and best endowed nunneries in England, occupied a great extent of ground, and possessed a vast number of offices and apartments within its precincts. The abbess 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 wrote, however, directed to her, to send her quota of men into the field, according to her knight’s fees. On the translation of the body of Edward the Martyr hither, from Wancham, this monastery assumed the name of that saint, 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 illustrious Canute, who died here. After the Conquest, this convent was for some time neglected; but the patronage of succeeding monarchs soon restored it to celebrity, and conferred upon it such extensive donations in land, that it became proverbial to say, “that if the abbey of Glastonbury might marry the abbesses 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 £129l. 11s. 3d. The last abbess was Elizabeth Zouch, who had an yearly pension annexed to her of £53.

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 custom, and vested the government in a corporation, consisting of a mayor, recorder, twelve aldermen, a bailiff, and common councilmen. 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 25th year of Edward I. They are elected by the inhabitants paying tax and lot, who are estimated at about 300 in number, and are returned by the mayor. Shaftesbury has a weekly market on Saturday, and one annual fair; and according to the parliamentary returns of 1811, contains 515 houses, and a population of 2159 persons.

The town of Shaftesbury is most pleasantly situated, being built on a very lofty eminence, which commands an extensive prospect over the three adjoining counties of Dorset, Somerset, and Wilts. 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 chantries and fraternities, and a priory or hospital of St. John the Baptist. Of these public structures only four churches remain, respectively dedicated to St. Peter, the Holy Trinity, St. James, and St. Rumbald. The principal of them is St. Peter’s, which is a building of considerable antiquity, and discovering much elegance in its symmetrical proportions and ornaments; but the greater part of it is defaced by modern alterations. Of the abbey scarcely a vestige is visible, the whole having been demolished soon after the dissolution, except the high embattled wall, supported by buttresses, which formerly inclosed the park, and is still in part standing on the site next the town. The other principal buildings of Shaftesbury are the town-hall, a free-school, two alms-houses tenements, 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 moieties, one of which belonged to the crown, and the other to the abbey. The abbey manor was surrendered in the 30th year of Henry VIII., whose successor granted it to Thomas Wriothesley, earl of Southampton, together with the town, borough, feite, and precincts of the monastery. From him it passed to Sir Thomas Arundell, and afterwards to the earls of Pembroke, by one of whom, Philip, the royalty of the manor, and borough manor, were sold to Anthony Ashley Cooper, earl of Shaftesbury, in whose family they still continue.

Well from the town is an eminence called Castle Green, which is supposed to have received that appellation from its having been the feite of an ancient castle, though history is silent respecting any such structure belonging to Shaftesbury. On the brow of this hill is a small mount, surrounded by a shallow moat, which may have belonged to it, but it is commonly regarded as a Roman intrenchment. Tradition reports that the old town stood here, and it is certain that it occupied somewhat different ground from the feite of the present buildings. The immediate vicinity of Shaftesbury is noted as the birth-place of the Rev. James Granger, author of the celebrated Biographical History of England, Beauties of England and Wales, vol. iv., by John Britton and E. W. Brayley, 8vo. 1853. Hutchinson’s History of Dorsetshire, fol. 1776, 2d. edit. 1797. History of the Ancient Town of Shaftesbury, 12mo. 1808.

SHAFTESBURY, a considerable and flourishing port-town of America, in the county of Bennington, Vermont, having Arlington on the north, and Bennington on the south, and containing 1973 inhabitants.

SHAD ISLAND, an island near the entrance into Chatham Sound, on the S. coast of the island of Terra del Fuego; 4 miles N.E. of York Medical.

SHAGGE, or Shag, in Ornithology, a name by which we call a water-fowl common on the northern coasts, and called by Mr. Ray Cervus aquaticus minor, or the lesser corncrant, being properly a bird of the corncrant kind, or the pelicanu gracilis 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 are small; the head is adorned with a crest, two inches 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 a purplish-black; but the lower part of the back, head, and neck, wholly green; the belly dirty, and the legs black. It builds in trees as the common corncrant, swims with the head erect, and is very difficult to be shot;
SHAG, because, when it feeds the flesh of a gun, it tops under water, and does not rise but at a considerable distance.

SHAGR, in Geography, a town of Syria, in the pa-
chalic of Aleppo; 40 miles W. of Aleppo. N. lat. 35° 45'.
E. long. 36° 25'.

SHAGREEN, or CHAGREEN, derived from the Tartar
foghr, a kind of grained leather, prepared in Atra-
chan, chiefly by Tartars and Armenians, and mostly used in the
covers of cages, books, &c. It is very close and solid, and
covered with little roundish grains, or papille. 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 shagreen is prepared? Rauwolf affirms
us it is the onager, which, according to him and Bellonius,
p. 65.

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 said to be
equally good. There are large manufactures of it at Atra-
chan, and in all Peria. Borel says, it is the skin of a fe-
calf; others, of a kind of fift, called by the Turks shagrain,
whose skin is covered with grains; and those so hard, that
they will rasp and polish wood.

There is also a sort of shagreen, which was formerly made
of the skin of the quaternia: in English, the monk or a-
gelfih, but now of that of the greater dog-fifh. Vide Wil-
lugby's lchth. p. 80.

SHAGREEN, Manner of preparing. The process for
making shagreen 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 arlaine and a half upon
the crupper, and rather less than an arlaine along the back,
is selected 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 suc-
cessively, till they are thoroughly soaked, and the hair comes
freely off. Then the hides are taken one by one out of the
vat, spread against a board let flapping against the wall, one
corner of it reaching over the edge of the board where it is
fasted; and in this position the hair is scraped off with a
blunt scper, urak, and with the hair the upper pellecie; and
the cleaned skin is laid again in clean water to soften. This
done, they take it a second time out, spread one piece after
another in the manner before described, scrape now the fleh-
side with the same fpering-iron, and the whole skin cleaned
again on the hair-side with great care, so that nothing now
remains of the softened skin but the clean finewy web which
serves for parchment, consisting of thick fiscenclous of mille
fibres, resembling a hog's bladder softened in water. After
this preparation they immediately take in hand certain
frames, palizi, composed of a strawberry piece and a fe-
cicular bow, forming therefore nearly the shape of the
skin, which is stretched in it with struts as even and uniform
as possible; and during this operation is sprinkled between
whiles with fair water, that no part of it can dry and occa-
sion an unequal extension. In like manner they finall
them when the whole flock of skins is stretched, and carry all
the thoroughly wetted skins into the work-room. There
the frames are one by one laid flat on the floor, so that the
flesh-side of the stretched skins is turned underneath.
The other side is now thick floored over with the black, very
smooth, and hard seeds of a species of the herb goose-foot,
or the greater orach (chenspodium album), which the
Tartars call alabuta, and which grows in great abundance,
and almost to man's height, about the southern Volga in farm-

yards and gardens; and that these may make a strong im-
pression on the skin, a felt is spread over them, and the seeds
fiod with the feet, by which means they are impelled
depthly into the very yielding skins. Then, without shaking
off these seeds, the frames are carried again into the open
air, and set leaning against a fence or a wall to dry, in
such manner that the hides covered with the seeds face the
wall and cannot be shown on by the sun. In this situation
the stretched skins must dry for several days successively in
the sun, till no trace of moisture is perceptible in them, and
they may be taken out of the frames. Then, when the
improved seeds are beaten off from the hair-side, it appears full
of little pits and roughfifhes, and has got that impression
which the grain of the shagreen ought to produce when the
true polish has been given to the skin by art, and the ley
now to be mentioned has been used previous to the basting of

The polish is done on a table, furnished on all trestles, and covered with
some thick felts or foldoks of sheep's wool, on which the
dried shagreen skin may lie soft. This is hung in the
middle, by a hole which has been occasioned by the basting in
the stretching, to the hook, and fastened at the end by a
basting with a weight or a stone, by means of which the skin
is allowed to move to and fro, but cannot easily be moved
out of its proper situation. This done, the polishing or
raping is performed by two several instruments; the first
is called by the Tartars tokar, being an iron hooked at one
end like a hook and sharpened, the other the shagreen
serated very sharply, in order to remove the most prominent roughfes, which from the horne hardkens of the dried skyn is no other matter, and in which great care
must be taken not to have awy too deeply the impression
of the alabuta seeds, of which there is imminent danger if
the iron is 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 used the other fesper, or urak, by
which the whole surface acquires a perfect equality, and
only a slight impression remains of the seeds, exactly as it
ought to be. After all these operations the shagreen is laid
again in water, partly for rendering it supple and partly
to make the elevated grain appear; for the seeds having caused
pits in the surface of the skin, the interfaces of these pits have
left their prominent subtiance by the polishing or
shaving, and now the points that were pressed down, having
left nothing of their substance, spring up above the shaven
places, and thus form the grain of the shagreen. To this
end the pieces of shagreen are left to soften twice 24
hours in water, and are floated several times afterwards in a
strong and hot ley, which is obtained by boiling from an alkalefent
faine earth, fchora, found about Altrachan. From this ley
the skins are bundled warm one on another, and thus suffered
to lie some hours, by which they swell up and are softened in
an extraordinary manner. Again, they are left to lie
24 hours in a moderately strong brine of common salt, by
which they are rendered fine and white, and excellently
adapted to receive any agreeable colour, which the work-
man hantes to give them as soon as they are come out of
the pickle. The colour most commonly communicated to
the fine shagreen is the fea-green, as the most beautiful.
But the expert shagreen-makers have the art of making also
black, red, blue, and even white shagreen.

For the green dye, nothing more is necessary than fine
copper-filings and sal-ammoniac. As much of the latter
is melted in hot water as the water will admit. With this
sal-ammoniac water the shagreen skins, still moist from
the brine, are bruised over on the ungrained flesh-side, and
when they are thoroughly wetted, a thick layer of copper-filings

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is spread over them, the skins doubled together, so that the dried side lies inwards, and then each, being rolled apart in a little felt or voil, they lay all these rolls orderly on one another, and press them equally by a considerable and uniformly pressing weight, under which they must lie twenty-four hours. In this time the fial-ammoniac water diffolves enough of the cupreous particles for penetrating the skin with an agreeable sea-green colour; and though it be not strong enough the first time, yet a second layer of copper-dust, wetted with fial-ammoniac water, with which the skins must lie again twenty-four hours, will be quite sufficient for staining them thoroughly; when they may be properly cleaned, spread out, and dried. For giving the blue colour to thugreen, they use only indigo, which to this end is not so prepared as for the silk and cotton-dyers, but entirely without bones, only by friction, is mingled and dissolved with the other ingredients. They put about two pounds of finely grated indigo in the kettle, pour cold water on it, and stir it till the dye begins to dissolve. They next dissolve in it five pounds of pounded ala-dar, which is a sort of barilla, or raw foda-falt, burnt by the Armenians of Kitzilzor, and a worfe kind by the Kal- mumyes, adding two pounds of lime and one pound of virgin honey, all thoroughly stirred, and left in the fun for several days, during which the stirring is frequently repeated. The thugreen skins which are to be made blue must be put only in the natron ley, schora, but not in the brine made of common salt. They are again folded up wet, and fewed close together round the edges, with the flesh-side turned inwards, and the thugreened hair-side outwards, upon which they are three times dipped in succeffion in an old store-dye kettle, at every time pressing out the superfluous dye; lastly, they are all brought into fresh dye, which must not be pressed out, and with which the skin is hung up in the shade to dry; they are, for the last time, cleaned, ornamented on the edges, and reduced to order. For the black thugreen they employ nut-galls and vitriol in the following manner: the skins, still moist with the brine, are thickly spread with finely powdered nut-galls, folded together, and laid one on another twenty-four hours. In the mean time a new ley of bitter earth-falts or schora is boiled and poured hot in little trowsers or trays. In this ley each skin is waved to and fro several times, is again spread with pulverized nut-galls, and again laid in heaps for some time, that the virtue of the galls may thoroughly penetrate the skins, which are then suffered to dry, and are beat out to clear them from the galls. When this is done, the skin is leared on the thugreen-fide with mutton fat, and laid a little in the sun, that it may absorb the fat. It is the custom, likewise, with the thugreen-makers to roll up each skin apt, and to squeeze and press it against some solid body, in order to promote the absorption of the cuticular particles. The surplus is again scraped off with a blunt wooden scraper. This done, and the skin having lain a little while, a sufficient quantity of iron-vitriol is dissolved in water, with which the thugreen is rubbed on both sides, by which it soon acquires a beautiful black colour; and now the edges and other defective parts are dried. To obtain white thugreen, the skin must first be steeped in strong alum-water on the thugreened side. Having imbied this, the skin is well rubbed on both sides with a paste of wheat flour, and left to dry with it; then all the paste is washed away with alum-water, and the skin is let to dry completely in the sun. As soon as the skins are dry, they are gently fmooed over with clean melted mutton fat, leaving them in the fun to imbibe it, and are worked and pressed with the hands to promote this effect. Afterwards the skins are fastened one by one on the above-mentioned stretching-bench, warm water is poured over it, and the superfluous fat scraped off with obtuse wooden instruments, to which the warm water just poured on has much afflighed. By this process the thugreen receives a fine white colour, and needs only, in conclusion, to be drelled and rubbed. This whiteness, however, is given to the thugreen, not so much that it may continue in that state, but in order to impart to it a beautiful high red hue, as this end could not be obtained to such perfection without that preparation. But the thugreens intended to be stained red must not be brought out of the natron better falt ley into the brine, but must be made white, in the manner above-described, and afterwards supplied with the brine, in which they are left to lie about twenty-four hours, or less, from the dye. The dye is made with cochenille or kirmis, as the Tartars call it. The operation is begun by boiling for a full hour about a pound of the dried herb fretsh, which grows plentifully on the falt steppe about Attrachan, and is a fort of kali, in a kettle large enough to contain about four common vedros of water, by which the water acquires a greenish colour. The herb is thun taken out, and about half a pound of grated cochenille put into the kettle, with which the above decoction must be boil another full hour, diligently flirring 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 opium), 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, pressing it out every time, which done, they are ready for drying and ornamenting, and fell much dearer than the others.

The best thugreen is that brought from Constaninople, of a brownish colour; the white is thinned. It is extremely hard; yet, when dipped 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 thugreen: but this art is distinguished by its peeling off, which the first does not.

SHAGUM, in Geography, a river of America, which runs into lake Erie, N. lat. 41° 49′. W. long. 81° 27′.

SHAH, the Persian title corresponding to kia, and equivalent to khan. (See CHAM.) 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. —Afzo, a town of Hindooftan, in the circle of Sirhind; 42 miles E.S.E. of Sirhind.—Afzo, a town of Hindooftan, in Oude; 45 miles W. of Kairaband. N. lat. 27° 40′. E. long. 80° 20′. —Afzo, a town of Hindooftan, in Oude; 25 miles S.W. of Mahomdy.

SHAHAMA, a name given to a colossal statue, cut in a mountain in the neighbourhood of the ancient city of Bamian, in the East Indies. This city, (which is described in our article BANIAN,) is eight days' journey north-westther from Cabul, and is rarely visited by Europeans, though highly deserving of examination. The statue in question is accompanied by another, called Salpala. Native travellers...
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 comfort. 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 Jahangir," 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 Bamian, scooped, like Thebes, out of a mountain, were executed by the same 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 Salsette, near Bombay, in the province of Kanara, and at Karly; all believed to be of Jaina or Buddhist origin. See JAINA, KARLY, and KENERA.

SHAHBUNDER, in Geography, a town of Hindoostan, in the province of Tatta; 45 miles S.S.W. of Tatta.

SHAHDOURAS, a town of Hindoostan, in the circle of Sirhind; 10 miles N. of Tannafar.

SHAHG, a town of Hindoostan, in Myfore; 18 miles S. of Venecathery.

SHAHJEEHAN, a town of Hindoostan, in Bahar; 18 miles N.W. of Bahar.—Also, a town of Hindoostan, in Rohilcund; 45 miles S. of Pilibhit.

SHAHJEEHANPOUR, a town of Hindoostan, in Malwa; 20 miles N.E. of Ougin, N. lat. 23° 26'. E. long. 76° 18'.—Also, a town of Hindoostan, in Oude; 30 miles S.E. of Fyzabad. N. lat. 26° 26'. E. long. 82° 40'.—Also, a town of Hindoostan, in Mewat; 20 miles W. of Alvar.—Also, a town of Hindoostan, in Bahar; 14 miles S.S.E. of Patna. N. lat. 25° 24'. E. long. 85° 30'.

SHAHIGIAN, a town of Persia, in the province of Khorasan, near Maru, which since is called Maru Shahigian.

SHAHJOLE, a circar of Bengal, bounded on the north by Raajehly, on the east by Mahmudj, on the south by Jelfore, and on the west by Kifsenagur; about 30 miles long, and from 5 to 10 broad.

SHAHISABI, a town of Persia, in the province of Khorasan, on the borders of Bucharia; 80 miles N. of Maru.

SHAHISHAK, a town of Persia, in the province of Khorasan, on the borders of Bucharia; 5 miles N. of Maru.

SHAHPOUR, a town of Hindoostan, in Lahore; 30 miles W. of Nagorcote.—Also, a town of Hindoostan, in Lahore; 27 miles E. of Scalcot.

SHAHR and VAN, the ancient Apollonia, a town of the pachalic of Bagdad, 27 miles from Bacoob, which is nine furings from Bagdad, peopled by about 4000 Turks and Kurds, and is, upon the whole, a handsome little town, watered by two canals drawn from the Dilia. At the distance of 18 miles is Kuzul Roobat, not so large as the former, situated in a sandy plain, about one mile from the river Dilia. Khanaikie is also a handsome little town, built on that branch of the Dilia, which has its source in the mountains of Kurzend, 18 miles from Kuzul Roobat; it occupies both banks of the river, over which is a handsome bridge, and is surrounded by numerous gardens and plantations. Mendell, about the same size as Solymania, is situated in one of the roads leading to Kermaiah; and four furings on the Bagdad side is a fountain of naphtha. Thirteen leagues from Mendell, and four from the foot of the mountains, is Bedri, the frontier town, in this quarter of the Turkish empire.

SHAIKI, a town of Nubia, on an island in the Nile; 130 miles E. of Dongala. N. lat. 20° 20'. E. long. 50° 45'.

SHAPIOL, a town of Persia, in the province of Khorasan; 10 miles S.W. of Maru.

SHAIMA, a town of Persia, in the province of Meidan, on the sea-coast; 200 miles W.S.W. of Kedge.

SHAINT, or HOLT, ISLES, three small islands of the Hebrides, or Western isles, are situated in the channel between the isles 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 pasturage. 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 Hindoostan, in Combe- ton; 12 miles S. of Erroad.

SHAIZAR, a town of Syria, in the pachalic of Damascus, on the Orontes; 20 miles N. of Hamah.

SHAK, a town of Persia, in the province of Schirvan; 20 miles N.W. of Schamakche.

SHAKE, in Music, is a grace, an embellishment of melody, of which the indication is a ♮, or sometimes only †, 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 incipients, flow, and accelerated by degrees. The effect of a shake is a rapid motion of two adjoining notes: as dt, bc, &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 affilt 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 Tof's "Observations on florid Song," as admirably translated by Galliard, and illustrated with the notes of that able and experienced master.

Tofi, after informing the student of the importance of the shake to fingers, says, "Let the matter 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 whole tone and the femiton, are certainly the principal.

The
The two tones or semitones that constitute the shake major or minor, should be equally loud and distinct; but above all, perfectly in tune with the notes of the general scale and particular key in which the performer is fingering. The Italians call a bad shake, or no shake at all, but a quivering upon the same note, toffe da capra, a goat's cough. If the finger is not polished of a true and good shake, he or she had better refrain from ever attempting it; and if accustomed to elegant melody, and polished of good taste and ornamental embellishments, the shake in fongs of expression and pathos may be avoided with advantage.

As the acquiring of a good shake in fingering is a work of time, difficulty, and uncertainty of success, several ingenious and elegant cadences have been invented in order to evade the shake. A good shake well applied is certainly a great ornament; but it is a matter of brilliancy more than expression; non discerente, it says nothing—according to modern Italian critics, and is seldom wanted except at the end of a formal close. Those who have a good shake, like persons with a fine set of teeth, are too ambitious of letting you know it. The different kinds of shakes are expressed in notes on the music-plates. The plain note and trill are at present thought more elegant, and are more frequently used than the sudden and long continued rapid motion of the common shake.

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Close without a shake.

Shakes upon keyed instruments are best practised at first with the second and third fingers; holding down at the same time the fifth below with the thumb, to keep the hand and the wrist quiet. And we recommend, contrary to the usual practice and precepts, beginning the shake with the lowest note; otherwise, in rapid transient shakes on semi-quavers, there is not time for returning to the upper note; so that the shake is reduced to a mere appendage. See GRUPPO and TRILL.

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, and 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 second appearing of Christ was at hand, and that the church was rising in her full and transcendent 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 1770, 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 1758, 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 hath 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 fearfully persecuted, settled their temporal affairs in England, and left from Liverpool for New York. James Wardley and his wife remaining behind, were removed into an alms-house, 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 sprang 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 perfections. 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 fact revived in America, and the number of its adherents considerably increased.

The creed of the Shakers is very obscurely and mystically 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 system of the Shakers is thus very 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 crowned them in waiting for the day of redemption—and which was spoken of in the language of prophecy as a woman travelling with child, and pained 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 loft world, and her union and exaltation to Christ Jesus, her Lord and Head, she became the first born of many sisters, 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 sorrows of the fall, but also in condescending to the lowest estate of the los 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 cates which they pretend to be miraculous, but it is needless to enlarge on a system that is wholly founded in delusion.

SHAKERTOWN, in Geography, a town of Kentucky, in Mercer county, containing 256 inhabitants.

SHAKES, in Ship-building, a name given to the cracks or rents in a plank, &c. occasioned by the sun or weather.

SHAKING, a disease in sheep, consisting of a weakness 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 Pad.

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 risen 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��itious ordeal of investigation he has risen in glory and greatness; and may, at the present time, be justly pronounced pre-eminent and unrivalled 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 dissolution 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 honoured in his own country, or appreciated by his contemporaries. Although this maxim is now merely 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 death, his whole merits are gradually unfolded; his talents and genius command admiration, and every 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 flames as the sun of the intellectual hemisphere, and every other poet seems to derive a reflected light from him, or moves in a less circumsterted orbit. Like divine nature, which was at once
his guide and goddefs, his writings excite admiration and
delight, the more intensely they are studied. Prompted by
inspiration, and impelled with profound knowledge, with
the keen and acute "poet's eye," he commanded every re-
gion of the terrestrial globe, penetrated the hidden thoughts
of man, gave to "airy nothing a local habitation and a
name," and aligned to every passion and sentiment "its true
form and feature."

--- "'Tis wonderful,
That an invisible instinct should frame him
To poetry unlearned; honour untaught;
Civility not seen in other; knowledge
That wildly grew in him, yet yielded crops
As though it had been sown; for he could find
"Tongues in trees, books in the running brooks,
"Sermons in fountains, and good in every thing."—
Do not smile at me that I boast him off.
For ye shall find he will outstrip all praise,
And make it halt behind him. — Dovaston.

Heaven has him now: let our idolatrous fancy therefore
fancify his reliques. Despairing to be his equals, let us
profit by his precepts; seek to acquire his wisdom; emu-
late his gentleness, talents, and honours. Conscions of the
comparative frigndnrs of our own faculties, let us warm our
hearts at his celestial fire, and kindle our fous at his unex-
tinguishable flame! If enthusiasm be justifiable on any sub-
ject, the writer of the present article hopes to fland execed
in giving this latitude to his feelings and expressions. 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 Heren or Archimedes. In-
deed, before we proceed farther, it is necessary to premise,
that a singular and unaccountable mystéy is attached to
Shakespeare'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 in-
quiry. 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
unconsciously the highermént of his own writings; and that,
though he was much in the public world, and died in com-
parative affluence, his private life and character were fiercely
noticed by the biographer or critic. To the man of taste
and refined sensibility, he has, however, bequeathed an ex-
haustless treasure in his dramatic productions; and 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 ineludable author.

That he was born at Stratford-upon-Avon, in Warwick-
shire, on the 23rd 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 Shakespeare, who, according to Rowe, and most sub-
sequent biographers, was "a considerable dealer in wool,"
and whose "family were of good figure and fashion." Oppo-
posed 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 Shakespeare, 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
consideration.

"Mr. William Shakespeare was born at Stratford-upon-
Avon, in the county of Warwick; his father was a butcher;
and I have been told heretofore by some of the neighbours, that
when he was a boy he exercised his father's trade, but when he
kill'd a calf, he would do it in a high style, and make a
speech. There was at that time another butcher's son in this
towne that was held not at all inferior to him for a
natural wit, his acquaintance and countenance, but dyed
young. This Wm. being inclined naturally to poetry and
acting came to London, I guess about 18, and was an actor
at one of the play-houses, and did act exceedingly well.
Now B. Jonson was never a good actor, but an excellent
instructor. He began early to make eflays at dramatic poetry,
which at that time was very lowe, and his plays tooke well. He was a handfome well-fap'd man, very
good company, and of a very ready, and pleafant Smooth
witt. The humour of — the confable in A Midsummer
Night's Dreame he happened to take at Grondon in Bucks,
which is the roadc from London to Stratford, and there
was living that confable about 1642, when I firll came to
Oxon. Mr. Jos. Howe is of that parih, and knew him."—
(See Warton's Life of Sir Thomas Pope.) — Ben Jonson
and he did gather humour of men dayly wherevhere they
came. One time, as he was at the tavern at Stratford-upon-
Avon, one Combes, an old rich ufurer, was to be bured;
he makes there this extemporary epitaph:

Ten in the hundred the devil allows
But Combes will have twelve, he sweares and vowes:
If any one affkes who lies in this tome,
"Hoh!" quoth the devill, "tis my John o'Combe.

He was wont to goe to his native country once a yere.
I thinke I have bee informed that he left 2 or 300 lib. per annum
there and there about to a filter. I have heard fir Wm.
Davenent and Mr. Thomas Shadwell (who is counted the
bell comedian we have now) fay, that he had a moft pro-
digous wit, and did admire his natural parts beyond all
other dramaticall writers. He was wont to fay that he
never blotted out a line in his life: fayd Ben Jonson "I
wish he had blotted out a thousand." His comedies will
remain wat as long as the English tongue is understood,
for that he handles mores hominum; now our present writers re-
lect so much upon particular persons and coxcombities,
that twenty yeres hence they will not be understood.

"Though, as Ben Jonson fayes of him, that he had but
little Latin and leffe Greek, he understood Latin pretty
well, for he had been in his younger yeares a schoolmater
in the country." The latter fact was communicated by Mr.
Beefon.

In another memorandum Aubrey notes that
"Mr. William Shakespeare was wont to goe into War-
wickshire once a yere and did comunely in his journey lyt
at this house in Oxon" (i.e. the Crowne tavern, kept by
the father of sir William Davenant,) "where he was exceed-
ingly respected. * * * * Now fir Wm. would some-
times, when he was pleafant over a glaffe of wine with his
moll intimate friends,— e.g. Sam. Butler (author of Hu-
dibras) &c. fay, that it femed to him that he writ with
the very spirit that Shakespeare, and feemed contented
enough to be thought his fon * * * *"—These anecdotes
are now published in "Letters written by eminent Perfonns
in the Seventeenth and Eighteenth Centuries," three vols.
8vo. 1813.

This account is truly curious and interesting; and in
spite of the scepticism of Dr. Farmer, in his “Effay on the Learning of Shakspere,” and of some other writers, the impartial reader must admit that it affumes the air of probability, candour, and truth. Aubrey might have erred in some points; particularly in saying, Shakspere visited London at the age of eighteen, when the registry of his own baptism, and that of his twin-children, shewed that he must have remained at home till the age of twenty. Again, it is very probable that he met with a confable at Grendon, or Long-Crendon, in Buckinghamshire, whose character he dramatized, not in “A Midsummer Night’s Dream,” but in “Much ado about Nothing,” or in “Love’s Labour’s Lost.” The extempore epitaph 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 unreasonable, in a poet producing such lines sportively over his cups, and among convivial friends: it is a smart epigram on an unuruous character. Instead of leaving 300. per annum to a sister, he bequeathed as much to his daughter, as will be shown in the sequel. If there be any lurking prejudice against the profession of a butcher, let it be remembered, that the proud and ostentatious cardinal Wolley was the son of a butcher; and that the parentage of a Homer, a Milton, and a Shakspere, cannot be honoured or degraded by their ancestors.

“Honour and fame from no condition rise; Act 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 wool-stapler were united in one person. Admitting this, we shall find Rowe and Aubrey in harmony, and one great difficulty removed.

The early education of Shakspere, 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 ingenious, intelligent, and learned on this subject. Rowe observes, and many 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 Shakspere, was baptised May 26, 1583.” By the same record we learn that his wife produced him twins in 1584; and 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 into ill company,” he was induced, “more than once,” to afflict 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 satirical 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 appears improbable, and comes in such a questionable shape,” that before it 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 relying on this circumstance, or crediting another absurd story, of his holding horses at the door of a theatre for his livelihood, we shall find a rational motive for his visiting London, and resorting to the theatre, by knowing that he had a relative and townsman already established there, and in some estimation. This was Thomas Green, “a celebrated comedian.”

We now come to that era in the life of Shakspere, when he began to write his immortal dramas, and to develop those powers which have rendered him the delight and wonder of successive 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 delusion of authentic incidents marks every stage 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 judiciously confided by Malone to be both curious and interesting, he has appropriated to its examination a long and laborious essay. Chalmers, however, in his “First Part of King Henry VI.” published in 1589, and commonly attributed to Shakspere, 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 Shakspere’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.

According to Malone.

<table>
<thead>
<tr>
<th>Drama</th>
<th>1591</th>
<th>1595</th>
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<tr>
<td>The Third Part of Henry VI.</td>
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<td>A Midsummer Night’s Dream</td>
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<td>Comedy of Errors</td>
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<td>Taming of the Shrew</td>
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<td>Love’s Labour’s Lost</td>
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<td>Two Gentlemen of Verona</td>
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<td>Romeo and Juliet</td>
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<td>Hamlet</td>
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<td>King John</td>
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<td>King Richard III.</td>
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<td>First Part of Henry IV.</td>
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<tr>
<td>Second Part of Henry IV.</td>
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<td>1597</td>
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<tr>
<td>Merchant of Venice</td>
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<td>1597</td>
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<td>All’s Well that ends Well</td>
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<td>1599</td>
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<tr>
<td>King Henry V.</td>
<td>1599</td>
<td>1597</td>
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<tr>
<td>Much ado about Nothing</td>
<td>1600</td>
<td>1599</td>
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<td>As you like it</td>
<td>1600</td>
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<tr>
<td>Merry Wives of Windsor</td>
<td>1601</td>
<td>1596</td>
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<tr>
<td>King Henry VIII.</td>
<td>1601</td>
<td>1613</td>
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Troilus
SHAKESPEARE.

According to Mone.  
According to Chalmers.

Troilus and Cressida - 1602 1600
Measure for Measure - 1603 1604
The Winter’s Tale - 1604 1601
King Lear - 1605 1605
Cymbeline - 1605 1606
Macbeth - 1606 1606
Julius Caesar - 1607 1607
Antony and Cleopatra - 1608
Timon of Athens - 1609 1601
Coriolanus - 1610 1609
Othello - 1611 1614
The Tempest - 1612 1613
Twelfth Night - 1614 1613

Besides the above thirty-five plays, Shakspeare wrote some poetical pieces, which were at first published separately, viz.: “Venus and Adonis,” printed in 1593; “The Rape of Lucrece,” 1594; “The Passionate Pilgrim,” printed in 1599; “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 1000l. to make some purchase. If this be a fact, it is honourable to the liberality and good taste of the nobleman, and shows 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 to, and admired by, some illustrious personages. Queen Elizabeth, whose ear was perpetually affayed by fullsome panegyric, and who encouraged all sorts of silly shows, May-games, and buffoons, was not insensible of Shakespear’s talents; for the commanded 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, thebard 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 justly 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 amiable letter” with his own hand; probably to thank him for the compliment contained in the play of Macbeth.

Shakspeare, 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 perfonication of his own character of the ghost in Hamlet. Some passages in his own writings prove that he was well qualified to appreciate and to describe the essentials of good acting. 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 Shakspeare 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 Shakspeare’s, visited the metropolis, to obtain an act of parliament, or to settle some business relating to the inclosure of an open field, in which our poet was a party concerned. His memoranda are:

“Rec. 16. No. 1614, at 4 o’clock afr. noon, a letter fr. Mr. Bayli & Mr. Alderman, [the bailiff and chief alderman of Stratford-upon-Avon] dated 12. No. 1614, touching the inclosure busynes. Jovis 17. No. [1614] my coven Shakspeare comings yesterday to town, I went to see him how he did. He told me that they [the parties wishing to inclose] affurred him they meant to inclose no further than to Godspel bush, & so uppy straight (leaving out pt. of the Dungelys to the field) to the gate in Clapton heig & take in Salibury’s pce; & that they mean in April to fvey, the land & thyn to gyve fatisfaction & not before: & he & Mr. Hall [Shakspeare’s fon-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] a Hall Innes, wryt ten, one to Mr. Manyring—another to Mr. Shakspeare, with almost all the company’s hands to eyther. I also wryt myselfe to my cni. [cousin] Shakspear, the coppyles of all our . . . . . then also a note of the inconveniences wold. . . . . . by the inclosure.” Another part of the memorandum states, that the town of Stratford was then “lying in the ashes of desolation.”

We find that Shakspeare 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 Shakspeare arms and crest, sculptured in bold relief. Beneath the bust are the following lines:

Judicio Pylivm, genio Socratem, arte Maronem,  
Terra tegit, populus xacet, olympus habet.

Stay, paller, why gosst thou by so faft,  
Read, if thou canst, whom envoyes death hath plaff  
Within this Monument, Shakspeare: whit whom  
Ovick natvr dde; whole name doth deck ys tombe  
Far more than cote; fish all yt he hath wright  
Leaves living art, but page to serve his witt.


On a flat flone, covering the grave, is this curious inscription:

Good fred for Jesvs’ sake forbeware,  
To digg the deat encoafed heare;  
Blest be ye man yt Spres these flones,  
And croid be ye yt moves my bones.

The common tradition is, that the four last lines were written by Shakspeare himself; but this notion has perhaps originated solely from the use of the word “my,” in the last line. The impression, 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.”
Mrs. Shakfpeare, who survived her husband eight years, was buried between his grave and the north wall of the chancel, under a stone inlaid with braies, and inscribed thus: “Here lyeth interred the bodye of Anne, wife of Mr. William Shakspere, who departed this life the 6th day of Avgust, 1623, being of the age of 67 yeares.”

Verea, tv Mater, tv lac vitamq. dedili,
Vae mihi; pro tanto mevne faixa dabo!
Qvam Mallem, amovest lapidem, bonus angel’ore
Exept vt Christus Corpus, imago tva,
Sed nil vota valent, vinias cito Christe refyrget,
Clavfs licet tvmvel mater, et altra petet.

The family of Shakspere, as already mentioned, consisted only of one son and two daughters. The son died in 1596; but both the daughters survived their father. The eldest, Susanna, married Dr. John Hall, a physician of Stratford, who is said to have obtained much reputation and practice. She brought her husband an only child, Elizabeth, who was buried, hrft to Thomas Naihe, esq. and afterwards to Sir John Barnard, of Abingdon, in Northamptonth: but had no issue by either of them. Judith, Shakspere’s second daughter, married Thomas Quercy, a gentleman of good family, by whom she had three children; but as none of them reached their twentieth year, they left no posterity.

Hence our poet’s last descendant was lady Barnard, who was buried at Abingdon, Feb. 17, 1669-70. Dr. Hall, her father, died Nov. 25, 1635, and her mother July 11, 1649; and both were interred in Stratford church under flat stones, bearing inscriptions to their respective memories.

Shakspere, by his will, yet extant in the office of the prerogative court in London, and bearing date the 25th day of March, 1616, made the following bequests.

To his daughter Judith he gave 150l. of lawful English money; one hundred to be paid in discharge of her marriage portion, within one year after his decease, and the remaining fifty upon her giving up, in favour of his elder sister, Susanna Hall, all 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 sister, Joan, or Jane Hart, for life, with residue to her children. He further gave to the said Judith a broad silver gilt bowl.

To his sister Joan, besides the contingent bequest above-mentioned, he gave twenty pounds and all his wearing apparel; also the house in Stratford, in which she 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 apiece; 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 Ruffell five pounds; to Francis Collins, esq. thirteen pounds of shilling 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 Condell, his “fellows;” also twenty shillings in gold to his godson, William Walker.

To his daughter, Susanna Hall, he bequeathed New-place, with its appurtenances; two meallouses 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 meallage or tenement, with the appurtenances, wherein one John Robinson dwellth, situated, lying, and being in the Blackfriars, London, near the Wardrobe; and all my other lands, tenements, and herediments whatsoever; to have and to hold all and singular the said premises, with their appurtenances, unto the said Susanna Hall, for and during the term of her natural life; and after her decease, to the first son of her body lawfully issue, and to the heirs male of the body of the said first son, lawfully issue; and for default of such issue, to the second son of her body lawfully issue, and to the heirs male of the body of the said second son lawfully issue; and for default of such issue, to the second son of his body lawfully issuing, and the heirs male of the body of the said second son lawfully issuing; and for default of such issue, to the second son of his body lawfully issuing; and for default of such issue, to the right heirs of me the said William Shakspere.”

To the said Susanna Hall and her husband, whom he appointed executors of his will, under the direction of Francis Collins and Thomas Ruffell, 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 inheritance 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 invertebrate 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 Shakspere,” in 1589-90, which excites some speculation 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 with the furniture;” besides, we do not hear of any other children by the poet.

The first collection of Shakspere’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 Izaac 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, prefixed to the list 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:

“Thus figure thou here from put: It was for gentle Shakspere cut, Wherein the graver had a fire With nature to outdo the life: O, could he but have drawne his wit As well in brasse, as he hath hit His face; the print would then surpass All that was ever writ in brasse. But, since he cannot, Reader, looke Not on his picture, but his Booke.” B. I.
SHAKESPEARE.

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 second edition of Shakespere's plays was published, in folio, in 1632, a third in 1664, and a fourth in 1665. These several impressions are usually denominated "ancient editions," because published within the first century after the death of the poet, and before any comments or elucidations were employed to expand the original text. Some of his dramas were published, in 4to., during his own life.

Of those 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 to 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 competition and justness 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 1745. Sir Thomas Hanmer next turned his attention to the illustration of Shakespere, 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 Shakespere'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, but 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 Hanmer, which was succeeded by an edition in 10 vols. 8vo. in 1773, by John 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 Shakespere, with notes by Joseph Rams, 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 passages, by the Rev. Mr. Ayseough. 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, "revised and augmented," in 15 vols. 8vo., was produced by Mr. Stevens. A fifth edition, in 21 vols. 8vo., was published in 1825, from the text and with the notes of Johnson, Steevens, and Reed; and another edition of 21 vols. with corrections, &c. appeared in 1831.

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 unauthentic 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 artifs of the first eminence. The same work was also printed in 4to. In 1805 was published an edition of Shakespere's plays in 10 vols. 8vo., with a prefatory effay by Alexander Chalmers, F.S.A. and a print to each play from a design by Henry Fuseli, efq. R.A. The last edition of this kind has just appeared in 7 vols. 18mo. with 250 engravings on wood, from the tasteful press of Whittingham.

Steevens estimated, at the time he published his notes on Shakespere, that "not less than 35,000 copies of our author's works" had been then dispersed; 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 Shakespere have progressively acquired considerable popularity; and that they now rank as chief, or the first thing, 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 represt by Garrick, Kemble, &c. as originally published by Condell and Hemyng, or reprinted verbatim from that text, the specta tors 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 production of one man of brilliant genius, will stimulate the emulation, and call into action the full powers of a creative mind.

Hence the British theatrical hemisphere has been repeatedly illuminated by the corruptions of Garrick, Henderson, Pritchard, Kemble, Siddons, Cooke, Young, and Kean; and these performers have derived no small portion of their justly acquired fame from the exquisite and powerful writings of the bard of Avon. Whil s the one may be considered as the creator of thought and inventor of character, the others have perfected and given "local habitation" and existence 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 confummate acting of Garrick tended, in a great degree, not only to revive the fame of Shakespere, but to augment and extend it. The peculiar powers of Betterton, and of his other dramatic predeccessors, have not been sufficiently defined to enable us to estimate their real talents; but those of the English Roscius have been commented on and described 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 historic personages, the public were additionally delighted and astonished with the amazing genius of the author. Since Garrick's time other actors have judiciously chosen some of Shakespere's characters, as best calculated to 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 personating many of our poet's great characters. As the former has acquired a well-earned fame in portraying Macbeth, Lear, Coriolanus, Prospero, Cardinal Wolsey, Richard, Hamlet, and Otello; 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 Ophlemon. Cooke displayed the characters of Richard the Third, Iago, and Shylock, with great skill and excellence; and in the present day, Kean has personated these characters, with that of Richard II. and Hamlet, so as to command the approbation of the most acute and intelligent critics.

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The number, variety, and versatility 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 he to be told that the whole of one mass before him. The number, variety, and versatility 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 he to be told that the whole of 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 philologist and poetical antiquary are much indebted. It was our intention to have given a concise account of the whole, but the whole would be too vast and repellant to the poetical mind. 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, until Malone accompanied it with notes to his edition of 1790. Mr. Alexander Chalmers, in an edition of 1805, has prefixed a "Sketch of the Life of Shakespeare," 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. Shakespeare's private characters, in his friendships, in his amusements, in his cloths, in his family, is no where before us."

The plays of Shakespeare are divided into three classes, and called in the first edition 4 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; but they 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 fullamed, though drawn out into three plays; and even the account of his death, given by his landlady, Mrs. Quickly, in the last 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 aged 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 sorry to see his friend Falstaff come to be 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 dcer-streaker, that he might have the opportunity of remembering his Warwickshire precursor 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 Shakespeare'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 designation of cruelty and mischief, as cannot agree either with the fyle or character of comedy, though usually ranked as such. Taken altogether, it is perhaps one of the most refined of Shakespeare'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 Belfanio 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 proprium communi dicere,"

it will be a hard task for any one to go beyond him in the description of the severer degrees and ages of a man's life. See the article Age.

His images are indeed everywhere so lively, that the thing he would represent stands out before you, and you possess 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 'tis bud, Feed on her damask cheek; she pin'd in thought, And fat 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 doggerel rhymes. But the greatness of this author's genius does nowhere 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 Shakespeare 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 shews 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 "Shakespeare 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 raises 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 Shakespeare lived under a kind of mere 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 be but a matter of great wonder, that he should have advanced dramatic poetry so far as he did.

"It is now a received article of literary faith in England, that notwithstanding the faults and defects with which Shakespeare abounds, and which were chiefly those of his age, no dramatist in any country has displayed such intimate
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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 sentiment expressed in the most forcible language." Dryden says, "he was a man, who, of all modern and, perhaps, ancient poets, had the largest and most comprehensive soul. All the images of nature were still present to him, and he drew them not laboriously, but luckily. When he desires any thing, you more than see it, you feel it too. He needed not the spectacles of books to read nature; he looked inwards, and found her there. I cannot say he is every where alike; were he so, I should do him injury to compare him with the greatest of mankind. He is many times flat and insipid: his comic wit degenerating into clenches, his ferious swelling into bombast. But he is always great, when some great occasion is presented to him. No man can ever say, he ever had a fit subject for his wit, and did not then raise himself as high above the rest of the poets,

"Quantum lenta solent inter viburna cupreli."

Shakespeare, like most men of pre-eminent talents, is said to have been much affailed by the attacks of envious rivals, notwithstanding that gentleness 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 Johnson; but Dr. Farmer departs from the received opinions on this subject, and thinks that, though Johnson was arrogant of his scholarship, and publicly professed a rivalry of Shakespeare, he was in private his friend and associate.

Pope, in his preface, says, that Jonson "loved" Shakespeare "as well as honoured his memory; celebrates the honesty, openness, and frankness of his temper; and only distinguishes, as he reasonably ought, between the real merit of the author, and the silly and derogatory applauses of the players." Mr. Gilchrist, who has been the most profound and acute of the many who have treated him with hostility, has published a pamphlet, to prove that Jonson was never a harsh or an envious rival of Shakespeare; 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 not 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 perfons into whose hands it was put, after having turned it carelessly and superciliously over, were just upon returning it to him with an ill-tempered answer, that it would be of no service to their company, when Shakespeare luckily cast his eye upon it, and found something so well in it, as to engage him to read it through, and afterwards to recommend Mr. Jonson and his writings to the public."

The opposition or rivalry of Shakespeare 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 Shakespeare'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 collegiate learning were regarded in those days as the chief criteria of merit. Accordingly Jonson's charge against Shakespeare was the want of that species of knowledge; and upon his own proficiency in it, he arrogated to himself a superiority over him. That all classical scholars, however, did not function. Jonson's pretensions, is certain; for among the greatest admirers of Shakespeare, was one of the most learned men of his age, the ever-memorable Hales. On one occasion, the latter, after listening in silence to a warm debate between Sir John Suckling and Jonson, is reported to have interposed by observing, "That if Shakespeare had not read the ancients, he had likewise not stolen any thing from them; and that if he (Jonson) would produce any one topic finely treated by any one of them, he would undertake to shew something on the same subject, at least as well written, by Shakespeare." A trial, it is added, being in consequence agreed to, 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 Shakespeare jubilee, at Stratford, under the direction of Garrick.


Shakespeare was fond of music, and not wholly ignorant of the art. He not only frequently introduces masques for music in his plays, but singing almost all his fourteen comedies; and even in most of his tragedies, where this wonderful and exquisite dramatist has manifested the same predilection for music as poetry.

In the "Tempell," the use that he has made of it is admirable, as well as the description of its effects. Act 1. sc. 5. Ariel, invisible, playing and singing to Ferdinand, says,
Where should this music be, i' th' air or earth?
It founds no more; and sure it waits upon
Some god o' th' island.

And afterwards:

"This is no mortal busines, 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. Shade-well, 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 refelt and published two of them, tells us, in his "Court Ayres, or Ballads," published at Oxford, 1660, that "Full fathom five," and "Where the bee suckes," had been first set by Robert Johnson, a composer contemporary with Shakespeare.

Act 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 long he acquaints Gonzalo of the danger he is in, his million has meaning. "While you here do firing live," &c.

Even Caliban talks well about music:

"The birds are full of notes,
Sounds and sweet airs, that give delight and hurt not."

Ariel never appears or is employed without music, which is sweetly described, and introduced with perfect propriety. Prospero calls for medicinal music:

"A solemn air, and the best comforter
To an unfetted fancy, cure thy brains."

Midsummer Night's Dream.

Act ii. 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 song and tune to such dance; as ballad, from ballata, Italian; &c. roundelay, from rondelet, old French, round, modern.

The ideas and language of fairyism are wonderfully imagined and supported in this play; and the use assigned to music happy and fitful.

Act iv. sc. 1. "Rural music, songs, &c." Poker and songs, narrow-bones and cleavers, falt-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.

Act 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 swain to the harp." This scene to imply a more ancient practice of castracion 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 scene 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 "Cynthia's Revels," speaks of the gamut or syllables of solmisation, ut, re, mi, fis, fol, la, which palfmifiers had made well known to his audience; so Shakespeare, in this play, act i. sc. 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, sing out, too sharp, too flat, concord, harsh descant, the mean ehoen, &c.

Act iv. sc. 7, there is a laboured description of the powers of poetry and music; Orpheus's lute, concert, spelt as now:

"— to their instruments
Tune a depearing dump,"—
or lament (lamentation), sung by a wretched and forsaking lover in the dump.

Sec. 2. A serenade, or nocturno, is introduced:

"— nowplaint to her window,
And give some evening music to her ear."

Enter Musicians.

"— now, gentlemen,
Let's tune, and to it lustily."

Song. "Who is Sylvia? what is she?" &c.

"Measure for Measure."

Though this play has left music in it than the three preceding, yet at the beginning of act iv. a song, from his own Passionate Pilgrim: "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 listening to music, the says:

"I cry you mercy, sir, and well could with
You had not found me here so musical."

To which the duke anwers:

"It's 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 Shakspere to substantiate, and does not very well agree with what he says in the "Tempest," of the innocuous efficacy of music. "Sounds and sweet airs, that give delight, and hurt not." Music may be applied to licentious poetry: but the poetry then 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 long or dance, could convey no impure ideas to an innocent imagination; so that Montesquieu'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."

Act ii. sc. 1. A flourish of cornets when the Moorish prince comes in.

Act ii. sc. 6. "The vile squeaking of the wry-neck'd life."


SHAKESPEARE.

Act iii. sc. 2. “Let music found, while he doth make his choice; Then, if he lose, he makes a swan-like end, Fading in music. — he may win; And what is music then? then music is As are these dulcet founds at break of day, That creep into the dreaming bride-groom’s ear, And summon him to marriage.”

Music within.

A song while Baffano examines the caskets:

“Tell me where is fancy bred,” &c.

The passages in the fifth act of this interisting play are beautiful, numerous, and celebrated:

“And bring your music forth into the air,” &c.

“soft illincs and the night

Become the touchs of sweet harmony.”

Jellica. “I am never merry when I hear sweet music.”

This is the initial of a well-known, and now proverbial, eulogium on modulated found: “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 lady.”

Still music. Song: “Then is there mirth in heav’n.”

Another song: “Wedding is great Juno’s crown.”

“Love’s Labour’s lost.”


This is a most beautiful and comprehensive requost: none of the fine arts can subsist, 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 daisies pied.” — And, “When icicles hang on the wall.”

“Winter’s Tale.”

Two nonsensical songs, by the rogue Autolycus:

“When daffodils begin to peere.” — “Jog on, jog on, the lost pathway.”

“He’s main musical.” This Autolycus is the true ancient minstrel, as described in the old Fabliaux. See Gen. Hist. Mus. vol. ii. p. 208.

A three-part catch, ready planned by the poet, and another pedlar’s song: “Will you buy any tape?”

“Twelfth Night.”

Act i. sc. 1. This play opens with a beautiful eulogium on music:

“If music be the food of love, play on,” &c.

The use of Evirati, in the same manner as at present, seems to have been well known at this time (about 1600). For Viola says:

“I’ll serve thee the doctor;

Thou shalt pretend me as a eunuch to him,

It may be worth thy pains, for I can sing,

And speak to him in many sorts of music,

That will allow me very worth his service.”

And the duke’s sensibility to the power of music is disclosed in the first interview, when he says to Viola:

“thy small pipe

Is as the maiden’s organ, thrill and found,

And all its emotivat—a woman’s part.

I know thy constellation is right apt

For this affair?”

Fupposing her to be a eunuch.

Act ii. sc. 3. The clown is asked for a love-song, and sings:

“O wiltfrels mine, where are you roaming?” &c. And

“What is love? ’tis not hereafter,” &c.

Ibid. They sing a catch, beginning,

“Hold thy peace.”

Sc. 4. Scraps of songs and catches are roared out by sir Toby, sir Andrew, and clown, as “Three merry men be we.” — “Tilly, valley, lady!” — “There dwell a man in Babylon, lady, lady.” — “O the twelfth day of December.” — “Farewel, dear heart, since I must needs be gone.” — “His eyes do thwew his days are almost done.” — “Shall I bid him go? what, an’ if you do?” — “Shall I bid him go, and spare not? O no, no, no, you dare not.”

All these, probably, were well known in Shakspeare’s time.

Sc. 5. The duke, who is as constant in his passion for music, as for Olivia, says:

— give me some music now—

Now, good Cesario, but that piece of song,

That old and antique song, we heard last night;

Methought, it did revived my passion much;

More than light airs, and recollected terms;

Of these most brisk and giddy-paced times:

— how dost thou like this tune? —

It gives a very echo to the seat

Where love is thron’d.”

Ibid. — the song we had last night—

— it is old and plain;

The spinners and the knitters in the fun,

And the free maids that weave their thread with bones.

Do use to chant it: it is silly footh,

And dally with the innocence of love,

Like the old age.”

Song: “Come away, come away, death.”

Act iv. sc. 4. The clown, as elsewhere, is much addicted to singing. Song, by the clown:

“When that I was a little tiny 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 fen 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 Shakspere'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 affectation of fingers. Baltazar, the musician and servant to Don Pedro, was perhaps thus named from the celebrated Baltazarini, called "De Beaujolayaux," 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."


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 boift'rous untun'd drums,
And harf' refounding trumpets dreadful bray."

Ibid. Mowbray, duke of Norfolk, on being ordered into banishment, says:

"My native English, now I must forego;
And now my tongue's ufe is to me no more,
Than an unfringed viol, or a harp;
Or, like a cunning instrument cas'd 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 clofe,
As the laft faple of sweets, is sweetest laft—"

Ibid. Sc. 3. Speaking of John of Gaunt's death:

"—all is faid,
His tongue is now a stringless instrument."

Act v. Sc. 10. Richard, in his prifon, fays:

"—Music do I hear?
Ha, ha! keep time: how low're sweet music is,
Where time is broke, and no proportion kept?"

Here he plays on musical terms for several lines.

All instruments played with the bow, in Shakspere's time, were frettet, 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? quot hfe: I'll fume with them."

"—then call'd I rafeal, filder,
And twangling Jack!"

alluding to a famous street musician of the time.

"First Part of Henry IV."

Act i. Sc. 2. Falstaff says 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 sung to filthy tunes, let a cup of fack be my poifon."

Act iii. Sc. 3. "—thy tongue
Makes Welch as sweet as ditties highly pinn'd,
Sung by a fair queen in a fummer's bow'rs,
With ravifhing divifion to her lip's."

"Second Part of Henry IV."

Induction. "—Rumour is a pipe,
Blown by furnifes, jealousies, conjectures;
And of too eafy and too plain a flop,
That the blunt moniler with uncounted heads,
The fill discordant wavering multitude,
Can play upon it."

We advanced no farther in hunting through the pleafant wilds of Shakspere; but in dipping accidentally, the following paffages 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 content,
Congrening in a full and natural clofe,
Like music."

In "Othello," Act iv. Sc. 13. Desdemona says:

"My mother had a maid, called Barbara;
She was in love; and he, the lovd, prov'd mad (faffe),
And did forfake her: she had a song of willow,
An old thing 'twas, but it expres'd her fortune,
And she did finge 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 finge it like poor Barbara."

"King Lear," Act i. Sc. 7. "O, these eclipses portend these divisions! fa, fol, la, mi."

None of the commentators have hitherto been sufficiently skilled in music to fay the meaning of these fyllables in folfatation, which imply a feries of founds fo unnatural, that ancient musicians prohibited their ufe. "Mi contra faeul disbolus," Shakspere, however, fews by the context, that he was well acquainted with the property of the musical intervals contained in the tritone, or sharp fourth, which confifiting of three tones, without the interversion of a femitone, is extremely difficult to finge, and difagreable when
when fung, if mi, or fa, is the last note of the phrase or passage.

Shakespeare’s Cliff, 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 splits or clefis, and will not bear the falling line, or when fawn into plank the creaking.

Shal, in Geography, a district of Persia, in Balouchistan, the country of the Balouches, which is confidered by some as a province distinct from Mekran (the ancient Gedroia), and which commences at Koohme (the hilly road), 25 miles N.E. of Bayla, or in N. lat. 26° 35', and extends to Noohky, 79 miles N.W. of Kelat, or in N. lat. 39°. This country is a confedent maze 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 province of Zuhree and Anund Dijel; and to these may be added the small districts of Shal and Mulung, lying N. of Kelat. This is the most southern province of Balouchistan, and Sarawan (which see) is the most northern part of 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 Coraeean and Sonamay, whence it is shipped to Mufcat, the coast of Mekran, &c. Anund 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 Mulung are smaller than Anund 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 Zuhree.)

Of Balouchitan is Kelat, a town surrounded by a mud-wall, and containing 4000 houses, and about 7000 inhabitants, of whom about 500 are Hindus. The bazar of Kelat is well supplied, and the town appears opulent, being frequented by merchants, and carrying on a considerable trade. N. lat. 29° 6'. E. long. 67° 57'.

Shalberg, a mountain of Switzerland; 4 miles N. of Sargans.

Shalberis, a cirque of Hindoostan, bounded on the N. by Goragot and Bettoorah, on the E. and S. by Bettoorah, and on the W. by Bettoorah and Dinagepore; about 18 miles from N. to S. and nearly as much from E. to W. The chief town seems to be Carter. Shaldeah, a town of Hindoostan, in Bahar; 7 miles S.W. of Rotagur.

Shale, in Natural History, a variety of chelitose clay: the first variety is denominated flat black, the felcherion Then of Werner. (See Clay.) The second variety is bituminous slate, the brand felcherion of Werner, of a brownish-black, or blackish-brown, colour, appearing like bad coal; it is found in considerable stratified masses: lathre, or slices; transparence, 0; fracture flatly; fragments tabular; hardness, 5; sp. gr., about 2600; breaks somewhat glossy; effervescing, though very slowly, with the mineral acids: feeling rather greasy; placed on burning coals, it burns 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 Tabular Spar.

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 formed 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. Eff. vol. ii. p. 315. See Alum.

This kind of slate forms large stratified in Derbyshire; and that which lies near the surface of the earth is of a softer and more shivery texture than that which lies deeper. It is also found in large stratified, generally above the coal, in most coal counties of this kingdom. Dr. Short informs us, that the shale wafles 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.

Shallop, Shallop, or Sloop, is a small light vessel, with only a small main-mast, and fore-mast, and lug-sails, to hale up, and let down, on occasion. Shallop vessels are commonly good failers, and are therefore often used as tenders upon men of war.

The French shallop is a large-decked sloop of burden, used in Holland and Flanders, having one mast, carrying a gaff-main-sail. On the fore-side of the mast, above the gaff, is a short spar projecting forwards; to which is bent a long narrow sail, the tack of which is made fast to the stem, and the sheet to the side near the shrouds. On the bowsprit are set two or three jibs, and a small main is often fixed abaft that carries a mizen.

Shallop, 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 soils, some requiring to be nearly or quite on the surface of the ground, while others fland 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 consequently divided, as far as possible, into single buds or bulbs, and planted upon or rather above the surface of the ground, some very rich soil being placed underneath them, and the mould on each side raked to support them, until they became firmly rooted. This mould was then removed by means of a hoe, and the use of the watering-pot, and the bulbs of course left wholly out of the ground. The growth of the plants had now to bear 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 conflantly 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...
more abundant in quantity. It may consequently not be unworthy of the gardener’s attention. See the Transactions of the Horticulural Society of London, vol. ii. p. 97.

Shallop Creek, in Geography, a river of North Carolina, which runs into the Atlantic, N. lat. 33° 53’. W. long. 78° 28’.

Shallow. See Shool.

Shaltoch Cairn, in Geography, a mountain of Scotland, in Aythire; 12 miles E. of Girvan.

Sham, Ei. See Damascus.

Shamade, in W. See Shamade.

Shamal Apaleam, in Geography, a town of Hindoostan, in Coimbetore; 15 miles N.E. of Coimbetore.

Shamarashup, a town of Hindoostan, in Coimbetore; 18 miles S.W. of Erroad.

Shame, a river of West Florida, which runs into Pentaclea bay.

Shamble, or Shammel, in Mining, a term used to express a fort of rich, or landing place, left at certain distances in the adits of mines, and formed by a lage of boards. The method of digg ing the tin-mines in Devonshire, and some parts of Cornwall, is this; they sink their way in such a breadth as is sufficient for them to land and work, and at every fathom they leave a square place vacant, to which the ore is to be thrown up with shovels 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 shovel. Thus the ore, as it is dug by the beartmen, is thrown up by the shovelers, who follow them from shamble to shamble, till it comes to the top of the mine. This, however, is but an inconvenient way, and the use of these shambles is generally supplied by a winder 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. Trans. N°60. See Mining.

Shambles, or Shingles, in Geography, a bank of sand in the English Channel, near the coast of Dorsetshire, about four miles E. by S. from Portland Bill, with 14 feet at low water.

Shambrier, in the Manager, a long thong of leather, made fast to the end of a cane, in order to animate a horse, and punish him, if he refuses to obey the rider.

Shambypatam, in Geography, a town of Hindoostan, in the Carnatic; 36 miles S. of Tanjore.

Shamdara, a town of Allam, in the Burmanpo ter; 65 miles N.W. of Gerghonghe.

Shame, in Ethics. See Passion.

Shameran, in Geography, a town of Curdian; 18 miles S. of Sherezur.

Shammy, Chamy, or Chamois, a kind of leather, either dressed in oil, or tanned; much esteemed for its softness, pliability, &c.

It is prepared from the skin of the chamois, or shamoo, a kind of rupicapra, or wild goat, called also ifard, inhabiting the mountains of Dauphinie, Savoy, Piedmont, and the Pyrenees. See Chamois.

Besides the softness and warmth of the leather, it has the faculty of bearing soap without damage; which renders it very useful in 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 counterfeited with common goat, kid, and even with sheep-skins; the practice of which makes a particular profession, called by the French shamoi-
the mill, they undergo a particular preparation called 
romalling; the most delicate and difficult of all the others. It 
conflicts in this, that, as soon as brought from the mill, 
they are steeped in a fix liquid, taken out, stretched 
on a round wooden leg, and the hair is scraped off with 
the knife; this makes them smooth, and, in working, to 
call a kind of fine koap. The difficulty is in scraping them 
evenly.

SHAMOKIN, in Geography, a town of Pennsylvania, 
in Northumberland county, containing 2027 inhabitants.

SHAMOKIN Creek, a river of Pennsylvania, which runs 
into the Susquehanna. N. lat. 40° 51'. W. long. 76° 53'.

SHAMZANGU, a town of Peru, in the province of 
Larillan.

SHANCORI, a town of Persian Armenia; 12 miles 
W.N.W. of Kauja.

SHANDECAN, Big, a town of New York, in the 
county of Ulster, 14 miles N.W. of Kingston.

SHANDECAN, Little, a town in the same county; 12 miles 
N.W. of Kingston.

SHANDYMUNGULUM, a town of Hindoo, in 
Baramaul; 8 miles E. of Namacul.

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; 115 miles W.S.W. from Dublin.

SHANGRA, a country of Africa, W. of Mocaranga.

SHANGRAP, a town of Hindoo, in Marawar; 20 miles 
S.S.E. of Tramul.

SHANK, in Conchology, the Sanscrit name of that 
species of shell, which gives its name to Europe in this 
branch of natural history. French and other foreign writers 
spell the word shank. The easy 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 buccinum, and is often seen beautifully 
coloured like a pheasant's breast. With the Hindoos, the 
shank is an object of mytical reverence. It is seen in one 
of the four hands of their deity Vishnu, and is one of his 
commonest attributes. Images and pictures of him are 
indeed distinguished 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 Kuramvanah 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 aiming 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 Mahabarat, 
Krithuna used a shell named Panchajanya, obtained in 
the manner related under our article Kasya, from a sea-
monster named Sankagura, which fee. Each chief in the 
war was allowed to bone a shell, to which, like the swords 
of our chivalous knights, distinct and significent names are given. 
In the portion of the Mahabarat translated by Mr. Wilkins, 
called Bhagavat Gita, the following passage occurs: "The 
ancient chief, and brother of the grand fire of the Kurus, 
then shouting with a voice as roaring lion, blew his shell 
to raise the spirit of the Kurus chief; and importantly insu-
merable shells, and other warlike instruments, refounded on all 
shells—the changour was excelle. Krithuna and Arjun, 
standing in a splendid chariot drawn by white horses, 
found their shells of celestial form; that blown by Krithuna 
was named Panchajanya; Arjun's, Devata. Bhim, of 
dreadful deeds, blew his capacious shell Pundra; and 
Yudhitya, the royal son of Koini, founded Ananta-Vijaya.
Nakal and Sahadeva blew their shells also, the one called 
Sugriva, the other Manipushpak; so that their thrill 
shuffling voices pierced the hearts of the Kurus, and 
recheced with a dreadful noise from heaven to earth." P. 29.

The shells in question are articles of commerce in India, 
to no inconsiderable extent. A changour fishery on the 
island of Ceylon is noticed by Mr. Cordiner. It is in the neigh-
bourhood of Maanar, (see Maanar), and yields, Mr. Cor-
diner says, a considerable revenue to government.
The shells, he says, are brought from the depth of two fathoms 
by divers, who, in a calm day can, from a boat, see them 
crawling at the bottom. Such as are of a spiral form are 
chiefly exported to Bengal, where they are sawed into rings 
of various sizes, and worn on the arms, legs, fingers, and 
toes of the Hindoos, both male and female. A changour 
opening to the right, that is with its spiral line contrary to 
its usual direction, is rarely met with, and is highly valued 
by myrtics and zealots. They always sell, Mr. Cordiner 
says, for their weight in gold. History of Ceylon, vol. ii. 
p. 6.

Univalves of the forre here alluded to, called heterostrophous 
by conchologists, are very rarely of any species, and are looked 
on with admiration in all countries; but with the enthusi-
sastic Hindoo in a degree unequalled. A Yogi, or Saniaifi 
of the Vaithnava sect, deems himself extremely happy in 
such an acquisition. The shell in question is frequently seen in the 
hands of itinerant holy beggars, and it is found in some 
of the temples and religious ceremonies of the Hindoos.

SHANK of an Anchor, on board a Ship. See Anchor.

SHANK of a Horse, in the Manege, the name of that part 
of the fore-leg which is between the knee and the fetlock, 
or pattern joint. The larger and broader the Shank is the 
better. It is known to be fo, by the back finew being at a 
distance from the bone, or well separated from it, and hav-
ing no kind of swelling betwixt it and the bone, which may 
cauc the leg to appear round.

SHANK, or Shank-panther, in a Ship, is a short chain fas-
tened under the foremast-cribrous, by a bolt, to the ship's 
seeds, having at the other end a rope fastened to it. On 
this Shank-panther the weight of the aft-part of the 
anchor rests, when it lies by the ship's side. The rope by 
which it is hauled up, is made fast about a timber-head. See 
Painter.

SHANK, Sheep, a sort of knot made on backflays, &c. to 
shorten them.

SHANKER, in Medicine. See Shankre.

SHANKLIN CHINE, in Geography, a ledge of rocks on 
the E. coast of the Isle of Wight, N. of Ludecomb Chine.

SHANMUKA, a name of a celebrated hero in Hindoo 
Mythology, more commonly called Kartikya; which fee. 
The name Shanmuka means with six mouths or faces, he 
being so represented; the reason of which is given under 
the article referred to. See also Seshti-Matriya, another 
of his names.

SHANNON, in Geography, the chief river of Ireland, 
and the largest in any island in the world. The name is sup-
posed to be derived from the Irish words shum, old, and 
non, a river. Other derivations, however, are given, all of 
which seem equally fanciful and uncertain; as the names of 
rivers are in general more ancient than even the names of the 
states through which they flow. Prokemy calls the Shan-
non Srum; Orolius, Senn; and Æthicus, Steena. 
It is called by Girdalus Cambrenis Flumen Senufis; who
SHANNON.

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 Clonfert 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 eall to well, 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 Brolin, which forms a fine confluence with the Shannon above Banagher; and the Lefler Brolin, 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 Maig, Deel, Ovan, Cummage, Feale, Oyle, and Callin. 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 infular river, but discharges much more water into the ocean than any continental stream whatever, running to short a distance than two hundred miles. Camden seems to credit a tradition, commonly believed in his time, of a gradual increase in the number and size 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 be divided into three parts, the first will be found to measure from one to three miles broad; the middle division increases to about six, and the third to ten miles in breadth. The foundings of the mouth have already been 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, and is much 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 Kilbaha, Carigahault, Clonderlaw, and Laphabeda, besides the commodious harbour of Poulainish, near Kilruth, 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 Lean, or Loop Head, on the other side, is still narrower; having at its extremity a light-houfe, in N. lat. 52° 20'. W. long. 10° 12'.

The navigation between the Upper and Lower Shannon was formerly impeded by the noted cataract near Callyconnel, 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 above Banagher. (See our article CANAL.) It may be observed, that the Shannon nearly imitates Connaught with the county of Clare; and that if a canal, of about four miles in length, were cut from Lough Ree to the river Bonnet, which falls into Sligo bay, the insular 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, oberves 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 50lbs. each. Trout, bream, cel, gillaroo, &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 there; so that what Spenser says of the Trent may be truly applied to the bounteous Shannon, which

——"Within itself enfeames,
Both thirty forts of fish, and thirty Candy streams."

The Shannon forms a very important subject in the ancient history of Ireland. Trollemy mentions three large cities on its banks, called Regia, Macolicum, and Regia Altera. But his editors, Mercator and Ortelius, do not exactly agree in their maps as to the situations, and no vestiges remain to settle the question. The general opinion is, that Regia was on the east side of Lough Ree, and the names correspond, as Regis signifies a King, in the Irish language. Macolicum is supposed, from the name, to have been at Melick, 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 unfrequently was made the scene of naval engagements, particularly below Limerick. The following curious instance is recorded in the Annals of Mnundlé, and quoted by Archdall. "This year (1665), Hugh O'Kuark, king of Briefne, in company with Thady O'Kelly, king of Maine, were defeated by Hugh O'Connor, king of Connaught, who totally overthrew their whole army, and sunk and dispersed their fleet on the Shannon." (Monastic 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 by the "Infusa Sacra et Sanctorum," or, to use the words of Dr. Johnson, "the pious and hospitable school of the well." During that period many of those isles were dedicated to the service of religion, and numerous vestiges still are seen in the remains of churches, abbeys, and other monastic institutions. The holy isle in Lough Derg has already noticed, and there are many others of a similar description, which are still held in pious veneration by the multitude, and are much referred to on certain festivals. We shall mention only another, which is Inniscattery, in the mouth of the Shannon, about twenty mile

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 monastary dedicated to St. Senan, who founded here an episcopal see about the time of St. Patrick. There are likewise the ruins of seven churches, out of eleven which were here in queen Elizabeth's time. An ancient round tower of one hundred and twenty feet in height, and in complete repair, graces the scene." For a more particular account of these "Infusa Sacra et Sanctorum," see Gough's Camden; also Ware, Wilton, Archdall, &c.

The views of the Shannon are in many parts highly picturesque and sublime. We shall briefly notice three. The first is from a beautiful hill in Lower Ormond, called Knockshegowans, i.e. Oonagh's hill, so named as being the fabled residence of Oonagh, Spenser's Fairie Queen. From this eminence the river is seen to an extent of nearly twenty miles, apparently extending in its course. The second is from the admired ruins of Carrick O'Gunnel, 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 ocean. Among these authors may be mentioned Neham, 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 letatur Hibemia, Sineus Inter Connaught; Momoniame quin.
Transit per muros Limerici, Noc Patric illum
Oceanus datus sub ditione videt."

"Amid majestic streams, Hibernia's pride,
The noble Shannon bids her plains divide.
Leinster and Munster to the easterly bear,
With Connaught to the right, and lofty Clare;
By Linn'rick's walls he bends his lordly way,
While tributary streams their homage pay.
Till proud Knockpatrick views, from Delmond's coast,
This world of waters in the ocean loft."

SHANNON, a river of Canada, which runs into the N.E. part of lake Ontario.

SHANSCRIT, Sanscrit, Sanskrit, Sanscritam, or Shanfcrit language, is the original language of the Hindoos or Gentoos, in which their Shaffals, or Shafter, is written, &c.

The grand source of Indian literature, the parent of almost every dialect, from the Persian gulf to the China seas, lays the learned Hamled, in the Preface to his Gram.

mar of the Bengal Language, is the Shanfcrit; a language of the most venerable and unfathomable antiquity, which, although at present shut up in the libraries of Brahms, 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 astonishing to find the fimilitude of Shanfcrit words with those of Persian and Arabic, and even of Latin and Greek; and those not in technical and metaphorical 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, Napaual, Cashmire, and many other kingdoms, are all Ramped

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with Shanascrit letters, and mostly contain allusions to the old Shanascrit mythology: the fame conformity is also observable in the impressions of seals from Boonan and Thiibet. Besides, the arrangement of the Shanascrit alphabet is very different from that of any other quarter of the world. This extraordinary mode of combination still exists in the greatest part of the East, from the Indus to Pegu, in dialects now apparently unconnected, and in characters completely dissimilar; and affords a forcible argument that they are all derived from the same source. Moreover, the names of persons and places, of titles and dignities, which are open to general notice, and which are found even to the utmost limits of Asia, present manifest traces of the Shanascrit.

Another circumstance deserves to be mentioned, and that is, that the raja of Kifjenagur, a very learned and able antiquary of Bengal, affirmed, that he had in his own possession books which give an account of a communication formerly subsisting between India and Egypt, in which the Egyptians are described as disciples, and not as instructors; and as seeking that liberal education and those sciences at Hindooftan, which none of their own countrymen had sufficient knowledge to impart. But though these several proofs of the former prevalence of the Shanascrit are now thinly scattered over an immense continent, and interspersed with an infinite variety of extraneous matter, arising from every possible revolution in the manners and principles of the nations who have by turns cultivated or destroyed it; that part of Asia, between the Indus and the Ganges, still preserves the whole language pure and inviolate; and offers a thousand books to the perusal of the curious, many of which have been religiously handed down from the earliest periods of human existence.

H. T. Colebrooke, esq. has given us in the Asiatic Researches (vol. vii. p. 199, &c.), a literal translation of two passages cited from a treatise on rhetoric, compiled for the use of Maniycya Chandra, raja of Tirabhuuti, or Tirhubut, in which are enumerated the languages used by Hindoos poets. The first is as follows:—Sanferica, Pracrita, Paibachi, and Magadhi, are in short the four paths of poetry. The gods, &c. speak Sanferica; benevolent genii, Pracrita; wicked daemons, Paibachi; and men of low tribes and the reft, Magadhi. But fages deem Sanferica the chief of these four languages. It is used three ways; in prose, in verse, and in a mixture of both. Again, "Language, the virtuous have declared to be fourfold, Sanferica, or the polifhed dialect; Pracrita, or the vulgar dialect; Apabhranfa, or jargon; and Miura, or mixed. Sanferica is the fpeech of the celeftials, framed in grammatical inftitutes; Pracrita is similar to it, but manifelf as a provincial dialect, and otherwife; and thofe languages which are ungrammatical, are fpoken in their refpective diftricts." The Paibachi, says Mr. Colebrooke, feems to be giberifh, which dramatic poets make the daemons fpeak, when they bring thefe fantaflic beings on the stage. The mixture of languages, noticed in the second quotation, is that which is employed in dramas, as is expressly faid by the fame author in a subsequent verfe. It is not then a compound language, but a mixed dialogue, in which different perfons of the drama employ different idioms. Both the passages above quoted are therefore easily reconciled. They, in fact, notice only three tongues. 1. Shanascrit, a polifhed dialect, the defcifions of which, with all its numerous anomalies, are taught in grammatical inftitutes. This the dramatic poets put into the mouths of gods and of holy perfons. 2. Pracrita, confiting of provincial dialects, which are lefs refined, and have a more imperfect grammar. In dramas it is fpoken by women, benevolent genii, &c.

3. Magadhi, or Apabhranfa, a jargon deftitute of regular grammar. It is used by the vulgar, and varies in different diftricts: the poets accordingly introduce into the dialogue of plays a provincial jargon, fpoken by the loweft perfons of the drama.

Sanferica is the passive particle of a compound verb, formed by prefixing the preposition fam to the crude verb ceri, and by interpofing the letter s, when this compound is used in the fene of embellishment. Its literal meaning then is "adorned," and when applied to a language, it signifies "polifhed." Pracrita is a similar derivative from the same crude verb, with pra prefixed: the most common acceptance of this word is "outfit, or man of the lowest class:" as applied to a language, it signifies "vulgar." Apabhranfa is derived from ibraias, to fall down: it signifies a word, or dialect, which falls off from correct etymology. Grammarians use the Sanferica as signifying "duly formed or regularly inflected," and Apabhranfa for false grammar.

The languages of India are all comprehended in thefe three classes. The firt contains Shanascrit, a moft polifhed tongue, which was gradually refined until it became fixed in the classic writings of many elegant poets, moft of whom are suppos'd 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 fome fteps of its progres may even now be traced) from a primeval tongue, which was gradually refined in various climates, and became Shanascrit in India; Pahlavi in Persia; and Greek on the fhores of the Mediterranean. Like other very ancient languages, Shanascrit abounds in inflexions, which are, however, more anomalous in this, than in the other languages here alluded to; and which are even more fo in the obfolute dialect of the Vedas, than in the polifhed fpeech of the classic poets. It has nearly shared the fate of all ancient tongues, and is now become almoft a dead language; but there feems no good reafon for doubting, that it was once universally fpoken in India. Its name, and the reputed difficulty of its grammar, have led many perfons to imagine, that it has been refined by the concerted efforts of a few priests, who fen themselves about inventing a new language; not like all other tongues, by the gradually improved praftice of good writers and polite fpeakers. The exquitely refined fystem by which the grammar of Shanascrit is taught, has been mistaken for the reinfalment of the language itelf. The rules have been suppos'd to be anterior to the praftice, but this fuppoftion is gratuitous. In Shanascrit, as in every other known tongue, grammarians have not invented etymology, but have only contrived rules to teach what was already eflabllifhed by approved praftice.

There is one peculiarity of Shanascrit compositions which may alfo have fuggested the opinion, that it could never be a fpoken language. Mr. Colebrooke alludes to what might be termed the euphonifh orthography of Shanascrit. It confifts in extending to syntax the rules for the permutation of letters in etymology. Similar rules for avoiding incompatible sounds in compound terms exift in all languages; this is often times effected by a deviation from orthography in the pronunciation of words, fometimes by altering one or more letters to make the spelling correspond with the pronunciation. These rules have been more profoundly investigated by Hindoo grammarians than by thole of any other nation, and they have completed a fystem of orthography, which may be juftly termed euphonifh. They require all compound terms to be reduced to this fandard, and Shanascrit authors, it may be observed, delight in compounds of inordinate
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 good writers generally do so. In common speech this could never have been practiced. None but well-known compounds would be used by any speaker who wished to be understood, and each word would be distinctly articulated, independently of the terms which precede and follow it. Such indeed is the present practice of those who still speak the Shanfcrit language; and they deliver themselves with such fluency as is sufficient to prove, that Shanfcrit may have been spoken in former times with as much facility as the contemporary dialects of the Greek language, or the modern dialects of...Arabic tongue.

The father of Shanfcrit grammar, who first composed those grammatical institutions in which this language is formed, or by which words are correctly formed or inflected, was Panini, who lived in fo remote an age, that he ranks among those ancient sages, whose fabulous history occupies a conspicuous place in the "Puranas," or Indian theogonies. According to the Puranica legends, Panini was the grand-son of Devada, an inspired legislator; but whatever may be his history, to him the Sutras, or succinct aphorisms of grammar, are attributed by universal consent.

His system is grounded on a profound investigation of the analogies in both the regular and the anomalous inflexions of the Shanfcrit 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 conciseness; 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 his 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 casus which has universal cognizance. 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 inaccuracies of the Paniya grammar were corrected by Catyaayana, an inspired poet and lawgiver, whose history is involved in the impenetrable darkness of mythology. The amended rules of grammar have been formed into memorial verles by Bhartrihari, whose metrical aphorisms, entitled "Carics," have almost equal authority with the precepts of Panini, and emendations of Catyaayana. Bhartrihari is said to have lived in the century preceding the Christian era. The text of Panini being concise and ambiguous, many commentaries were composed to elucidate it, of the chief of which Mr. Colebrooke has given an account. The best and most concise commentary now extant, is entitled the "Carics vyriti," or commentary composed by Varnasa. Within a few centuries past, a grammar, well adapted for aiding the student in acquiring a critical knowledge of the Shanfcrit tongue, has been compiled by Ramachandra, entitled "Pracriyacumudi."

When Shanfcrit 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, sultans, physicians, and scribes; in short, by the first three tribes, and by many chales included in the fourth; an easy and popular grammar must have been needed by persons who could not waste the whole years of their lives in the study of words. Such grammars must always have been in use; though, however, which are now fluently are not, we believe, of very ancient date. The most esteemed is the "Saralwata," together with its commentary named "Chandrika." It seems to have been formed on one of the Cauumus, by translating Panini's rules into language that is intelligible, independently of the glosis, and without the necessity of adhering to a different context.

Another popular grammar, which is in high repute in Bengal, is entitled "Mug'dhabdha," and is accompanied by a commentary. It is the work of Vopadewa, and proceeds upon a plan grounded on that of the Cauumus; 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 "Cicalpadrлина," and is intended as a substitute for the "Dhatupata." The best and most esteemed vocabulary of the Shanfcrit is the "Amerca colha," which, like most other Shanfcrit 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. Shanfcrit etymologists scarcely acknowledge a single primitive amongst the verbs. When unable to trace an etymology which may be connective with the acceptance of the word, they are content to derive it according to 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.

Amerca's dictionary does not contain more than ten thousand different words. Yet the Shanfcrit language is very copious. The invention of derivatives, that do 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 Shanfcrit language is peculiarly rich, are likewise omitted; excepting such as are especially appropriated, by a limited limitation, 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 separate nomenclatures. The "Amerca colha" then is left defective than it might be inferred from the infallibility of the number of the words explained in it. Still, however, it needs a supplement. The remaining deficiencies of the Amerca are supplied by conflicting other dictionaries and vocabularies, which are very numerous.

The Shanfcrit language is very copious and nervous; 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 Shanfcrit language," says Sir William Jones (Afr. Ref. vol. i. p. 422), "whatever be its origin, 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. dhaut, or roots of verbs, jibbd, or original nouns, and avya, or particles. The latter are always indeclinable, as in other nations; but the words comprehended in the two former classes must be prepared by certain additions and inflexions 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 tone in the minute subdivision of declension or conjugation can be effected without the application of several rules, and all the different forms for every change of gender, number, case, person, tense, mood or degree, are methodically arranged for the assistance of the memory; resembling, though on an infinitely more extensive scale, the compilations of proprias que maribus and as in profeni.

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 impregnated 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 the terminations, whether for gender or number, 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 follows, viz.: 1. The nominative or agent in a sentence; 2. The passive case, or subject 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 fulfilled; 4. The dative, with the sign to or for; 5. The ablative, implying the subject from whence any thing proceeds; 6. The pujfet case, called by us the genitive; 7. The locative case, definitive 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 so 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 reflective tense; and the former is even the most extensive of the two in its use and offices; for in Greek the reflective idea can only be adopted intrinsically, 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 verb 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 conjugations, even in the minute particulars. All the terms which serve to qualify, to distinguish, or to augment either future or action, are clasped by the Shanfcrit grammarians under a head, literally signifying increase or addition. According to this arrangement, a simple 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 particularize or to amplify the noun, are denominated by a term which signifies predicatives or epithets; and such as are applied to denote relation or connection, are called connectives of nouns, and by European grammarians, prepositions; 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 Brahmins, 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 five of their vowels are merely the correpodent long ones to as many which are short, the advantage seems to be little more than imaginary. The Shanfcrit character, used in Upper Hindoo, is said to be the same original letter that was first delivered to the people by Brihma, and is called Devnagur, or the language of angels; whereas the character used by the Brahins of Bengal is by no means so ancient, and is evidently a corruption of the former. In the four bees, or vedas, which constitute the original and sacred text of the great Hindoo creator and legislator Brihma, the length of the vowels is expressed by a musical note or sign placed over every word; and in reading the bees, these inflexions of tone and time must be nicely 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 descended to them from the remotest ages. Some writers have erroneously asserted, that the four bees 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 Biskhi Mhamomé, or the Wise Wolf, a great writer and prophet, who is said to have lived in the sutter joges, or firm age of the world. See Halhed's Preface to his translation of the Code of Gentoo Laws, printed in 1776.

Dr. Leyden, in his account of the languages and literature of the Indo-Chinese nations, (Asiatic 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 Ilami. 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 Louvere, on the authority of d'Hébelot, has stated that the ancient Persian language was termed Pahalevi (Pahlavi), and that the Persians do not distinguish in writing between Pahali and Bahali. P. Paulinus, however, applies this term Bali inaccurately to the fquare Bali character, instead
of the language. This language, notwithstanding its extensive use among so many nations, and the degree of cultivation 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 Deva-nagari, though it has not only acquired considerable difference 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 Bali character varies essentially among the different nations by which it is used.

The Bali is an ancient dialect of Sanscrit, which sometimes 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 sylables, all the vocables which occur in its ancient books, seem to be purely Sanscrit. In Chentas and later compositions, however, some words of the popular languages of the country sometimes infuse themselves, in the same manner as Tamul, Telinga, and Canara vocables occasionally occur, in the later Sanscrit compositions of the Dekhin. The Bali, while it retains almost the whole extent of Sanscrit flexions, both in nouns and verbs, nevertheless employs this variety rather sparingly in composition, and affects the frequent introduction of the participial particle, and the use of imperonal verbs. It also uses the cases of nouns in a more indeterminate manner than the Sanscrit, and often confounds the active, neuter, and passive tenses of verbs. Like other derivative dialects, it occasionally uses Sanscrit nouns and particles in an oblique sense; but notwithstanding all these circumstances, it approaches much nearer the pure Sanscrit, than any other dialect, and exhibits a closer affinity to the Prakrit, and the Zend.

These three dialects, the Prakrit, the Bali, and the Zend, are probably the most ancient derivatives from the Sanscrit. The great mass of vocabularies in all the three, and even the forms of flexions, both in verbs and nouns, are derived from the Sanscrit, according to regular laws of elision, contraction, and permutation of letters. Sometimes, in pursuing these analogies, they nearly coincide, sometimes they differ considerably, sometimes one, and sometimes another of them approaches nearest to the original Sanscrit. 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 information, concerning the Bali, from Carpanius and Mantegatius. The fate of these three languages is also, in some degree, similar. The Prakrit is the language which contains the greater part of the sacred books of the Jains; the Bali is equally revered among the followers of Buddha; while the Zend, or sacred language of ancient Iran, has long enjoyed a similar rank among the Parsees or worshippers of fire, and been the depository of the sacred books of Zoroaster. It is perhaps, however, more accurate to consider all the three, rather as different dialects of the same derivative language, than as different languages; and comformably to this idea, the Bali itself may be reckoned a dialect of Prakrit. The term Prakrit, both in books, and in common use among the Bramins, 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 dramas. Sometimes it includes all the dialects derived immediately from the Sanscrit, whether denominated Prakrit, Magadhi, Surafeni, Paishachi, or Apabhrastra; and sometimes it is even extended to the Dasi-bhahlas, or popular tongues of India, as Mahrafi or Mahrrata, Canara, Telinga, Udia and Bengali. According to the extended use of the term Prakrit, it may certainly include both Bali and Zend; and if more extensive research should justify the idea derived from an imperfect investigation, Dr. Leyden apprehends that the Bali may be identified with the Magadhi, and the Zend with the Surseni, of Sanscrit authors.

The learned Mr. Colebrooke has published in the 10th volume of the Asiatic Researches, an elaborate essay on Sanscrit and Prakrit poetry. He observes, that the profody of Sanscrit 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 rhymes, and subject to laws imposéd in some inferences rigid restrictions, in others allowing ample latitude. The rules relative to Prakrit profody, are applicable, for the most part, to Sanscrit profody also; since the laws of verification in both languages are nearly the same.

Sanscrit profody admits of two sorts of metre; one governed by the number of syllables; and which is mostly uniform or monoschematic in profane 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 initials or matras.

The most common Sanscrit metre is the flanaz of four verbs, containing eight syllables each; and denominated from the name of the clafs "Anuflubh," for an account of which, and of other kinds of metres, we refer ubi fibra.

The Sanscrit writers notice different species of prose. They discriminate three and even four sorts, under different names. 1. Simple prose, admitting no compound terms. It is denominated "Mufcasa." 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 Sanscrit 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 Charnica. It is of course a common style of composition; and, when polished, is the most elegant as it is the chaste. But it does not command the admiration of Hindoo readers. 3. Prose abounding in compound words. It bears the appellation of "Utsala 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 suitable to the taste of the Indian learned, is common in the most elaborate works of their favourite authors. 4. Prose modulated so as to frequently exhibit portions of verse. It is named "Vrittawardhi." 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 "Telemache" of Fenelon and "Tod Ables" of Giffier. The most celebrated are the "Valavada" of Subandhu, the "Dafa Cumara" of Dandi, and the "Cadambari" of Vana.

For a further account of the Shanferit, see Language of Bengal, or Bengalese.

Exclusive of the Shanferit, there are three different dialects in the kingdom of Bengal, viz., the Persian, the Hindoostanee, and the proper Bengalee. See Persia and Persian Language, Hindostanee, and Bengalee.

SHA, in Geography. See Shanferit.

SHAONA, a town of Egypt, on the W. coast of the Red sea; 90 miles S.S.E. of Coffer.

SHAOUME, a town of Arabia, in the province of Hedsjas; 25 miles from Calaza el Mohsh.

SHAOUN, a town of Arabia, in the province of Hedsjas; 45 miles S. of Jambo.

SHAPARY, a town of Hindoostan, in the circuit of Gangour; 30 miles S.W. of Pads.

SHAPE, Inflammation of, among neat cattle, an affection in cows, arising in 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. Dugald Morison advises, after free bleeding, the following: Nitre in powder, two ounces; cream of tartar, three ounces; Calico 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 Course, 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 temporalities of the bishopric of Orkney. Almost the whole of it is capable of cultivation; but a great part yet remains in an neglected state, to the detriment, as well as to 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 Picts-houses ranged along the shores, like so many forts, together with tumuli, or barrows, in various situations. A monument 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 secularity 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, Lond. 1806.

SHAPLEY, a post-town of America, in Massachusetts, in the province of Maine, incorporated in 1785; 108 miles N. of Boston.

SHAPOTA HILLS, a mountainous ridge of Hindoostan, between the Merbuddah and Taptee; 60 miles E. of Surat.

SHAPORA, a town of Hindoostan, in the circuit of Rantapour; 45 miles W. of Rantapour.

SHAPOUR, a city of Persia, in the province of Farsit, is said to have been originally founded by Taimuras Deevand, who called it Deen Dar; it was destroyed by Alexander the Great, and subsequently built by Sapor, the son of Artaxerxes Babegan, who named it after himself. The ruins of this ancient city are distant about 16 miles from Kazerovers; 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 under the eastern range of mountains, on the banks of a small but rapid river, and in a wild, romantic spot, amid rocks and precipices, many of which are decorated with pieces of sculpture similar to those near Persopolis, for a description of which we refer to Kinneir's 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, further up the river, has given rise to many fabulous stories.

SHAPS, an island in the Chefsepeak; 27 miles S.S.E. of Annapolis. N. lat. 38° 46'. W. long. 76° 25'.

SHAR, or SHER-HOG, in Agriculture, a term signifying a yearling sheep, which has been once thorn. The same as lamb-hog. See Sheep.

SHARAF BENI GATEI, in Geography, a town of Arabia, in the province of Hedsjas; 25 miles N. of Madian.

SHARBASHI, a town of Turkish Armenia; 18 miles S.E. of Mouch.

SHARBIN, 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 constituted a portion of what is usually denominated the throat, which is of very great importance in the construction of this implement. (See Plough.) The dimensions are: 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-squared 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 rivetted to the wood; by means of this plate, the tail of the share is held firmly to the hinder flat of the plough by a small iron-pin, with a ferev on 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 steel, and should make an acute angle with the share. The socket is a fort of mortise; 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 edge of the share which enters into it. The upper edge of the fore-part must be always
always made to bear up against the heat; but if this end of the socket should not be quite so oblique as the heat, it may be helped by paring 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 contructions and the uses for which they are intended.

Lately, improved cast-iron plough-shares have been made by R. Ramfome, of Ipswich, Suffolk, for which he has obtained 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 baffle 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 pars over weeds without cutting or eradicating them. The same person also makes plough-ground, which are so contrived, 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 contrivances are said to be capable of being applied to all sorts of ploughs which have been already constructed, and are in use upon farms.

The broad share, which is used in Suffolk, is said to be a capital contrivance, whether invented in that district or in Kent. It serves to cut over pea and bean rubbles, or such weedy fallows as do not require ploughing. It consists of an oblong share two feet long, and four or five inches wide, fixed to the fock or front of the ground rif, by an iron shank in the middle, and occasionally bolted to the side of the fame rif of a wheel-plough. It is pitched with an inclination into the ground, capable of being raised or sunk at pleasure, by the elevation or depression of the beam on the gallow, anfwering the purpofe of the great skim of the ifle of Thanet, defcribed in Young's Eastern Tour. When the rubbles have been cut over with this tool, they are harrowed, raked, and burnt, the land being left in excellent order for wheat.

On cast-iron plough-shares a very simple and beneficial improvement has lately been made by a perfon of the name of Morland, in Berkshire. It is well known that when the point, or fock, of wrought-iron plough-shares wears out, they are capable of being renewed; but that, in cast-iron, the fufe is otherwise. By this invention and improvement, however, which is much approved of in the above county, the blunt point is capable of being dipped or defcribed in fuch a manner as to produce every effect which is wanted by the ploughman, when the share mufl have become quite useless without it. The cheapness and durability of castiron plough-shares render them highly defirable in all farming concerns where there is much ploughing to be done.

The whole is accomplished by the share having a fort of joint, and the top part taking in and out, and by a tuck that goes through the beam of the plough, which tralles or falls the point of the share.

SHAKE. Genus, principally a fort of ledge.

SHAREMAN'S CREEK, in Geography, a river of Pennsylvania, which runs into the Susquehanna, N. lat. 40° 26'. W. long. 72° 6'.

SHARK, in the Linnean fystem of Ithology, is a species of the fqualus. Pennant makes it a diftinct genus, the characters of which are thefe; the body is fender, and grows lefs towards the tail, it has two fins on the back, a rough skin; five orifices on the fides of the neck; the mouth generally placed far beneath the end of the nose; and the upper part of the tail longer than the lower. We know two different fih under the fame name of fhark, with the addition of their colour, blue and white.

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The blue fhark is that species of fqualus called glaucaus, and galus glaucaus, by authors, and diftinguifhed by Artedi by the name of the fqualus with a triangular dent, or furrow, in the extremity of the back, and with no foramina about the eyes. It is of a fine deep blue colour on the back, and of a bright silver white on the belly; the skin is smoother than that of the white fhark, and the nose long pointed, and somewhat flattened, and extending far beyond the mouth; the nostrils are long, and placed tranverfely; the tail is bifid, and one portion of it is much larger than the other; it is very voracious of human flesh, and will follow close under the fhor if there be depth enough, and a man is walking there. It is sometimes found on the English fhores, and has been caught on the Cornwall coalt, during the pelagif fefion, with large iron hooks, made on purpofe. Afin informs us, that this fih will permit the fmall brood, when in danger, to swim down its throat, and take fhelet in its belly; and the fact has been confirmed by Rondeletus. Mr. Pennant apprehends that this care of their young is not peculiar to this species, but common to the whole genus of fhark.

The other is the lamia, or canis carechosus, of authors, the fqualus carechosus of Linnaeus, commonly called by us simply the fhark. This is diftinguifhed by Artedi by the name of the fqualus with a flat back, and with numerous teeth, ferrated at the edges.

The white fhark, or lamia, is a very dreadful and voracious fih, the largest of all the fharfs. They have been feen of four thousand weight, with throats capable of swallowing a bulky man whole; nay, men have been found whole in them when opened. Some have, for this reafon, imagined this, and not the white, to have been the fih in whose belly the prophet Jonah lay. Swimmers very often peril by them; sometimes losing an arm or leg, and sometimes being bit quite afunder, and ferving only for two morfels for this ravenous animal. Its teeth are very fharf and terrible; they are difpofed in fix rows, and are all triangular, and notched like a faw on their edges; there are, in the whole, a hundred and forty-four in number, and are placed in various directions; their number is not exactly determinate; their teeth, when the fih is in a state of repofe, lie quite flat in the mouth, but when he fizes his prey, he has power of crefting them, by the help of a fet of mufcles that join them to the jaw; the mouth is placed far beneath; on which account these fihes, as well as the refl of the kind, are faid to be obliged to turn on their backs to fize their prey; which is an obfervation as ancient as the days of Pliny; its back is fhort and broad, in comparifon of the other fih of this kind, and its tail, which is of a femilunar form, compofed of two fins of a cubit in length each. This fih has furprifing ftrength in its tail, and can strike with great force; fo that the failors infantly cut it ofi with an ax, as soon as they draw one on board. The pectoral fins are very large, which enable it to swim with great fwiiftnefs; the colour of the whole body and fides is a light alf; its fkin is rough, and its eyes large and round. It is found both in the ocean and in the Mediterranean, and is of all fihes the most voracious of human flesh.

It has its name from the Greek λυχος, a voracious feeder, or gluton. The foffile bodies, called glaficopetra, or terps' tongues, and fupposed to be real fhorres, are the teeth of this fih.

SHARK. Fufking, Squalus maximus of Linnaeus, the name given by Mr. Pennant to a fih which inhabits the northern seas, as high as the arctic circle, and which was taken for a species of whale, till he pointed out the branchial orifces in the fides, and the perpendicular fite of the tail,
This species has been long known to the inhabitants of the south and west of Ireland and Scotland, and those of Caernarvonshire and Anglesea; they quit the bays of those 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 fished; lying motionless on the surface of the water, commonly on their bellies, but sometimes on their backs, as if to sun themselves; whence they are called basking sharks. Their food seems to consist entirely of fish-plants. Linnaeus says they feed on medusas. At certain times they are seen sporting on the waves, and leaping with great agility several feet out of the water; they swim deliberately, with the dorsal fins 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 cone, and sharpened; 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 five others; viz. two pectoral fins, two ventral fins, and a small anal fin; near these, the male has two gonites, as in other sharks; and between these fins was fixed by 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 dark leaden, and the belly white; the skin rough, like flagueen, but less so on the belly than on the back; within the mouth, towards the throat, was a very soft fore 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 swim up their tails, and prison end to the bottom, coiling the rope round them, and attempting to disengage themselves from the harpoon, by rolling on the ground. They swim away with such rapidity and violence, that there has been an instance of a vessel of seventy tons having been tossed away against a fresh gale; and they will employ the fishes for twelve, and sometimes twenty-four hours, before they are subdued. Pennant's British Zoology, vol. iii. p. 101, &c.

Shark, Hammer-headed, Squatius zigyna, 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 world, 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 semicircular at the front, and runs to fo thin and sharp an edge, that as the fish swims forward 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. Rondel, de Aquat. p. 549.

It is caught in the Mediterranean, and sometimes in different parts of the ocean. Some authors have called it zigyna, and others bhera; which last answers to the English name of the balance-fish.

Shark, Pickerel. See Acantias and Squalus. Shark, Long-tailed. See Sea-Fox and Squalus Vulpes. 

Shark, Spotted, Squatius Canicular of Linnaeus. See Squalus Canicular.

Shark, After Spotted, called the morgaen, or rough bound-fish, Squatius Canicular of Linnaeus. See Squalus Canicular.

Shark, Smooth, Squalus Mystus of Linnaeus. See Squalus Mystus.

Shark, called the tope, Squalus Galeus of Linnaeus. See Squalus Galeus.

Shark, called the angel or monk-fish, Squatius Squatina of Linnaeus. 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 Gotland; 9 miles S.S.W. of Nordkoping.

Sharkstown, a town of Maryland, on the island of Kent; 28 miles S.E. of Baltimore.

Sharm el-Kiman, or Sharm el Kaman, a port on the Red Sea, on the coast of Egypt. N. lat. 24° 44'.

Sharma, a town of Arabia, in the province of Hadramaut; 30 miles E.N.E. of Sahar.

Sharmagoel, a town of Persia, in the province of Choralian; 12 miles S. of Nea.

Sharmalik, a sea-port of Africa, on the Gold Coast; 13 miles W. of Commando.

Sharokee. See Shon.

Sharon, a town of the province of Maine; 40 N. of Portland.—Also, a town of Connecticut; 12 miles N.W. of Litchfield.—Also, a port-town of the state of New York; 23 miles W. of Albany.—Also, a township of Massachusetts; 10 miles S.W. of Bolton.—Also, a township of Vermont, on the White river; 6 miles N.W. of Norwich.

Sharp, Abraham, in Biography, an eminent mathematician, mechanist, and alfronomer, 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 Manchester, but being steadily attached to mathematical pursuits, he quitted his business and removed to Liverpool. Here he applied with great diligence to his favourite study, and procured a sufficient knowledge of languages, which he taught writing and the elements of arithmetic. He next went to London, with the view of associating with Mr. Flamstead, by whose interest he obtained a profitable employment in the dock-yard at Chatham, where he remained till he was invited to become the assistant of Flamstead at the Royal Observatory at Greenwich. In this situation he continued to make observations, and had a large share in forming a catalogue of 3000 fixed stars, with their latitudes and magnitudes; their right ascension and polar distance, and the variations of the same, 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. Flamsteed in calculating most of the tables in the second volume of his "Historia Celestis," and made curious drawings of the constellations, which were sent to Amsterdam to be engraved, and though executed by a masterly hand, the originals were said to have exceeded the engravings in beauty and accuracy. In 1689 Mr. Flamsteed 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 assistant. Mr. Smeaton, in a paper published in the Philosophical Transactions for the year 1786, 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 divisors upon astronomical instruments.

In 1717, Mr. Sharp published a work entitled "Geometry Improved," in which he engraved the figures as well as compiled 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 bales, 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 be 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 spent neither pains nor time to promote the interests of real science. But it is justly reckoned one of the ablest calculators of his time, his assistance was required by, and freely given to Flamsteed, Sir Jonas Moore, Dr. Halley, and others, in all difficult calculations. When he quitted Mr. Flamsteed, he retired to Little Horton, in Yorkshire, where he spent the remainder of his days, and where he died in July 1742, in the 91st 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 Chrift'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 Henage Finch, a family which he occupied about five years, when he obtained, through his patron's recommendation, the archdeaconry of Berkshire. When Sir Henage was raised to the post of keeper of the great seal, he manifested such confidence in the fidelity and judgment of his friend, as to commit to him the scrutiny 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 differed from the church, gave rise to a controversy, in which Dodwell, Baxter, and others engaged. In 1677 he was instituted to the rectory of St. Giles-in-the-Fields, in which parish he resided ten years. Among his parishioners was Richard Baxter, who, though he was himself a preacher on Sunday evenings, was a constant hearer of the rector in the mornings; and these two excellent men, notwithstanding their differences in some points, lived together upon the most friendly terms. In 1679 Mr. Sharp commenced 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 address of the grand-jury of London to his successor, to whom he was also nominally chaplain. After this he preached against popery, 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, Saxan, 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 irritated the adherents to William, by some offensive allusions in a prayer and sermon, which he delivered before the house of commons, who at first refused him their accumulated thanks, which, however, were voted afterwards. In 1689, Dr. Sharp was appointed the successor to Dr. Tillotson in the deanship 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 cauied him to be represented as a model of prelatical virtue, 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, containing 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. Biog. Brit.

Sharp, Thomas, younger son of the preceding, was born in Yorkshire, and admitted to 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 Davvcs appointed him his chaplain, and in 1730 he was collated to the rectory of Royston, in Northumberland, and was afterwards 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 whom 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
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 study; 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 polety, 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, either to die, or to gain a miserable support by precarious charity. In this deplorable 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 elapsed the memory of his benefactor, when Mr. Sharp received a letter from a peron, signing himself Somerset, confined in the Poultry Compron, flating 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 refor led him. Mr. Sharp instantly went to the prison, and found the Negro, who in sickness and misery had been discarded by his master, sent to prison as a runaway slave. The excellent patriotism went immediately to the lord mayor, William Nath, esq., who caused the parties to be brought before him; when, after a long hearing, the upright magistrate decided that the master had no property in the person of the Negro, in this country, and gave him his liberty. The matter instantly concurred him, in the presence of Mr. Sharp and the lord mayor, and informed 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 moli 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 least Claim of private Property in the Persons of Men in England." Having succeeded in the case of an individual Negro, he interred 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. Clarkson, in his "History of the Abolition of the Slave Trade." (See vol. 1. p. 63—70.) The following short account of him is extracted from the Edinburgh Review, vol. xiii.

"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 case 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, acquires freedom, but may be legally forced 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 such 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 Villanages," 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, insomuch 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 sittings, in January, February, and in May, of the year 1772, (the opinion of the judges having been taken up on the pleadings,) it is at last ascertained 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 sages of British glory, we can think of few whom we should feel a greater glow of honest pride in claiming as an ancestor, 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 vellum 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 affright 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 lent, 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 anything in his power to reme the torrent setting 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 tithings, hundreds, &c.; and the whole body of the people were to form a national militia, each hundred to constitute a regiment, the alderman or magistrate to be the colonel; and each hundred to constitute a company, the capable of each for the time being to be their captain. So many of the thousands to be summoned once in every year, by their magistrate, as would have a right to vote in their respective hundreds, before the capable, in the choice of their part of the representative legislature. Mr. Sharp has shown that the division of this kingdom into tythings 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 estabished church, and through life shewed a warm attachment to them. He always, even at the close of his 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 bishops from that country to the archbishop of Canterbury for consecration.

Mr. Sharp died in July 1813, and like Cato, though advanced to the age of 79, he pursued 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 Millenium, or personal reign of Christ on earth, in the spring of 1811; but he lived long enough to see his error. He posseesed a very extensive library, in which the theologian, lawyer, classical scholar, politician, antiquary, and orientalist, might find almost every thing of which they could stand in need; and his collection of bibles was esteemed the belt in the kingdom.

The principal works of Mr. Sharp, besides those already mentioned, are: Remarks on several very important Prophecies, Remarks on the Ufes of the definitive 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 alluded to conceal the real name. Mr. Sharp's last work was entitled Remarks on the 68th Psalm, addressed to the Consideration of the House of Israel. Monthly Mag. Gentleman's Mag. Edin. Rev. Clarkson's Hist. of the Abolition of the Slave Trade.

SHARP, Samuel, an able and distinguished surgeon in the middle of the last century, was a pupil of the celebrated Chevalier, and afterwards studied his profession with great zeal at the hospitals of Paris. He is said to have commenced his profession rather late in life; nevertheless, after settling in London, and obtaining an appointment as surgeon of Guy's Hospital, his genius and affinity soon obtained for him a high degree of celebrity, and extensive practice. He was elected a fellow of the Royal Society, and a foreign member of the Academy of Surgery at Paris; and he contributed to the improvement of his art by two valuable publications, which passed through many editions, and were translated into several foreign languages. The first of these was "A Treatise on the Operations of Surgery, with a Description and Representation of the Instruments; and an Introduction on the Nature and Treatment of Wounds, Abscesses, and Ulcers," first printed in 1739. Our edition, printed in 1751, is the fourth. The second work was entitled "A critical Inquiry into the Present State of Surgery," first printed, we believe, in 1750. Our edition of 1761 is the fourth. See Eloy Dict. Hist. de la Med., and Sharp's Works.

SHARP, in Muse, is a chromatic sign, marked thus, \( \sharp \), and elevates the note before which it is placed half a tone, without changing its name or place on the staff.

A sharp on a line or space, at the beginning of a movement, affects all the notes of the same name throughout the piece, contradicted by a natural, \( \flat \). See NATURAL.

An accidental sharp affects no note beyond the finger bar in which it occurs; but it always, when accompanied by a flat or lower part, implies a new modulation, except in minor keys, the sharp to the seventh of the key, which is a thing of course.

In the key of C with a sharp third, there are seven sharps at the clef, which implies that every note in the scale is elevated a semitone above its usual pitch.

\[ \begin{align*}
\text{C} \quad & \text{C} \\
\sharp \quad & \sharp \\
\sharp \quad & \sharp \\
\sharp \quad & \sharp \\
\sharp \quad & \sharp \\
\sharp \quad & \sharp \\
\sharp \quad & \sharp 
\end{align*} \]

In this key, an accidental sharp is marked by a double sharp \( \# \), usually called a "flat", or enharmonic sharp; which is.

SHARP the Bow-lines, in Sea Language. See BOWLING.

SHARP Nails. See NAIL.

SHARPE, Gregory, in Biography, a learned divine, was born in Yorkshire in the year 1713. He received his education first at Wellminton school, and afterwards at Aberdeen, under the learned Blackett. Upon his entering orders he became minister of St. Margaret's chapel, Wellminton; after this, he was appointed chaplain to the king, and master of the Temple. He was also elected a fellow of the Royal and Antiquarian Societies; and died in 1771. He united to great learning a taste for the fine arts, and etched several plates in the edition of Dr. Hyde's Syntagma. His own works are: 1. A Review of the Controvery about the Meaning of the Demonicis in the New Testament. 2. A Defence of Dr. Clarke against Leibnitz. 3. Two Disquisitions upon the Origin of Languages, and the Power of Letters; with a Hebrew Lexicon. 4. A Dissertation on the Origin and Structure of the Latin Language. 5. Two Arguments in Defence of Christianity. 6. Translation of Holberg's Introduction to Universal History. 7. Sermons.
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-irons, harrow-tines, &c.

SHARPING, in Ichthyology, the English name of the gatterofleus. 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 Kefehim.

SHARUT, Sainrat, or Sharoot, a small town of Peria, in Alterabad, called also Balin, is surrounded in some parts with a flight earthen wall. The houses, from a want of wood, are built of unburnt brick; 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 said to be severer at this place than in any part of Peria. This town, with its dependencies, yields a revenue of 1560 tomans. The position of the town is determined by two routes, one from Tehraun and the other from Tarshih.

SHASAD, or Shazadder, a town of Hindooftan, in the circcar of Sumbul; 16 miles S. of Sumbul.

SHASAVA, a town of Hindooftan; 18 miles S. of Agra.

SHASH, At. See Tassikund.

SHASHTI, in Mythology, a name of the Hindoo goddess Parvati; which see.

SHASK, in Geography, a town of Hindooftan, in Bagh- 

SHASSAIR, a town of Africa, in Biledulgerid; 7 miles N. of Fighig.

SHASTAH, Shaster, or Saffra, which latter is laid to be the correct spelling and pronunciation, the name of a facred 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 facred ordinance delivered by inspiration: properly, therefore, the word is applicable chiefly to facred literature.

The term Shaster denotes science or system; 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 Banians, called Sudderers, may read the Shaster; and the people, in general, are allowed to read only the Paran or Pouran, 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, becaufe the Indians attribute fouls 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 feats, prayers, and washings, which their law prescribes; that they tell no lies, nor are guilty of deceit in trade; that they neither opprefs nor offer violence to one another; that they celebrate the

solemn feasts and feafts, and appropriate certain hours of ordinary sleep to cultivate a disposition for prayer; and that they do not feal, 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 perform offerings and prayers under certain trees, set apart for this purpose; that they pray in the temple, make oblations to their padogas, or idoles, fing hymns, and make procelfions, &c.; that they profcribe pilgrimages to diftant rivers, and especially to the Ganges, there to wash themselves, and make offerings; that they make vows to particular fants, according to their refpective departments; that they render homage to the Deity, at the firft light of the fun; that they pay their refpect to the fun and moon, which are the two eyes of the Deity; and that they treat with particular veneration, thofe ani- mals that are deemed more pure than others, as the cow, buffalo, &c., because the fouls of men have tranfmi grated into these animals.

The third part of the Shaster records the distribution of the people into four claffes; the firft being that of the Bramins, or priests, appointed to inftitute the people: the second, that of the Kutteris, or nobles, who are the ma-giftrates: the third, that of the Shudderis, or merchants; and the fourth, that of the mechanics. Each perfon is required to remain in the clafs in which he was born, and to pursue the occupation affigned to him by the Shaster. According to the Bramins, the Shaster was imparted by God himfelf to Brahma, and by him to the Bramius, 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 confiderable progress in the translation of this book, apprehends, that the mythology, as well as the coignomy 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 grofsly mutilated and adulterated. With refpect to the Vedam and Shaitah, or feriptures of the Gentoons, this writer informes us that Vedam, in the Malabar language, signifies the fame as Shaitah in the Shancon; and that the firft book is followed by the Gentoons of the Malabar and Coromandel coasts, and also of the land of Ceylon. The Shaitah is followed by the Gentoons of the provinces of Bengal, and by all the Gentoons of the reit of India, commonly called India Proper, along the course of the rivers Ganges and Jumna to the Indus. Both these books, he fays, contain the inftinuates of their repective religion and worship, as well as the history of their ancient rafts and princes; often couched under allegory and fable: their antiquity is contended for by the partifans of each; but he thinks, that the fimilitude of their names, idols, and great part of their worhip, leares little room to doubt, nay, plainly evinces, that both these feriptures were originally one. He adds, if we compare the great purity and chaffe manners of the Shaitah, with the great aburdities and impurities of the Vedam, we need not hefitate to pronounce the latter a corrup- tion of the former.

With regard to the high original of these feriptures, the account of the Bramins is chiefly as follows. Brahma, g. d. Mighty Spirit, about four thoufand eight hundred and fixty- 

fix years ago, affirmed the form of man, and the government of Hindooftan. He translated the divine law (designed for the reftoration of mankind, who had offended in a pre-exi- dent
SHASTAH.

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 Sanscrit language, and called his translation the “Chartah Bhade Shafta” of Birmah, or the Six Scriptures of the Divine Words of the Mighty Spirit. He appointed the Brahmans, deriving their name from him, to preach the word of God; and the doctrines of the Shafta were accordingly preached in their original purity a thousand years. About this time there was published a paraphrase on the Chartah Bhade; and about five hundred years afterwards, a second exposition, called “Aungtorrah Bhade Shafta,” or eighteen Books of Divine Words, written in a character compounded of the common Hindoo lan and the Shanfric. This innovation produced a schism among the Gentoos; on which occasion, it is said, those of Coromandel and Malabar formed a scripture of their own, which they pretended to be founded on the Chartah Bhade of Birmah, and called it the Vedam of Birmah, or Divine Words of the Mighty Spirit. The original Chartah Bhade was thrown aside, and, at length, wholly unknown, except to a few families, who can still read and expound it in the Shanfric character. With the establishment of the Aungtorrah Bhade, and Vedam, 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 so obscure, and their ceremonies so numerous, that every head of a family was obliged to keep a Brahmin, as a guide both in faith and practice. Mr. Holwell is of opinion, that the Chartah Bhade, or original scriptures, are not copied from any other system of theology, promulgated to, or obstruded upon mankind. The Gentos do not attribute them to Zoroaster; and Mr. Holwell supposes, that both Zoroaster and Pythagoras visited Hindoostan, 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 in number, and, like the sacred writings of other nations, are not penned by the divinity. Bedas, he says, in the Shanfric 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 Brimage, at the creation of the world, delivered for the instruction of mankind; but they affirm, that their meaning was perverted in the first age by the ignorance and wickedness of some princes, whom they represent as evil spirits, who then haunted the earth. The first credible account we have of the Bedas is, that about the commencement of the calling, of which era the year 1768 was the 488th year, they were written, or rather collected, by a great philosopher, and reputed prophet, called Beafs Muni, or Beafs the Inpired.

The Hindoos, says Mr. Dow, are divided into two great religious sects: the followers of the doctrine of Bedang, which is the original Shafta, or commentary upon the Bedas; and those who adhere to the principles of the Ne- adiren. The original Shafta 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 Sorider 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 Coromandel coasts, are of this sect. The followers of the Bedang Shafta do not allow any physical evil exits; 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 detriment 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 consequences of evil actions; and, therefore, is no other than a consciousnes of our evil.

The Neadiren Shafta is said to have been written by a philoopher called Goutam, near four thousand years ago. The Bramins, from Mr. Dow’s account of their sacred books, appear to believe invariably in the unity, eternity, omniscience, and omnipotence of God; and the polytheism, of which they have been accused, is no more than a symbolic worship of the divine attributes, which they divide into three classes. Under the name of Brimage, they worship the wisdom and creative power of God, under the appellation of Bhishen, his providential and preserving quality; and under that of Shishah, that attribute which tends to destroy.

According to M. de Sainte-Croix, the Shafta, however extolled in Europe with respect to its antiquity, is posterior to the Vedam, being no more than the explication of it. Holwell’s Interesting Historical Events, &c. 8vo. Dow’s History of Hindoojtan, 4to. 1766. L’Ezour Vedam, &c. by M. de Sainte Croix, 12mo. Paris, 1779. See Gentoos, Shanscrit, and Vedam.

Six Sastras are commonly described as of superior sanctity, and are called the proper Sastras:—in these are comprised 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 fix Sastras, as being too holy for such prophane contemplation. (See Sudra.) As noticed under the article Ramayana, that book is reckoned too sublime for the perusal of the inferior classes. The Sudra may bear it read. An ample field, however, remains for them in the study of prophane literature, comprised in a multitude of popular books, which correspond with the several Sastras, 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 Sastra is, however, applied more extensively than the above account may seem to imply. For instance, a collection of tracts on arts and manufactures, is called Silpi Sastra. The name of Niti Sastra is given to a system of ethics. The Derdana Sastra is indeed one of the fix superior, and comprises an explanation of the principles of the fix 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 the source 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 Sastra; and it is sometimes rather vaguely applied. A Brahman deeply versed in sacred literature has the honourable title of Sastra added to his name; equivalent to our clericus. Sometimes he is distingished by it alone, and called the Sastra. There is also the Dharma Sastra, a body of ethics and ritual observances; the Agama Sastra, or occult ordinances. This latter has been suspected to have some reference to the Ogham of the west. See Ogham, and Omal.
Saffri, which was omitted in its proper place, is a name for the Hindoo deity Budha, or Boosh. The name signifies wisdom, or a wise man; and is still applied to, or alluded by, individuals, especially Brahmins, who are supposed to have acquired an extraordinary degree of learning or wisdom. As all profitable wisdom is presumed to be comprized in the Saffri, or sacred books, the title of Saffri is thence derived. It is sometimes appended similarly to the scholar's name; and he is at others called the Saffri, or Saffri falsib.—Mr. Saffri.

SHAMUN, in Geography, a town of Persia, in the province of Mavanderan; 30 miles E. of Eterabad.

SHAT-EL-AMAR, a name given by the Arabs to the Tigris.

SHAT-EL-DEAL, 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-Biez, which is a branch of the Tigris.

SHAT-EL-FRAATE, a name given by the Arabs to the Euphrates.

SHAT-EL-KRATU, in Mythology, one of the names of the Hindoo Indra, regent of the firmament. It means the hundred sacrifices; that is, he to whom a hundred sacrifices are offered; or rather, perhaps, he who has offered them. Indra, it is faided, obtained his present dignity by the great sacrifice 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, Nakhedia, and Riemha.

SHATNUT, in Geography, a town of Egypt, on the right bank of the Nile; 9 miles N. of Cairo.

SHATOOR, a town of Hindooftan, in Madura; 20 miles N.N.W. of Calpetta.

SHATORE, a town of Hindooflan, in Madura; 12 miles N.E. of Calpetta.

SHAT-UL-ARAB, one of the noblest rivers in the Eait, formed by the combined streams of the Euphrates and Tigris. The union of these streams takes place near Korna, or Corvy, 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 Bulflora 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 island, or delta, between the Shat-ul-Arab and the Bamiishna (the ancient Mefena) was formerly included in the pachalie of Bagdad; but having been conquered by Sheik Solymas 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 Hafur, are interfaced 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 Chuba, are covered with date-trees. The river Shat-ul-Ajew, signifying in Arabic a river of Persia, discharges itself on the Persian side into the Shat-ul-Arab, near Margil.

SHATZAM, a town of Persia, in the province of Mekran; 210 miles S.E. of Arokhage.

SHAVAKAT, a town of Turkeftan, on the Surr; 20 miles S. of Taphkund.

SHAUBACO, a town of Egypt, on the left bank of the Nile; 16 miles S. of Cairo.

SHAVE GRASS, in Botany. See Equisetum.

SHAVING-IRONS, among Gardiners, tools to keep a garden free from weeds, otherwise called edging-irons.

SHAVINGS, Horn, in Agriculture. See Manure.

SHAW, or SHAW, an article of female drefs, much prized in the East, and now well known in England. As the shaws 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 breast; but we now certainly know that it is the produce of a Thibet sheep. Bernier relates, that in his time, shaws made for the great omrals of the Thibetian wool, cost a hundred and fifty rupees; whereas those made of the wool of the country never cost more than fifty. For an account of their manufacture and value, see Cashmere.

SHAYOYA, or CHAYOYA, in Geography, a province of the empire of Morocco, situated to the S. of the kingdom of Fez, and W. of Tedla; inhabited by mountaineers addicted to robbery and violence. Towards the latter end of the last century refusing to pay tribute to the emperor, Muley Ismael, he marched an army, which, surrounding their strong holds on the mountains, compelled them to flight, leaving their wives and children, who were put to the sword, and the plunder distributed 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 Biography, was born at Kendal in 1692. He was educated at the grammar school of that town, and in 1711 was admitted of Queen's college, Oxford. Soon after he had taken orders, he was appointed chaplain to the English factory at Algiers, in which station he remained several years, making use of the opportunity which it afforded of travelling into various parts of Barbary, and into Egypt. In 1727 he was elected fellow of his college, in 1733 he commenced D.D., and in the following year he was elected a member of the Royal Society in London. In 1738 he published his “Travels, or Observations on several Parts of Barbary and the Levant,” to which a supplement was added in 1746; and about ten years afterwards the whole appeared in a second edition, with considerable improvements. Few books of the kind lend higher in reputation than Dr. Shaw's Travels, which contain many learned dissertations respecting the countries which he had visited, with divers remarks on their manners and customs, and valuable observations in natural history. They have been regarded as particularly useful in illuminating the scriptures by comparisons between the ancient and modern state of the eastern regions. Dr. Shaw, on his return from his travels, brought back a large collection of dried plants. He presented to the university of Oxford some relics of antiquity which he had collected, of three of which engravings were made in the “Marmora Oxoniensis.” In the year 1740 he was chosen principal of St. Edmund's Hall, and was at the same time prefented to the vicarage of Bramley in Hampshire. Soon after the regius professorship was conferred upon him, which he held till his death, in 1751. His Travels have been translated into various modern languages. An attack was made on them by Dr. Pocock, which led the author to defend them in his supplement, and in a letter of Dr. Clayton, bishop of Clogher.
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," 1731; "On Scurvy," 1736; "Essays in Artificial Philosophy," 1731; "On the Juice of the Grape," 1724; and he edited the "Dipensatory of the College of Physicians of Edinburgh," in 1727. See Eloy Diet. 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 Birton, in Buckinghamshire, of which place his father was vicar. He flourished, at a very early age, a great propensity 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 diligent 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 laid aside 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 prohibited a person in orders from filling the office. In 1787 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 acquirements 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 Stagnalis;" "Remarks on the Scolopendra Electrica and Scolopendra Subterranea;" "A Note to Mr. Kirby's Description of the new Species of Hirudo;" "Account of a minute Ichneumon;" "Description of the Species of Mycteris;" "Description of the Mus Bursarius, and Tubularia Magnifica;" "C poet, Dr. Shaw at this period delivered a course of lectures at the Leverian Museum, and never failed, as well before, as after, that rich and magnificent collection was removed from Leicester Fields, to attract very large and scientific audiences. In 1780 Dr. Shaw began to publish "The Naturalist's Miscellany," which came out in monthly numbers, and continued to his decease, when 286 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; "Musei Le- verniani explicatio Anglica et Latina, opera et studio Georgii Shaw, M.D. F. R. S. Adduntur figuræ elegantur sculptæ et colorata. Impenis Jacobii Parkinson." In 1794 Dr. Shaw, in conjunction with Dr. Smith and Mr. Sowerby, engaged in a splendid publication, illustrative of the accidents which had been made to 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 Gardener'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-pens, Dr. Shaw supplied the deficiency in a work entitled "Cimelia Physica: 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 exact 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, amphibious, insects, and part of the birds. The Linnean arrangement, with occasional variations, has been pursued throughout.

In the years 1806 and 1807, 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 comprehended 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 1807, 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 Transctions 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 bridged 1500 distinct articles, which he rendered still more interesting than the originals, by the insertion of Linnean and specific names, and by occasional annotations, and considerable references to subsequent authors of note, 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 fenes 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 pains 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 tribute 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 these improved by affuluous cultivation, he acquired a vast flock of general knowledge. His extensive information was treasured up without confusion, applied in his works with discernment, and communicated to every enquirer with cheerfulness and freedom." Gentlemen's Magazine, 1813, p. 290.

SHAW, Sydney, 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 consisting of 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 1793: 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 Fowl, 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. 50° 16'. E. long. 205° 16'.

SHAWABAD, a town of Hindoostan, in the circle of Rantampos, 35 miles S. of Sultanpoor.

SHAWANEE, a town of America, in the county of Randolph, and territory of Illinois, containing 830 inhabitants.

SHAWANEESE, the denomination of a tribe of Indians who inhabit Louisiana, on the Mississippi and St. Francis. The number of warriors is 300; that of the inhabitants 800; their 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 Tallapoosie river. By the treaty of peace, Aug. 3, 1795, the United States agreed to pay this tribe a sum 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 handsome in their features, and a cheerful, hardy 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 2809 inhabitants; 7 miles from Goshen and 12 from New Paltz.

SHAWGUNGE, a town of Hindoostan, in Allahabad; 32 miles N. of Gazypour.

SHAWI, in Botany, 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 preserved at Oxford. The orthography of the name is attended with difficulty to foreigners, our泽 being as unmanageable to them, as their multiplied confonants are to us. Some of them blunder into Shaweis, Shawoia, or Shaweia. Perhaps the latter might be tolerated, were it not for the ludicrous ambiguity of Shawin itself, applied by facetious Oxonians to the above famous traveller and his namesake.—Forster, Gen. t. 48, Prodr. 58, Schreb. Gen. 595, Mart. Mill. Dict. v. 7, Juff. 182, Lamarec. Dict. v. 7, 148. Clas. and order, Synonyma Monogynia, Forster. S. Polygynia-fegrae, Schreb. Nat. Ord. Compositae Nidiflora, Linn. Corymbiarefa, Juff.

Gen. Ch. Cal. Periathanum incirrillated, 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. Gèmen oblong, below the corolla, superior with respect to the calyx; style thread-shaped, longer than the corolla; stigma divided, spreading. Peric. none, except the unexpanded perianth of calyx. Seed solitary, oblong. Down capillary, woolly at its base. Recept. naked.


1. S. paniculata. Forster, 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 Solidago, under the name of undulata. Perhaps this is the most natural way of disposed of it; though if the calyx never contains but one floret, and is not in any way aggregate, the genus should stand in Pseudoria 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.

SHAWINGUNGE, in Geography, a town of Bengal; 18 miles W. of Rungpore. N. lat. 25° 27'. E. long. 88° 46'.

SHAWNAWAZ, a town of Hindoostan, in the subah of
of Moulton; 70 miles N.E. of Moulton. N. lat. 30° 40'.
E. long. 77° 38'.

SHEAP, a town of Bengal; 12 miles S.E. of Moorschabad.—Also, a town of Bengal; 30 miles S. of Calcutta. N. lat. 20° 57'. E. long. 88° 26'.—Also, a town of Hindooftan, in the circuit of Surgooga; 28 miles N. of Surgooga. N. lat. 23° 55'. E. long. 83° 25'.—Also, a town of Hindooftan, in Bener; 45 miles N.W. of Maltoy.

SHEA, a town of Hindooftan, in the circuit of Chandere; 45 miles W. of Chandere.

SHEAVERN, a considerible stream of America, in Massachusetts, which rises in Bedford county, Middlesex, and passing through Billerica, Tewkbury, and Andover, discharges itself into Merrimack river.

SHAYE, a town of Hindooftan, in Guzerat; 33 miles N.E. of Junagur.

SHAYSHAR, a town of Syria, anciently called Larije, 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'.

SHADAPOUR, a town of Hindooftan, in Bengal; 25 miles S.E. of Nattore. N. lat. 24° 12'. E. long. 89° 43'.

SHEARING, a riding, tything, or division, in the Isle of Man; the whole island being divided into six sheadings, 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. Sheaves are made of very different sizes in different places, but they are belt when not made too large.

SHEAF-CORN, such grain as is in the flake or ear in the straw before being threshed out. It is sometimes employed in this stage as fodder for different sorts of live stock.

SHEAF of Arrows, a bundle consisting of 24 in number.

SHEAGUR, in Geography, a town of Hindooftan, in Myfore; 4 miles W.N.W. of Vaniambaddy.

SHEALLINGS, 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 retiring to, and grazing their cattle-stock upon, at certain feasons of the year. Some fine well-feltered 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 grass of it; huts or city being provided for the companioning persons to live in, who had the care of the animals, &c.; a trusting servant being usually sent before hand to secure the spot, and drive away any wandering and tree-passing cattle from it. This person was denominated the poudler, perhaps because he was authorized to pound or confine troublesome stock, and fix the fine established for the trespas. In some eases there were more than one such spots, and where they were very rich, as near lakes, brooks, or in vallies, the grass was consumed in common by two or more of them associating together. The sheallings were by no means, as
SHEARING, another term commonly applied to a sheep that has been once thorn by sheep-masters.

SHEARPOR, in Geography, a town of Hindoostan, in Bengal, on the Burhampooter; 82 miles W.N.W. of Dacca. N. lat. 24° 53'. E. long. 89° 55'.

SHEAR, or Sheets, a name by which men call a young hog.

Sheet, 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, then hale the fore-fall, by the sheet, flat in, as near the ship's sides as they can; and this they call flatting in the fore-fall. When they say, cafe 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 loose, and hold no wind. The Lemmen say, when they would have the sheets of the main or fore-fall haled aft, hastily the sheets.

Sheets, in a Ship, also, are those planks under water which come along her run, and are clefted into the forecastle; so also that part within board, in the run of the ship, is called the flem-sheets.

Sheet, False. See Sheet.

Sheet, Overhale the, in Sea Language, a word of command to hale upon the standing part of the sheet.

Sheet-Anchor, in a Ship. See Anchor.

Sheet of a Plough, in Agriculture, that part of the plough which passes through the beam, and is fastened to the share. It is sometimes called sheet.

And the sheet, or as it is sometimes called, the fore-sheet, there being another piece of timber behind it, which is called the hinder-sheet, should be seven inches wide, and fastened to the beam by a rathe (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 sheet is fastened without having recourse to these means. The angle contained between the sheet and the beam of the plough should be about forty-two degrees.

SEATH, in Botany, is synonymous with spath, perichetium, and vagina. In the first instance it belongs to the single-leaved covering, turfing longitudinally, which Linnaeus reckons a kind of calyx, differing from a perianthium in being more or less remote from the flower. Such occurs in Galanthus, Narcissus, Allium, and others of the Hexandrous class; as also in Arum; and more especially in the natural order of Pala. The pericheium, fee that article, is the fcaly sheet, or calyx, of Mosses. Vagina, which will be further explained in its place, is the sheathing part of a leaf.

SHEATHING of a Ship, is the casing 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 plank, and then nailing on this new boards. But this hinders a ship's falling; and therefore, of late, some have been sheathed with milled lead, which is much smoother, and consequently better for falling; and also more cheap and durable than the other way. It was first invented by Sir Philip Howard, and major Watton.

The sheathing with copper is a still later invention, and answers better than any other.

It is very well worth the trying what the new fline pitch will do in this case; 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 scale off, as that will do, but keeps always soft and smooth. It has been found to continue on thirteen months, and to remain very black and soft all the time.

SHEAVE, a cylindrical wheel, made of hard wood or metal, moveable round a pin as its axis in a mortice, as being used to raise or decrease the mechanical powers, as a pulley, applied to remove or lift weighty bodies. Sheaves are either fixed in blocks, to form tackles, or let through the ship's sides, for affisting to lead the tacks and sheets on board, or in mortices 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 raise the anchor to the bow.

SHEAVES, in Rural Economy, provisionally the broken parts of the stems of flax which come away in dressing. Also the small bundles of grain in the straw.

SHEB, in Geography, a town of Nubia, on the borders of Egypt, on the route from Carje to Cobbe; 175 miles N. of Carje. This place is occasionally infested by a tribe of the wandering Arabs, called Abodé, who come from the neighbourhood of the Nile. Sheb is marked by the production of a great quantity of native alum, as the name imports. The surface, from which the alum is found, abounds with a reddish stone; and in many places is seen argillaceous earth.

SHEBAT, in Chronology, the eleventh month of the Jewish ecclesiastical year, answering to part of our January and February.

SHEBBY, or SHELBY, as Morse has it, in Geography, a county of Kentucky, in the United States, containing 14,453 inhabitants, of whom 2906 are slaves.

SHEBBYVILLE, a town of the forementioned county, containing 424 inhabitants, of whom 118 are slaves; so that the total in the county and town includes 14,877 inhabitants.

SHEBSHIR, a town of Egypt; 9 miles S. of Amrus.

SHEBUSTER, a town of Perfa, in the most picturesque, and, at the same time, the most flourishing division of Azerbaijan, which lies along the N. and W. borders of the lake of Uremea, from the Tabreez to the confines of Armenia. Shebuster is a large and flourishing town.

SHECATICA BAY, a bay on the S. coast of Labrador, N. lat. 51° 20'. W. long. 58° 20'.

SHECHALLION, or SHICALLION, a lofty mountain in the parish of Fortingall, district of Rannoch, and county of Perth, Scotland, is situated in the immediate vicinity of Loch Rannoch. It rises in a conical form, and hence derives its name, which signifies the maiden's breast. According to mensuration, its height is 3564 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 circumstance of its having been chosen by Dr. Malkeflure, late altronomer royal, for ascertaining the powers of mountains in attracting the pendulum. Sinclair's Statistical Account of Scotland, vol. ii. 1792. See Attraction of Mountains, and Mountains.

SHECHINAH, in the Jewish History, the name of that miraculous light, or visible glory, which was a symbol 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
the reader may consult part ii. chap. 2. of Mr. Lowman's Rationale of the Hebrew Ritual.

Toland, in his "Tetradymus," has attempted to prove, that this appearance had nothing miraculous in it, but was only a kind of beacon, used by the Israelites for their direction in their journey.

SHED BUILDING, in Agriculture, a term applied to any fort of flight temporary building.

SHED, Open, a fort of flight open building, for containing cattle, and various other uses in the farm-yard. See Cattle Shed.

SHED, in Rural Economy, a term signifying to part, with the fingers and thumb, wool, hair, &c. as in salving sheep.

SHEDDING of the Hair, in horses, is the cutting of the coat. See Moulting.

SHEDDIE, in Geography, a harbour on the E. coast of New Brunswick.

SHEDMA, a province of Morocco, containing 550,000 inhabitants. This province produces wheat and barley; its fruits are not so rich as those of the north, or of Sufe; it abounds however in cattle. Of goats it furnishes annually an incalculable number, the skins of which form a principal article of exportation from the port of Mogodor; and such are often the animosity and opposition among the merchants there, that they have sometimes given as much for the skin, as the animal itself was sold for. Honey, wax, and tobacco are produced in this province; the two former in great abundance; also gum arabic, called by the Arabs "Alk toh," but of an inferior quality to that of the Morocco district.

SHEDUAN, an island in the Red sea, about nine miles long and six broad. It is high and craggy, without wood or water; it is situated at about an equal distance between the two coasts of Egypt and Arabia. N. lat. 27° 34'.

SHEDWOOD, in Rural Economy, provincially rough poles of top wood. See Wood.

SHEEY MOUNTAINS, in Geography, the name of a range of mountains in the barony of Mulkerry, and western part of the county of Cork, in Ireland. Of these and other mountains along the confines of Kerry, it is observed by Mr. Townend, in his Statistical Survey, that though sometimes high, they generally want grandeur, and that the intermediate hollows are seldom marked with striking or romantic scenery. The adjoining lands are rude, rugged, and fanny in the extreme, with a very scanty intermixture of anything fair or fertile to relieve the eye amidst such a dreary waste.


SHEELIN, or, as Arrowmith spells it, Shillia, a lake on the south of the county of Cavan, Ireland, situated between it and the counties of Meath and Westmeath. The river Inn flows from this lake, of which Mr. Edgeworth has said, in his report to the Bog Commissioners, that it is in many places a fine deep river, and capable of being rendered navigable at a small expense, and to great national advantage.

SHEEP, in Zoology. See Ovis.

SHEEP, in Agriculture and Rural Economy, a well-known species or kind of live-flock kept by the farmer. The sheep belongs to the class of ruminant animals, or such as chew the cud, and of which there are different species, and varieties or breeds. And in its generic character it is distinguished by being with or without horns, which are hollow, wrinkled, turning backward, or inserted in a spirall manner. Eight front teeth in the lower jaw, in the upper none.

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 vast improvement and profit which they produce in the 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 might otherwise be nearly if not wholly useless. 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 flock: but those which have been less 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 stupid, 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 grazier, 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 consequence, especially for the grazier. 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 desribed with any correctness.

The characteristic circumstances by which they have been chiefly distinguished, are those of their poll-plucking 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 stated 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 fleece in each class follows the character of the wool; the short-woollen sheep being close in the grain as to fleece, consequently heavy in the scale, and highly-flavoured as to the table; the polled long-woollen sheep more open and loose in the grain, and larger in size. And by the author of "The present State of Hulbandry in Great Britain," they have been distributed under three general divisions, as below:

1. The mountain breed;
2. The short-woollen breed; and
3. The long-woollen breed.

And among the first are comprised several varieties, as the black-faced, which range on the mountains of Wales, Wellow-
SHEEP.

Welbmoreland, 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 of the Breeds or Varieties of Sheep in England.

<table>
<thead>
<tr>
<th>Names of Breeds</th>
<th>Weight of Fleece per Quarter</th>
<th>Age-Killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teeswater.</td>
<td>Long wool</td>
<td>2 years</td>
</tr>
<tr>
<td>2. Lincoln.</td>
<td>Long wool</td>
<td>3</td>
</tr>
<tr>
<td>3. New Leicester.</td>
<td>Long wool (fine)</td>
<td>2</td>
</tr>
<tr>
<td>4. Cotswold.</td>
<td>Long wool</td>
<td>3</td>
</tr>
<tr>
<td>5. Romney-Marsb.</td>
<td>Long wool (coarse)</td>
<td>2</td>
</tr>
<tr>
<td>6. Dartmoor or Bampton.</td>
<td>Short wool (fine)</td>
<td>2</td>
</tr>
<tr>
<td>7. Exmoor.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>8. Heath.</td>
<td>Short wool (fine)</td>
<td>4</td>
</tr>
<tr>
<td>9. Hereford, Ryeland.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>10. Norfolk, Shropshire.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>11. Dorset.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>12. Wilts.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>13. Berks.</td>
<td>Short wool (fine)</td>
<td>3</td>
</tr>
<tr>
<td>15. Norfolk.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>16. Longwool.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>17. Cheviot.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>18. Dun-faced.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>19. Shetland.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>20. Spanish.</td>
<td>Black and white</td>
<td>3</td>
</tr>
<tr>
<td>21. Ditto crosses</td>
<td>Black and white</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 grazer 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 constitution 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 form 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 is necessary to ascertain, in order for the farmer to draw and produce the utmost advantage possible from the combining, crossing, and rearing of them. All the breeds of sheep are the most distinct 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 stock as those of the Lincoln, greater attention seems to have been paid to size 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 seasons. 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 ewes 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 firm and heavy carcase 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 251bs. to 35lbs., and in particular
inances to 55lbs. or more. The wool is shorter and less
heavy than in that breed. However, the writer of the
"Treatise on Cattle," thinks that the breed is nearly worn
out; but he adds that there is a similar breed in Ireland.
This is a sort of sheep that has been little attended to,
but which, when improved by proper crossing, it is supposing,
would answer, and pay well in districts where it would be
well supported. In the Corrected Report of the State
of Agriculture in the Well Riding of Yorkshire, Mr. Par-
kinson supposes that an useful kind is capable of being
bred by crossing the ewes of this fort with Dibbly 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 fort
generally fall unhorned, at two years old, from 45s. to 5s.
a-piece, and weigh from twenty-four to thirty pounds the
quarter. They fell a great deal higher at the present time.

Lincolnshire Breed or Variety.—This is a breed of sheep
which is characterized by their having no horns; white faces;
long, thin, weak carcasses; thick, rough, white legs; bones
large; pelts thick; slow-feeding; mutton coarse-grained;
the weight per quarter in ewes from 12lbs. to 20lbs.; in
two-year old wethers from 20lbs. to 30lbs.; the wool
from 10 to 18 inches in length. And it is chiefly prevalent
in the districts which gives the name, and other rich grazing
places. But the writer of the work on Live-stock supposes
that this breed is now so generally improved by new Leice-
ter tupps, that they are probably, in a great measure, free
from those defects of the old breed, of which Mr. Culley,
with much reason, complained, namely, slow feeding, from
a looseheads of 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 same, at least, ill continues
great favourite at Smithfield, and the flavour of the Lin-
coln mutton has been generally held superior, as more
favour than the Dibbly. The new or improved Lincolns
have now finer bone, with broader joints and trussed carcasses,
and are among the best, if not actually the best, long-wooled
stock we have. Many will recollect the ridiculous and
indecorous squabbles, some years ago, between two eminent
breeders concerning these two breeds of sheep. About
this time, they attempted to feed Lincoln sheep on the
Effex marshes, and pretented the Dibbly degenerated, which
might happen from insufficiency of winter keep, or, if they
were feeding with cows, from cross with other breeds, an
overlasting and undervalued practice in those not professedly
breeding counties. This has been suggested as a breed only
capable of being made fat on the richest grazing lands;
but that in such cases it may probably be kept till three
years old, with greater profit than the new Leicesters.
The proportion of bone to mutton is considerable, and the
latter not very fine in quality. But the principal excel-
ence of the breed is in the large quantity which it affords,
which pays for their being kept longer before they are
fatted. Such breeds as feed quicker should however be
preferred by the farmer on moist lands of.

New Leicesters, or Dibbly Breed or Variety.—This is an
improved breed of sheep, which is readily distinguished
from the other long-wooled forts, according to Culley, by
having fine lively eyes; clean heads, without horns; straight,
broader, flat backs; round or barrel-shaped bodies; 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 other sheep of the long large-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 ten to fourteen inches.
But the author of the "Treatise on Live-Stock," char-
cterizes them as having a fulness of form and substan-
tial width of carcase, with a peculiar plainness and meekness
of countenance; the head long, thin, and leaning backward;
the neck projecting forward; the ears somewhat long, and
falling backward; great fulness of the fore-quarters;
legs of moderate length, and the finest bone; tail small;
fece well covering the body, of the shortest and finest
of the combining wools, the length of staple fix or seven
inches. The fore-foot, a term of the old school, current in the time
of Lisle, or that flap of skin and fat appended to the
ribs, and the inferior part of the shoulder, is remarkably
capacious in this breed. New Leicesters mutton, it is
believed, is the most finely grained of all the large long-wooled
species, but of a flavour bordering on the trivial. And it
is added, that it is reported, and with the largest probability,
from the appearance of the flock, the fineness of the wool,
and the grain of the mutton, that a Ryeland croft is a
prime instrument in the Dibbly improvement of sheep.
Probably the root or foundation was the Lincoln. In the
ordinary and gradual course of improvement or alteration
of form, it must have taken, it is thought, a long time and
vast pains, to mould the animals into that arthritic and
peculiar shape which distinguishes this remarkable variety,
unless indeed something nearly similar was suddenly
and fortuitously chopped upon, as will occasionally happen
when the rickle deity is good-humouredly disposed to spare
our labours.

It must be observed, that the great advantages of this
fort of sheep have been stated to consist in producing a better
profit to the farmer, in proportion to the quality of food
consumed, than most others; in being more perfectly formed,
and consequently more disposed to fatten quickly; in con-
taining a much larger proportion of meat on an equal weight
of bone; in thriving well on such pastures, as would not
support other forts of the same size and in being capable of
being kept or fattened in larger proportions to the other
breeds of the same size and in being capable of

The author of the "Treatise on Cattle," who seems
to object to the Leicesters breed, from its too great
propensity to fatten, which, he supposes, also abates the
procr
procreative and lactiferous powers, says, "Pure Difhley sheep are by no means the most prolific, nor the best nurser." And adds, that the heads of the improvers having had time to cool, it is no longer boasted, that new Leicesters are able to sufficit, and even thrive, on the shortest commons. In fine, it is contended, the merits of this flock as an improving crop, (their grand point of utility,) being so undeniably great, their disadvantages have been overlooked, and comparisons have been usually made with such only as had a strong need of improvement, in which the new Leicesters in course were sure to triumph. And further, that though the Difhley crop has made its way into every part of this island, to the Land's End, to the bottoms of the Welsh mountains, and of the Soocifh Highland, to Ireland, and even to Russia, its general success has been attended with various particular instances of failure, a remarkable one of which is given by lord Somerville, in his Facts, in respect to the Bampton or Wefhern long-woofed sheep. The crop is sometimes very injudiciously tried with short or carding wool flock, excepting where the intention is only for ord lamb. On flock naturally good and improvable, this peculiar effect of the new Leicesters has resulted, the improved have considerably surpassed, in the most valuable properties, their improvers. Of this many examples may be seen, it is supposed, in the improved Lincoln, Northumberland, and Midland county sheep.

The following is a table of the value of new Leicesters, sheep, at various ages, as given on the authority of different eminent breeders in the Lincolshire Agricultural Survey:

<table>
<thead>
<tr>
<th>Wether lambs, at 6 months, worth</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17s. 10d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 12 months</td>
<td>30s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 18 months</td>
<td>35s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 24 months</td>
<td>45s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 30 months</td>
<td>45s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 36 months</td>
<td>55s. 0d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

But others, in different parts of the district, state it thus:

<table>
<thead>
<tr>
<th>Leicesters, at six months old, worth</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>at twelve ditto</td>
<td>22s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at eighteen ditto</td>
<td>28s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at twenty-four ditto</td>
<td>35s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at thirty ditto</td>
<td>45s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and, if kept to thirty-six, would be</td>
<td>50s. 0d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If a three-shear falls for 3/., it will be worth,

| At 6 months, 28s. | | | |
| At 12 months, 35s. | Wool 9 lbs. | | |
| At 18 months, 40s. | | | |
| At 24 months, 48s. | Wool 9 lbs. | | |
| At 30 months, 56s. | | | |
| At 36 months, 60s. | Wool 9 lbs. | | |

According to the first of these tables, the scale of receipt is:

<table>
<thead>
<tr>
<th>For the first summer</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the first winter</td>
<td>0 17 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the second summer, including 8 lbs. wool at 9d.</td>
<td>0 11 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the second winter</td>
<td>0 10 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the third summer, including wool</td>
<td>0 6 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the third winter, including wool</td>
<td>0 16 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Three fleeces | 3 13 0 |
As above | 0 18 0 |

At 7s. they pay, per annum, 24s. 4d.

And it is remarked, that, at these prices, the last half year pays better than any; if this is just, there is a great loss, by selling at 23 years old; for it is just at the conclusion of the worst half year there is.

Mr. Dawsom of Berthorp, who has an excellent flock bred from Mr. Dalby's rams, last year sold 200 two-shear wethers at 3/., round. The following is his table of sales for four years, of wethers of that age.

<table>
<thead>
<tr>
<th>1790 Average</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1791</td>
<td>35s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1792</td>
<td>43s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1793</td>
<td>38s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1794</td>
<td>44s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1795</td>
<td>50s. 0d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1796</td>
<td>60s. 0d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

He sold threes. Average 2l. 3s. 6d.

And, at this average, he would thus divide it, by supposing the proportion to be,

<table>
<thead>
<tr>
<th>At 6 months</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 12 months</td>
<td>0 17 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At 18 months</td>
<td>1 7 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At 24 months</td>
<td>1 12 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At 30 months</td>
<td>2 0 0</td>
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<td></td>
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</tbody>
</table>

The advantages and disadvantages of the Lincoln and new Leicesters of sheep have been very fully considered in the Agricultural Survey of the former county; and the results stated as below in the different districts of it.

Circumstances of comparison between the Lincoln and Leicesters breeds of sheep.

Bolton. Lincoln better than Leicesters, on general experience and particular experiment.

Brothertoft. In experiment, very little difference.

Ewerby. Leicesters tenderer than Lincoln. Lincoln pay belt for keeping to three-shear.

Hacketton. Last year of Lincolns pay bet.

Ewerby. Old sheep stand the winter better, and pay better than young.

Owerby. Shearling Leicesters have, at Wakefield, fold as high as two-shear Lincolns. Difference of wool has been as 8 to 16 Leicesters tenderer in winter.

Normanby. Lincoln fleeces 2lbs. heavier than Leicesters. Leicesters get more wool from two-shear Lincolns. Difference of wool has been as 8 to 16 Leicesters tenderer in winter.

Walcot. Leicesters fleeces, though not so heavy as Lincoln, fold in one instance, for as much money.

Barton. Leicesters not tenderer in winter than Lincoln. Old breed of Lincoln used to go lean at two years old.

Now, Leicesters fat at the same age.

No difference in number on the same land. Wool the same.

Bonby. Leicesters come to sale sooner, but will not bear cold, wet land in winter so well, nor heat or cold after shearing, as the Lincoln.

Five Leicesters are one Lincoln; and Leicesters have refined hardships on the worst land better. Brocklesby.
Brocklesby. Lincoln more profitable than Leicesters.
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. Leicesters wool is a tod more than Lincoln. Leicesters more liable to the fly.
Cadney. Leicesters will feed a little fatter, and run a little thicker.
Beefby. Leicesters one in six more on the same land, but both do at the same age. Leicesters harder, and have less offal. Tallow equal; wool higher priced. Gives corn to Leicesters, but did not to Lincolns.
Aleby. Leicesters feed quicker, and have less offal; wethers and hogs less wool, but wool equal, and on the whole more per acre; hardier, 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 2 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 hardines. Lincoln best.
Tathwell. Lincolns and Leicesters being put together into the marsh, and sent thence at same time to Smithfield; the former yielded 4 a.-head more, and 5 a.-head more wool.
Cookswold. Marsh graziers all prefer Lincoln. No difference in number kept.
Tathwell. Lincoln wool 4 lbs. heavier than Leicesters. At two-shear, Lincoln heavier by 2 lbs. a quarter; at three-shear, 5 lbs. In tallow, 6 lbs. at three-shear, in favour of Lincoln. In number per acre no difference. In hardines, Lincoln best. 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 hardines; Leicesters have corn.
Horncastle. Three-shear better than two, as fure 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 bet, and pay bet.
Raiby. Leicesters thicker on land, as five to four.
Alderkirk. In an experiment of the two breeds on the same land, of the same weight and age, the Lincolns conferably superior.
Thoresway. True Lincolns most faleable, and most profit to breed.
Sudbrook. One-third more Leicesters on the same land.
Rigeholm. Bolton graziers not judges, for they can get good Lincolns, but not Leicesters, as the breeders of these can fat them themselves. Leicesters ran one-fourth thicker on the land. From six to twelve months old, rather tenderer than Lincolns; Leicesters travel bet.

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 fatter, and run one-sixth thicker.
Woolthorpe. Leicesters by far the best; but more apt to be barren than Lincoln. Drape ewes far more valuable.
Grimithorpe. Leicesters travel bet, and are the bet; and much less loss 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 goodness of the soil; for this breed makes a much more respectable figure here than it has done in various trials made in 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 that 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 can 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-wooled 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 f-ort. And that, from the coaritenss and larger size of the head and neck in the old fort, the ewes lamb with more difficulty than in the true Difeley 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 Itone-brass; 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.

_Cotswold 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 finestness of their fleece from the same source as the new Leicesters. This part of that county formerly, and in memory, bred, it is said, small fine-wooled 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 long-wooled rams, chiefly Warwicks, completely changed from short to large long-wooled flock. The writer finds a picked lot of Cotswolds last year, he says, which answered 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 substance in the hinder than fore-quarters; bone somewhat fine; legs not long; fleece soft, like that of the Difeley, but in clovenefs and darknes 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, none of these sheep have reached 40, and even 50 lbs. 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 Leicesters gives the Cotswolds a fulness in the fore-quarter; but any farther crofs of that kind, it appears, diminishes their size. The strange crofs of Wiltshire horned sheep has been recurrent to in some parts, for no possible good purpose, he should apprehend, either to the carcass or wool; and it is probable, supposing such large stock 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 most 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 Leicesters 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 stand, 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 anywhere to be found, would be, it is said, at two-feet 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 croffed; and of wool, the two-feet wether affords three and a half fleeces to the tod. The new Leicesters, 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 Leicester, the average difference of wool, it is said, is three pounds.

In Devonshire, it is said, have succeeded in the crofs of new Leicesters upon the Cotswold, the equal breed of which is attempted to be preserved 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 crofs 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 flappers to be one penny the pound superior to that of the Exmoor, Bampton, South Devon, and Dartmoor sheep, yet still the common price of 10d. the pound is only allowed for it. In the young wethers of this breed, the loose fat is slat 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 28 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 coat, it is only capable of being supported and fattened on the rich kinds of marsh pasture; and on those which extend from Haulings to Rye, in Kent, according to the Suffex Agricultural Report, the graziers find it much more beneficial than the South Downs; the marsh wethers fattening more quickly. The wool afforded by such fat wethers averaging five pounds, and breeding ewes five pounds, but not equal in quantity to the wool clipped from shearings. 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 tens is from four to seven per acre, in fattening wethers from six to eight, in barrows from two to three, and in couples three; which is certainly a great flock. And this is a breed that probably undergone much improvement without crossing, by proper care and attention, and being left exposed in the winter. In the old Romney-Marsh breed, the sheep were remarkable for having large heads; for being large, long, and tubby; also for being large in their bone, 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 grazier and community in general; but the pure breed of this fort, 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-sided, 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 chest; the thigh full and broad, the belly large and tubby; the tail thick, long, and coarse, the legs thick with large feet, the muleco coarse and the bone large; the wool long and not fine; coarfelt on the breech, the sheep prove good, and are great favourites with the butchers. But this description is not now, it is said, so applicable 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 Leicester 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 discernible. And 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 Leicesters 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 fort; 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 very great deal less saleable to the butcher; this may, however, be no disadvantage to the breeder or grazier, 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 Leicesters crofs, as the
SHEEP.

those of smaller and less coarse heads, a greater depth of carcase, and shorter and less coarse legs, better symmetry or form of several different parts, as well as of the whole animal.

There can, therefore, be no doubt but that this breed has been greatly benefited by the introduction of the new Leicestfer fort; and it is probable that it has not depended so much upon selection as the use of this new variety, as though the cry in the market is for the marsh kind, that form is carefully improved, and by no means preferred, although something of it may still exist. Something of the South Down fort is likewise discernible in this breed, it is said.

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, Bampton and Nott Breed or Variety.-This is a breed or sort of sheep, 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 sorts. According to Mr. Culley, the weight of ewes on the average about 20lbs. a quarter; in wethers, at two years and a half old, 30lbs. 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 Leicestfer or Disley 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 16lbs. 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 Leicestfer 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 nursety.

The old Devonshire dun-faced nott sheep were formerly held in high estimation, as a native breed of some parts of this county. It is, however, a crooked-backed, flat-sided, coarsely boned and woolled animal, but which has been much improved by crossing with the new Leicestfer fort; its principal defects are by these means removed, and a greater disposition to fatten at an earlier period given; while at the same time, however, the fleece, as well as the weight of the carcase, has been lessened, the former from ten to eight pounds of unwashed wool the fleece, and the latter from twenty-two to nineteen pounds the quarter. In order to recompose which, the animal comes to market four months earlier; the wethers at two years old, with advantage; that is, after being twice shorn as sheep, and once as lambs, equals the average already stated. This fibre once more crossed with the new Leicestfers, will arrive, it is said, still earlier to the same perfection.

In the Bampton nott breed, the wethers will, at twenty months old, weigh twenty-two pounds the quarter, and have 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 1s. the pound.

The first crofs of this breed with the new Leicestfer 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 Bampton nott crossed with the new Leicestfer 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 Leicestfer to one of the native nott. This crofs, it is said, comes earlier to market, and at two years old will generally average twenty pounds the quarter, and eight pounds of yoke wool to the fleece, which is worth about 1od. the pound. And the old Leicestfer crofs upon the Bampton makes a large and handsome animal, which feeds kindly and tallow well within. The wethers of two years old will average, with advantage, thirty pounds the quarter, and have ten pounds of yoke wool to the fleece. It is much valued in some places. But the new Leicestfer crofs upon the same fleece, will in some situations bring forward wethers at twenty months old, weighing twenty-two pounds the quarter, with a sheaf of eight pounds of yoke wool to the fleece, both of which are at this time worth 1od. the pound, weighing, according to the custom of unwashed wool, twenty-one pounds for every score. This fort is highly valued by some in different parts of this county. The half Bampton crofs is more hardy than the new Leicestfer fort, and suits some places better.
**TABLE of the different Breeds, Croffles, and Produce of the Sheep of this and neighbouring Districts.**

<table>
<thead>
<tr>
<th>Character of Breeds</th>
<th>Age of Wethers when killed in Months</th>
<th>Average Weight per Quarter, in Pounds</th>
<th>Average Weight per Fleece, in Pounds</th>
<th>Condition of Fleece</th>
<th>Price of Fleece per Pound</th>
<th>Value of Fleece</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>
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<td></td>
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<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>10</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Dartmoor, the same, the fame -</td>
<td>30</td>
<td>16</td>
<td>8</td>
<td>do.</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>8½</td>
<td>6</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>10</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bampton Nott, white face and legs, short wool, pure -</td>
<td>20</td>
<td>22</td>
<td>6½</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Neighbours.</td>
<td></td>
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<td></td>
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<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, crossed with Exmoor</td>
<td>18</td>
<td>18</td>
<td>5½</td>
<td>do.</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>9</td>
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<tr>
<td>Dillant.</td>
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<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, crossed with new Leicelte.</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Leicelte, old, crossed with Bampton -</td>
<td>24</td>
<td>30</td>
<td>10</td>
<td>Yc.</td>
<td>10</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, old, crossed with Exmoor -</td>
<td>36</td>
<td>24</td>
<td>6½</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, pure -</td>
<td>18</td>
<td>22</td>
<td>6½</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, crossed with Dartmoor -</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Same, new, crossed with Exmoor -</td>
<td>24</td>
<td>18</td>
<td>6</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, fourth croff with South Devon -</td>
<td>20</td>
<td>20</td>
<td>8½</td>
<td>do.</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, fourth croff with fame -</td>
<td>18</td>
<td>18</td>
<td>6½</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, new, crossed with Bampton -</td>
<td>20</td>
<td>24</td>
<td>8</td>
<td>do.</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Same, new, crossed with Cotswold -</td>
<td>18</td>
<td>19</td>
<td>7</td>
<td>do.</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Same, new, crossed with fame -</td>
<td>30</td>
<td>25</td>
<td>9</td>
<td>do.</td>
<td>10</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Foreign.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Merino, crossed with Rye-land -</td>
<td>24</td>
<td>15</td>
<td>6½</td>
<td>do.</td>
<td>2</td>
<td>9</td>
<td>18</td>
<td>6½</td>
<td></td>
</tr>
<tr>
<td>Same, crossed 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 croff with Exmoor -</td>
<td>24</td>
<td>15</td>
<td>5</td>
<td>washed</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Same, second ditto -</td>
<td>5</td>
<td>do.</td>
<td>2</td>
<td>9</td>
<td>13</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same, third ditto -</td>
<td>5</td>
<td>do.</td>
<td>3</td>
<td>5</td>
<td>17</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In most cases of a croff with the new Leicelte upon long full fleeced sheep, a deficiency of wool is observably under the belly and breast of the animal.
Exmoor Breed or Variety.—This is a fort of sheep which is
caracterized by having horns, white faces and legs; by
being very delicate in the bone, neck and head, or what is
sometimes denominated deer-necked; by the form of the
carcase being indifferent, narrow, and flat-sided. Accor-
ding to Mr. Culley, the weight per quarter in wethers at two
years and a half old, is from 13 lbs. to 18 lbs.; and the weight of
wool much less than in the Devonshire breed. It is a
small breed of long-wooled 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 above county.

Mr. Lawrence supposes that in their present state they are by
no means to be considered as a profitable fort of sheep-
flock, either in what relates to flesb or wool; on which ac-
count it would be for the interest of the county to change
them for the bell fine-wooled breed. It is remarked by Mr.
Billingfley, 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 so bare and indiffer-
ent pastures while young, they are fed up by many sheep-
farmers to be a very profitable fort of flock.

This horned breed has a moderately long staple of wool,
which formerly, before the cloths manufacture of the county
of Devon fled into Yorkshire, was much in demand by the
clerks of several different places. The fattened wethers
of this breed, at three years old, will usually weigh about
75 lbs. the quarter, and average 84 lbs. of washed wool to the
fleece; which is worth at present about 15d. the pound.

Attempts have been lately made in different places to im-
prove the wool of this breed or fort of sheep, by a cross
with the Merino or Spanish ram, and the results of the trials
thus made are as follows:

<table>
<thead>
<tr>
<th>Quantity and value of</th>
<th>native fleece</th>
</tr>
</thead>
<tbody>
<tr>
<td>First cross with the</td>
<td>42 lbs. at 1s. 1d. per lb. 4s. 10d.</td>
</tr>
<tr>
<td>Merino</td>
<td>5 2 2 10 10</td>
</tr>
<tr>
<td>Second cross with the</td>
<td>5 2 9 13 9</td>
</tr>
<tr>
<td>produce</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 crosses of the old Leicefter upon the Exmoor breed,
the wethers, which are the produce at three years old, av-
erge about 24 lbs. the quarter, and carry 66 lbs. of woal
wool to the fleece. The Exmoor sheep have also been crossed
with the new Leicefter; the wether produce of which, at two
years old, will weigh 18 lbs. the quarter, and yield 66 lbs.
of unwashed wool to the fleece; the price of the two latter
sold the pound. Much loss is often, it is said, sustained in this
last crosses at the time of yeasting, in consequence of the great
size of the shoulders of the lambs retarding or preventing
their exclusion. This will, however, be remedied in the
productions of this cross.

The Exmoor breed is a hardy fort of sheep on wet ex-
pended land while young. The ewes under such circum-
stances, in lambing, are also superior to the Bampton not.
kind.

Cornish Breed or Variety.—The true breed of this fort is
daed to have grey faces and legs, coarse short thick necks,
flapping lower behind than behind, narrow backs, flat-
shaped, a fleece of coarse wool, weighing about two or three
pounds, of eighteen ounces each; their mutton, which is
delicious, from eight to ten pounds the quarter.

However, from the various crosses which have been intro-
duced into the county at different times, in consequence of
the use of rams of the Exmoor, Dartmoor, North and
South Devon, Dorset, Gloucester, and Leicefter kinds, the
pure breed of this description is, it is said, now become rare,
but that, from the inferior nature and value of its proper-
ties the total extinction of it need not be lamented. The dif-
tinct is now capable of supporting a much better and more
improved breed of this fort of animal.

Black-faced Heafh Breed or Variety.—This is a kind or
breed of sheep which, according to Mr. Culley, have large
spirals horns, black faces and legs, a fierce wild-looking eye,
short tight carcases, from 12 lbs. to 16 lbs. per quarter, covered
with long, open, coarse flagged wool, fleeces 46 lbs. or 48 lbs.
each, wool worth at present about 8d. per pound. They are
an active hardy flock, running with amazing agility, and belt,
adapted, of all other breeds, to exposed, healthy, and moun-
tainous districts; seldom fed until three, four, or five years
old, when they feed well, and make the finest mutton, having
a high-flavored gravy. The sheep of this wild-looking
breed are natives of the north-west of Yorkshire, and of
that mountainous tract of country adjoining the Irifh sea,
from Lancashire to Fort William; they have been of late
years introduced into the Western Highlands of Scotland.

And the writer of the "Treatife on Live Stock," supposes
the black-faced Linton, or short sheep of Scotland, to be a
variety of the Heafh sheep. They have been crossed with
the Cheviot breed, and Mr. Culley, it is noticed, recom-
ends a Dishley crofs, meaners, doubfeles, for the use of the
low lands. If he may be allowed to give an opinion, he
would, for upland situations, recommend a Spanish crofs,
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 need-
lessly compelled to brace the rigour of the seafons, in fuch
loos, ragged, and beggarly clothing, when they might, with a
few years' pains, and without any deterioration of the car-
cases, produce a fleece of high value and consequence to
the manufactures of the country. And he adds, that Mr. Henry
King, faleman of Newgate market, and an eminent gra-
zier, informs him, that he once fed a lot of these northern
heafh sheep, and made excellent mutton of them, about
66 lbs. a quarter; but that their wool hanging down their
quarters like goat's hair, was so excreably bad, that it could
be folded only for mop yarn.

But what are termed black-faced, or short sheep, are said to
be originally short-wooled, 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 intro-
duced from the moor-lands of Yorkshire. Besides the ob-
jection to these black-faced sheep, on the ground of the coarse
loos nature of their wool, they are said to be fubjeft to the
brawy, a disease that was unknown in the Highlands be-
fore their introduction. And it is remarked, in the able
Agricultural Survey of Earl Lothian, that the kind of sheep
bred and most generally kept in Lammermuir, is the black-
aced, or more properly, what is called the brocked faced, a
fort 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
tone of seventeen pounds (twenty-one ounces to the pound);
the quality, and consequently the price, vary much. The
difference of quality may result from various circum-
tances; it is owing partly to the quantity of tar put upon the sheep
in salting; partly, it is suppos'd, to the situation in which
they poulter, as those fed on high grounds, and coarse molly
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 seem, 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 carcase 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 best 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, Roofs, or Ryeland Breed or Variety.**—This is a fort 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 carcase being pretty well formed; and by the excellence of the mutton. Weight per quarter from 10 lbs. to 18 lbs. Wool long and short, the lean poor-fd sheep producing the finest. It is the true breed of this fort 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 respecting food, but which, in its management, requires constant in the winter season, and being fed with hay or peas-haulm. In some cases they are hauled all the year round in the night-time. The cots 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 horn 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 stone of twelve pounds and a half untrinned, when the coarse wool has brought but ten or twelve shillings. They are said, by Culley, to fatten the best at four years old. The Archensfield, 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-wooled 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 must more inconveniently the animal already heavily loaded. The fine close fleece of this breed admits the water with difficulty, even when it is moistered in it, and is never wet through by rain. On account of the fineness 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 finenesses of the pelture 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 somewhat less fine in its quality than it formerly was, it is still the finest in the island, with the exception of the Spanish sheep recently imported; and the animal must be allowed, on the whole, to have been considerably benefited. The quantity of wool afforded by the improved fort of Ryelands, although increased, is still far from large; a three-years old wheather rarely yielding more than three pounds and a half. But as a large number of sheep will subsist on a small portion of ground, and the wool is still worth two shillings and sixpence 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 is seen of the South Down breed.

In the Agricultural Survey of Herefordshire it is suggested, that a crofs 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 holds the fleeces of a crofs so crofted at forty shillings per stone, in the fair at Roofs, in the course of last year. The first stage of the crofs materially detracts from the beauty of the Ryeland’s form, but by continued attention, this objection will probably be removed, and the flavour of the mutton is uninjured. Lord Somerville has found that they feed quickly, and 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. Hewer, of Abergavenny, and slaughtered before the Agricultural Society of this county in March last, weighed 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, whilst the half Spanish weighs more than is generally expected from its fize.

A crofs 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 crofs, when fattened to their frame, being, it is said, is, 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 fleeces. In experiments made by some of these crofs in other parts, it appears that two-years old wethers of the first crofs will weigh about fifteen pounds the quarter, and shear from four to five pounds of washed wool to the fleeces, which is worth 32. 9d. the pound. The sheep are, however, greatly exposed to the foot rot.

The crofs between the Ryeland and the Spanish sheep has been made in some other parts, which has completely succeeded as a fleece, as the produce of the third crofs 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 acreage proportion of mutton with the native sheep.
In crossing this breed with the Dihley, an useful kind of sheep has, however, been produced, both the wool and carcase 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.

Warton Cragg Breed or Variety.—This is a fort 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 cragg 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 quality is chiefly that of the poor short rocky lime-flint kind. They are deferving of more attention than has hitherto been bestowed upon them by the farmers of the neighbourhoods where they prevail.

The Shropshire or Moor Breed or Variety.—This is a fort 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 red fine woolled sheep, and have been, for centuries, bred in Shropshire, Staffordshire, Worcestershire, and the vicinity. Their fleeces are nearly all fine, but it is said, superior to the Ryeland wool for the crossing which has taken place in that flock. Mr. Pitt of Pendeford, in a letter to lord Somerville, dated 1776, estimates the extent of Moor common, or walk, at 3,600 acres, and the number of sheep furnished thereon, at 15,800, to the annual profit of fifteen Figlings per acre in wool only, on a moderate calculation, eight fleeces and a half to the stone of 14 lbs.

Nothing is reckoned on account of carcase, as the sheep have some extra keep during winter. It is added, that the Shropshire commons produce good fine wool, but none equal to Morf by fixpence a pound.

The Dorsetshire Breed or Variety.—This breed is known by having the face, nose, and legs white, head rather long, but broad, and the forehead woolly, as in the Spanish and Ryeland farts; 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; carcase deep, and joins bross; legs not long, nor very fine in the bone. Weight per quarter in wethers, at three years and a half old, from 15 lbs. to 20 lbs. Mr. Billingdale 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 to as early as September and October, so as to suit the purposes of the lamb-fuckeler. 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, suppos'd 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 fleeces from mixture, since white lambs are the most esteemed in the London markets, from a presumed 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 pasture 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 latter Dorset lambs, when fattened, make the earliest farina lamb. By the practice of this county, the lambs which the breeders retain are born at Midsummer, 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-lamb 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 fort 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 border 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 that 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 Westmorland, they have a breed of horned and white-faced sheep, bearing a strong affinity to the Dorfets; they are called Cheviot, and Wensleydale sheep, but more generally Penffion, from the market town where they are fold. They are a good breed or hill sheep, in their pure state, and give a fleece of coarse short wool, weighing between two and three pounds, the carcase good mutton, about fifteen pounds per quarter. They are variously crossed in this riding, with Cheviot, Dihley, and Northumberland tups; with the two half, for the purpose of making pallare sheep, in which case the weight of carcase is increased to twenty or thirty pounds per quarter. In the north, this breed is commonly crossed with the Heath 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 tups have been tried with the Penffion ewes, a cross which made a considerable improvement.

The Welsh Breed or Variety.—This is a fort which has sometimes the title of horned-crofs. 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 boseom, deep greyhound breast, back and legs straight, carcase sublateral, legs long, bone coarse, fine middie wool, very thin on the belly, which is sometimes bare. He supposes, with Culley, that the basis of this breed is doubtless the Dorfet, enlarged by some long-woolled crofs; but how the horns come to take a direction so contrary is not cazy, he thinks, to conjecture; he has sometimes imagined it must be the result of some foreign, probably Tartarian, crofs. The old Hertford were, he says, suppos'd a kindred breed with the Wilts, but at present, the few of this kind bred 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 best meat, making very large mutton, and very deep in flesh, which is high-flavoured, yielding the dark-coloured gravy. The breed is, be adds, every where on the decline, generally supplanting 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 farmer, moreover, producing both better mutton and better wool. The difease called the giggle, is said to be peculiar to the Wilts sheep. It is flated, 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 crofs 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.
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 horset, full fore-flank, Roman faced, with distinct black spots, high on the leg, thick fleece, of considerable length. He supposes them to clafs with the long-woolled breeds, and to probably 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 fize, 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 are fall 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 sooner, 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. The polled or nott sheep are, however, not of so large a fize 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 tow of wool. The mutton is rather coarse, as in all large breeds of animals. The utility of crossing this breed is by no means defined. Some advise to breed from the belt of this fort, but to cross for fattening. Crottes are, however, very common between many different forts, as between the notts and the Wiltshires, the Cotswolds, the Leicesters, and different mixed breeds.

The Berkshire nott breed is much valued in some parts of Oxfordshire, especially for regular breeding as well as flanding the fold. They are strong, active, and able to travel, and fold unusually well; against which good qualities they are, however, long in fattening, &c. The crofts with the Leicesters improve them considerably, still they are fat 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 improitable breed, as well as the Norfolk sheep, but it is remarkable that for turnips, so sheep are had, 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 Down to be a superior fort for grass-feeding.

Heath-Croppers or Windsor 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 tow. 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 shoulder, and light in the fore-quarter, fides good, loin tolerably broad, back-bone rather high, thigh full, twid 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 wether at two years old 12 lbs. It is a breed which prevails on the dry chalky downs in Sulux, 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-woolled. 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 Suflex Agricultural Survey, the ewes are commonly kept till between four and five, and found 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 shorter, considerably outweigh both the Dorset and Norfolk breeds, in proportion to the size of the carcase, being heavy in a small compass. Their hardiness is estimated according to the darkness 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 Rapier, as only of half the full value, a middle degree of colour may be the best. As an open country breed, they are sufficiently gentle and tractable. They are capable of travelling well, and of withstanding the effects of exposure to cold. The wool is fiercely, if at all, inferior in fineness to that of the Herefordshire kind; as the practice of fowing, 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 confume less food, in proportion to their weight, than the Norfolk sheep, yet keeping in better order. Young sheep produce the belt lambs; the cranes are of course constantly fold at four or five years old; and it is observed, that it is fupposed, it would be more profitable. The author of the "General Trefiate on Cattle" fuggests, that the most noted variety is that of Mr. Elliman, of Glynd, in Suflex, who, he believes, first enlarged the Down breed, by the aid of polled or nott Berkshire tops. From this enlarged crofts, he understands, originated the flocks of the Duke of Bedford and Mr. Coke; the South Downs of Mr. Coke being generally acknowledged the largest and finest in England, a very pregnant proof of which was given at Lord Somerville's cattle show, in a two-hander Holkham South Down wether, which weighed more than 60 lbs. per quarter. Although quick and early feeders, they wallow 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-woolled crofts, by which the carcasse 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 fuggestes, that it would be difficult to point out any part of the island for which this breed would be unfit, but extremely easy to name a vast number of districts where it would be a most advantageous substitute for the native flocks. It is supposed, that all the South
SHEEP.

South Downs want is the noble covering of a Spanish fleece, and how little their carcase would suffer by the crof, has, it is said, 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-two years old Norfolk wethers, and ten South Down of the same 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.</th>
<th>lb.</th>
<th>6 oz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Norfolks from the field</td>
<td>264</td>
<td>7 ½</td>
<td>11 1 15</td>
</tr>
<tr>
<td>Ditto after falling 28 hours</td>
<td>237</td>
<td>1 3</td>
<td>10 10 7</td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
<td>0 5 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ft.</th>
<th>lb.</th>
<th>6 oz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 South Downs from the field</td>
<td>109</td>
<td>4</td>
<td>10 13 0</td>
</tr>
<tr>
<td>Ditto after falling 28 hours</td>
<td>106</td>
<td>2</td>
<td>10 8 9</td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
<td>0 4 7</td>
</tr>
</tbody>
</table>

One of each lot slaughtered.

Norfolk.

<table>
<thead>
<tr>
<th></th>
<th>£</th>
<th>s.</th>
<th>d.</th>
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</thead>
<tbody>
<tr>
<td>Mutton</td>
<td>6</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Tallow</td>
<td>1</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Head and pluck</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Skin</td>
<td>0</td>
<td>9 ½</td>
<td>0</td>
</tr>
<tr>
<td>Wool</td>
<td>0</td>
<td>3 ½</td>
<td>0</td>
</tr>
<tr>
<td>Blood</td>
<td>0</td>
<td>6 ½</td>
<td>0</td>
</tr>
<tr>
<td>Entrails</td>
<td>0</td>
<td>1 1</td>
<td>0</td>
</tr>
<tr>
<td>Lofs</td>
<td>0</td>
<td>0 ½</td>
<td>0</td>
</tr>
<tr>
<td>Live weight</td>
<td>10</td>
<td>12 ½</td>
<td></td>
</tr>
</tbody>
</table>

South Down.

<table>
<thead>
<tr>
<th></th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutton</td>
<td>6</td>
<td>8 ½</td>
<td>2</td>
</tr>
<tr>
<td>Tallow</td>
<td>0</td>
<td>13 ½</td>
<td>5</td>
</tr>
<tr>
<td>Head and pluck</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Skin</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Wool</td>
<td>0</td>
<td>7 ½</td>
<td>0</td>
</tr>
<tr>
<td>Blood</td>
<td>0</td>
<td>7 ½</td>
<td>0</td>
</tr>
<tr>
<td>Entrails</td>
<td>0</td>
<td>1 1</td>
<td>0</td>
</tr>
<tr>
<td>Lofs</td>
<td>0</td>
<td>0 ½</td>
<td>0</td>
</tr>
<tr>
<td>Live weight</td>
<td>10</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Norfolk superior by 0 3 11 0

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 and South Downs, at one-third in favour of the latter, in number, in better condition, and of greater weight, both in wool and carcase; all fairly attributable to the superiority of the breed, and free from any charge of defecating cattle, &c. When his flock was of Norfolks, scarcely one in a score had a whole fleece; but now they are South Downs, scarcely one in a score is broken. And Mr. Blyth of Burnham had, four years ago, a flock of between five and six hundred Norfolks: he has now one thousand South Downs on the same land, and has likewise double the wool from his land, flocking with South Downs, to what he clipped when under Norfolks. Also Mr. Duriglane, who has had South Downs for six years, is clear that, free from all change in habitation, or other circumstance that would unfairly affect the comparison, the number kept, compared with the Norfolks, has been as five to four. The carcase is as heavy as the Norfolks, more wool, and a better price. He does not fold; but the South Downs would bear it better than the Norfolks. At Palgrave he feds the South Downs, because there is a sheep-walk; a Norfolk flock changing gradually.

Some think that the South Down are much superior to the Norfolk, Cambridgshire, and well country sheep, both in point of form, hardiness, fineness of wool, and disposition to fatten. Crofles of the South Down with other sorts are likewise much approved of in many places; as that of the South Down ram with the Norfolk ewe, the lambs of which crofs are sometimes greatly admired. Some suppose it equally beneficial when done with several other breeds, according to the circumstances of the different districts. But this sort of crofing is very sparingly practised in the native district of this breed of sheep.

It has been tried with Spanish rams, and the wool has been considerably improved by the attempt; but two great defects, not to be compensated by any improvement in the wool, are paid to be produced, which are tenderness of constitution, and badness of shape. In other places this has not, however, been noticed to take place. In Oxfordshire, and several other counties, the South Down breed is fast supplanting the Berkshire, Norfolk, and many other kinds.

And it is stated, in the Staffordshire Agricultural Survey, that the Cannock Heath are a sort of sheep that has much resemblance to this breed, and is believed to have originated from the same. It is stated to have been much improved in the form, thickness, and weight of the carcase, as well as the fineness of the wool, by crofing with rams of the Herefordshire breed. They are polled with grey faces and legs; long before; wool fine and thickly fett, weighing two or three pounds the fleece; the mutton good; they weigh from 15 lbs. to 20 lbs. the quarter. In Mr. Edward Littleton's improvement of this breed, by crofing with Herefordshire tup's, the carcase and wool were both bettered, the latter being rendered worth nearly 2s. the pound.

The Norfolk Breed or Variety.—In this sort of sheep, the face is black; the horns large and spirally; the carcase long, small, weak, and thin; narrow chine; large bones; very long black or grey legs; mutton fine-grained and high-flavoured, but does not keep well in hot seasons. The weight per quarter from 16 lbs. to 20 lbs. The wool in the best part short and fine, but part coarse. This breed is chiefly prevalent in Norfolk and Suffolk, where folding is much the practice, as they have the property of travelling well. They are found in disposition to be given to beeffeaks, which renders them unfit stock, except in good inclusions. And it is stated, in the nineteenth volume of the Annals of Agriculture, that this sort of sheep, from possessing few valuable properties, in addition to that of stand-
In favour of South Down.

<table>
<thead>
<tr>
<th>Item</th>
<th>South Down</th>
<th>Norfolk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2½ lbs of fat, 4½ d. per pound</td>
<td>0 10</td>
<td>0 5</td>
</tr>
<tr>
<td>1½ lb. of skin and wool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In favour of Norfolk.

<table>
<thead>
<tr>
<th>Item</th>
<th>South Down</th>
<th>Norfolk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lb. of mutton</td>
<td>0 5</td>
<td></td>
</tr>
<tr>
<td>1 flone colt</td>
<td></td>
<td>6 6</td>
</tr>
</tbody>
</table>

Total difference in favour of Norfolk sheep 5s. 8d.

It is noticed, that neither of these 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 these, the wool of both is found to be of the finest quality, but the larger quantity is produced by the South Down: the mutton of both is equally delicious. But the quiet genteel South Down in the pastures must be opposed to the wild impatient ramblings of the Norfolk, whose constant exercise not only excites continual appetite, but at the same time occasions considerable waste in the pastures, 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 this respect, as it were, wantonly destroying a large portion of food which is prepared for its sustenance, there does not appear, from the trial already noticed, to be the smallest occasion at least, 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 fed sheep, the heavier, and most capacious stomach, and consequently requiring the greatest quantity of food, is found to appertain to the Norfolk sheep. The hardness of the South Down, enduring wet and cold lodging, and a greater degree of abstinence and fatigue than the Norfolk in the field, is a superiority of much moment; and only to be equalled by another, which they possess in a very superior degree, which is that of doing well upon coarse four pastures. These are fairly to be contrasted 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 sheep; and for every possible purpose, whether for its fleth, for its wool, for breeding, for folding, or for the butcher, they demand a less supply of food, and of an inferior quality to that which, in every situation, would appear indispensable to the well doing of the Norfolk. On the score of the first cost of these sheep, an objection may, it is said, be very justly stated as to their general use; but when the South Down are more generally bred and increased through the country, in that proportion will the present objection be done away; and though they may continue in equal estimation, they will nevertheless, by their being more generally diffused and increased every where, be brought to a more equal level, in point of price, with the Norfolk, Welsh, and all those breeds so justly held in recoinutation for the fineness of their wool, and the superior excellence in the flavour of their mutton.

The value of the crosses 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...
they highly beneficial, while others strongly reprobate them.

**Dalhorne Forest Breed or Variety.**—This is a breed or sort 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 sort, having the faces and legs black, grey, brown, and white, generally with small horns. The breed is small, the wethers not 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, selling about the year 1828 at 2l. 12s. 6d. the stone of 20 lbs.; the fleeces are, however, small, often not weighing more than 2 lbs. The wool is commonly purchased by the manufacturers of cloth in Yorkshire.

**The Herdwick Breed or Variety.**—This is a breed which is characterized by Mr. Culley by 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 6 lbs. 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 country at the head of the river Elk, and Duddon in Cumberland, where they are let in herds, at an annual sum: whence the name. At present they are said to possess 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 heath, during the snows, for their subsistence; 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 disposed 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 sort, but coarser than any of the short-wooled breeds. It is a breed that stands in need of a crofs with some of the finer-wooled breeds, and the Spanihs has been suggested as proper for the purpose. The property of the fleeces, as well as of the mountainous, is in lord Muncaiter, the lord of the soil; and the farmer of the principal flock is now Mr. Tyron, whose family, it is said, has inhabited this wild and forsaken spot through four centuries. Mr. Tyron is a tiner breeder, and sells a number of Herdwick tups yearly, some at several guineas each, to the adjoining districts, where their known hardy qualities are desirable.

**The 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 chine; 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. Culley considers this as a valuable breed of mountain sheep, where the herbage is chiefly of the natural grass kind, which is the case in the situations where there are found the most prevalent, and from which they have obtained their name. It is a breed which has undergone much improvement within the last few years, in respect to its form and other qualities, and has been lately introduced into the most northern districts; and from its hardiness, its affording a portion of fine wool, and being quick in fattening, it is likely to answer 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 Argyleshire Report, that the Cheviot sheep are in every respect superior to the black-faced kind, and found to be equally fit for a mountainous situation. They are hardy, fine-wooled, and well-shaped. They are long-bodied and long-limbed, which fits them for climbing steep mountains, and for travelling, either for seeking their food, or going to a distant market. Their fleeces, too, is finer, closer, and warmer. They have every property that should be sought 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 these have been lately introduced into the county by the duke of Argyle, and by Mr. Campbell of Auch, in the highest parts of Glenurchy, 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 Glenurchy, in order to try how they would fare on the same pasture with the black-faced kind; and the writer was informed by some of the fore-masters, 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 Ayrshire, shews the comparative hardness and value of the Cheviot breed. In June, 1792, a ram and two score of ewes, 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 lofs of the native sheep, through poverty and disease, was considerable; yet all the rest, though strangers, and in such a situation, did well. The wool of the native sheep, taking ten fleeces to the roane (24 lbs.), sold at 7s. 6d.; the wool of the Cheviot kind, taking only seven and a half to the roane, sold at 15s. The profit here was great; but how much more, if the wool had fetched its real value of 20s. the roane! And in "The Observations on different Breeds of Sheep," it is stated that in 1792, the Cheviot wool sold from 18s. to 20s. the merined, and from 20s. to 22s. the white; from six to eight fleeces of the first, and from eight to nine of the last, going to the roane. Some went as high as 23s.; and it is thought it will soon be improved to fetch 30s., if not 40s. Draft ewes sold from 12s. to 16s., and three-years old wethers from 18s. to 22s. In Etterick, Ewefeld, and Liddefdale, they are now converting their fleeces as quickly as possible into the Cheviot breed. The Roxburgh Agricultural Report also says, that Liddefdale 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 few hands; as the carcass, 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 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 1792 he sold the wool of the sheep produced by that cross at 12s. the fix fleeces; and the wool of his other flock of the black-faced kind, which went exactly on the same pittance, only at 6s. 3d. the seven fleeces. The sheep thus produced were as healthy as his other sheep, the carcase not materially altered, and the weight of the wool increased a seventh part, and its price more than a third. The farm on which they were is 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, boote-shaped breed, having a coat of ordinary short or fine wool, perhaps raised by crovelling, 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 cheefes, being found to be prejudicial, it has lately been much left off by the bell sheep-farmers in those districts.

**The Dun-faced Breed or Variety.**—This is a fort which Culley says has no horns; the face in common of a dun tawny colour; the size small; the tail short; the mutton fine in texture; the weight often only 6 lbs. or 7 lbs. the quarter; the wool varially streaked and blended with different 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 are supped 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 moftly without horns; but what more particularly distinguishes 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 disposition to be confined in inclosed pastures, and of course less proper for the purposes of the grazer. There is a fort of this breed of sheep, which, according to Mr. Johnbon, carries coarse wool above, and fine soft wool underneath; and the sheep have three different fuccesions of wool annually, two of which resemble long hairs rather than wool, and are by the common people termed *fors* and *fudda*. As soon as the wool begins to loofen at the roots, which is mostly about February, the hairs or *fudda* spring up; and when the wool is cautiously 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 two months’ growth, or thereabouts, the rough hairs, termed *fors*, 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 *fudda* remains upon the skin, as if it were a thick coat, a protection against the inclemency of the season. But the native or kindly breed, that bear the soft cottony fleeces, according to Mr. Culley, are rather delicate; though the fact of their eating the sea-weed greedily, when the ground is covered with snow, and often during long and severe snows, when they have little elfe 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 wildest 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 delitute of a covering of long hairs. These fine short fleeces are liable to be rubbed off during winter, or early spring, which, if supposéd, 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 staple of the wool. In regard to colour this wool is various, as *silver grey*, which is the finest and softest; the pure *walnut*, which is mostly of the greatest value for all the purposes of the finest combing wool; the *black*, and the *mourn* or *brown*, which are very little inferior; the whole of the softest texture, fit for the finest manufactures, and in some instances rivaling even Spanish wool, than which it is somewhat longer in the staple, and not so elastic. And it is flated to have been manufactured into focking of extraordinary 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 Aberdeenshire, and in the districts to the northward of it; but it has been since much crovelled, and it is now mostly confined to the Orkney and Shetland iles, the purest breed being to be found in the latter. The number of the *beaver* sheep in these iles amounted to ninety thousand, some years since; and five or six of them are said to be capable of being fed with the food required for one English sheep. In the Welf Riding of Yorkshire, Mr. Beaumont is said to have made a trial of these sheep; the result of which was, that they did not fatten, but grow, which shews that their fibre would improve with that of the wool; their wool also improved in length. But the original old breed of the Highlands are said to partake of the nature of the goat and deer; their coat consisting of a fort of fur or down, covered by a long, straight, rigid hairs, like those of the beaver, rather than wool; tail short, slender, tapering, not larger than that of the deer or goat, and thinly covered with strong, glossy hairs; the face covered with fleshy hairs, like the face of the deer, with his prominent eyes. They are tame, delicate of frame, and requiring to be housed in winter; they are of the highest quality in flavour. The breed is found in its original purity, in the central Highlands, on the southern banks of Strath Tay, and between the Lochs of Loch Faskell, and on the banks of Loch Nef, in the northern Highlands, as well as in the Shetland islands.

**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 shape; rather long in the legs; fine in the bone; a degree of thoroughness, or production of loose 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 attired by force to be; tolerably hardy, and to posses a disposition to fatten readily; but others maintain the contrary opinion.

His majesty took the lead in the introduction of the Merino breed into this country, and his first flock was imported in 1792; but other nations seem to have got the flart in this respect, as Sweden had them even in 1729, where they have since greatly increased; and in France, Germany, and some other
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other rates, 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 fixing on the greatly yolky property of its pile; 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 crosses the Merino rams with Devonshire ewes, but the Ryelands are more commonly preferred. They consider five crofses as necessary for reaching perfection; and on that ground properly conclude, that the wool of the first crofs may only be supposed to be worth about 7d. the pound more than that of the maternal flock, on the idea that it will, in five crofses, be of the value of 3s. above that of the Ryeland ewe; making an improvement of 7d. in each crofs. And that if the wool, when this fort is mixed with the most valued native breeds, does not gain its necessary degree of fineness in less than five crofses, it is unreasonable to expect the full price for it at one crofs. 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 cafes, the weight of mutton is greater in the first crofs; and the fleece of wool from 6½ lbs. to 7½ lbs. in the wool to the fleece, at the same age. Crofses with some other fine-wooled breeds are likewise made with great utility.

But according to Dr. Parry, who has had great experience of this breed, they are, as stated in a late work on Live-stock, entirely enveloped in wool, which grows under the jaws, down the forehand to the eye, under the belly, and down the leg to the very feet. It is not without reason that his hearth is so thickly it covers the skin; it will scarcely give way to the prehure of the hand, but yields as it were by arts, like the close short hair of an extremely fine clothes-brush. In washing them, the water penetrates to the skin with great difficulty. The fleece is heavier, in proportion to the carcase, 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 4½ lbs. avoirdupois, and the weight of the living being about 60 lbs.; the proportion of wool to that of carcase is about 11b. to 12½ lbs. The fleece of a fat wether of the same age will be from 5½ lbs. to 7½ 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 doglocks, had been previously taken away. It is added, that had these sheep been washed before shearing, their fleeces would have left 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 shoulder, was three inches and a half in length; and that of the breeze, 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 fourcooled 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 forts, the finest 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 sheep which had not more than three or four crofses of the Spaniard, and divided into three forts (R. F. T.), according to the Spanish method, 156½ lbs. produced of R. or Rhinos, or superfine, 104 lbs. more than two-thirds of the whole. And the uniformity of fineness in the improved wool is such, that in sheering specimens from these different parts of the same animal, (the shoulder and the breech,) which are generally considered as producing the best 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 frizzles or k应急管理. Brownings in the wool of any particular sheep is an indication of superfine fineness (and which is the colour of the ancient fine-wooled sheep, and we need not look for the cafm in any peculiar quality of oil or composition mixed with the wool); it will nevertheless soon whiten. But according to Dr. Parry’s wool, from the wool of any particular sheep is an indication of superfine fineness (and which is the colour of the ancient fine-wooled sheep, and we need not look for the cafm in any peculiar quality of oil or composition mixed with the wool); it will nevertheless soon whiten. But according to Lord Somerville, this dark-brown tinge on the surface of the bell fleeces amounts almost to a black, which is formed by dust adhering to the greasy yolky properties of its pile; and the contrast between it and the rich white colour within, as well as that rosy hue of the skin, peculiarly denoting high proof, suprime at first sight. The harder the fleece is, and the more it refits any outward pressure of the hand, the more clove 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. Tollet’s Spanish flock, purchased from Lord Somerville, the average weight of each Spanish fleece in the grease was 5½ lbs. in oz., and the eighties ewe fleece 3½ lbs. 4 oz., and the heavy ram fleece 1½ lbs. 1 oz. of very good quality. This ram was not quite three months old at shearing, and was adjudged to weigh 20 lbs. per quarter. Mr. Tollet declined the price of two hundred guineas for him, likewise that of one hundred for the use of him during the tapping season: he does not wash his Merino sheep before shearing, since, from the filaments of the fleece, it is not much liable to the intrusion of dirt: as it does not lose quite half its weight in scouring by the manufacturer, an estimate may be made after that rate of the value of the fleece in the yolk. The fleece of the young ram produced upwards of 3½ lbs. and the average produce of the whole unwashed Merino wool 18½ d. each fleece. The price of the superfine more than four-fifths of the whole, 6s. 3½ d. and 6s. per pound of the third fort, or frieze, which was about about one pound in the whole quantity. Mr. Bartley has somewhere mentioned, that four wethers of this breed produced the quantity of 35½ lbs. of wool; and of several ewes which produced 8 lbs. each, and of a wether which gave 10½ 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
different tales that have been made since its first establishment. In the sale of 1803, in Kent Lane, under the direction of Sir Joseph Banks, the numbers sold, according to some, were twenty-four shearing rams, which produced the sum of 40l. 9s.; seven full-mouthed and four toothed rams, 17l. 13s. 6d.; fourteen ewes, 11l. 8s.; amounting in all for the forty-five sheep to 69l. 10s. 6d. The highest price of the shearing was 42 guineas, the lowest 6l. 7s. Of the full-mouthed rams, 28 guineas were the highest, and 11 the lowest price. Of the ewes, 11 guineas the highest, 6 the lowest. The rams were put up at six guineas, the ewes at two guineas; the former prices at which they were allowed.

The wool has been sold this year unscored 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 sinking or cavity both before and behind the shoulder, the top of which is generally higher than the rump; capacious belly, the animal standing wide and well upon the legs; the rams generally of 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 seen, having compact loins and shoulders, and straight backs. Two or three individuals resembled very strikingly our Dorset and Hampshire flock; the characteristic velvet or flagen gloss on the horn 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 six 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 throatiness, or protuberance in the throat, characteristic of the Spanish fort, are, as it is asserted, 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 croft with this breed, and the Archenfield or true Ryeland fort, is extremely ugly, and, according to his information, subject to the foot-rot. On some rich pastures in Middlesex this has also been found to be the cafe in both the true and croffed 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; sides flat; back rather arched; loins thin. It has been suggested, that this mugged appearance may have been the result of a Spanish croft. This fort of sheep has extended to Yorkshire; and traces of them are still visible, although they have long since given place to sheep of the long-woolly 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 neat compact sheep. There is likewise a polled short-wooled fort of sheep in those parts of the country, which are esteemed 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 stands in need of much improvement, and which is capable of admitting of it with much advantage to the sheep-farmers of that district.

The croftes of it should be with the larger finer woolled breeds, that afford good mutton, and be made with great care and attention. It is suppos'd by some, that the Welsh are the original of all the different breeds of sheep in the island.

The Irish Breed or Variety.—This is a breed of sheep, which 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-fided, with high, narrow, herring-backs; hind-quarters drooping, and tail flet low. In short, they are almost in every respect contrary to what is apprehended 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, but that they will soon improve this as well as other forts of live-flock.

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, mostly 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 long-eared, polled aquiline-nosed breed of sheep, somewhat resembling the Wilshire and Dorset breeds in their shape, are produced, and which have a long thick wool, of a black and white mixed or roan colour, and in the place of a tail, a large cullion of fat occupying the rump; hence some naturalists have called them fat-rumped sheep. This and the broad-tailed breeds are sometimes called the Kalmuck and Altrachan breeds. The projection of fat, in this, has an exquisite delicate marrowly taste. Some say 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, twisted 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 shaggy, 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 supporting.
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ing them on a carriage to prevent them from gallowing and exhausting the animal. These appendages are mostly also esteemed a great delicacy, being of a nature between fat and marrow. Further, some of this breed of sheep, especially those of the mountainous forts, have a wool of extraordinary length and fineness, from which are made the expensive Indian shawls, and some other fabrics.

And the Guinea breed of sheep, paid 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 fort of dewlap under the chin.

What is called the Madagascar 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 Bashkarian 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 fort 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 least appearance of wool or down, or any thing of a similar kind.

It may be noticed, that it has been well fitted in a late practical work, that in the breeds of sheep there are evident differences in their sizes, forms, fleth, wool, and other properties, that admirably adapt them for different forts of pastures, situations, and uces of the farmer. And that the large long-woolled breeds, from their being more flow, heavy, and tame in their dispositions than most other kinds, are in general the most proper for the rich inclosed pasturage districts; the breeds which possess greater length in the legs, more activity in walking, and a less 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 pasturage is less fertile and luxuriant; and that the small light haired 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-woolled breed of sheep, as the old Lincolnshire or Teeswater fort, is necessary also in the view of our finest woollen manufactures; and another, such as that of the new Leicesters, for the inferior kind of grass lands, and the rich inclosed arable lands, where the folding system is not in use; for the supplying the materials of the coarser forts of worsteds, stockings, baize, coarse cloths, blankets, carpets, and other articles of the same kind; while a middle-woolled breed, as the Wiltsire, the Norfolk, or the South Down, is wanted for the well-fooled arable lands, where the practice of the fold is in use, in the view of making cloths of the narrow medium kinds; a very fine-woolled breed, as the Herefordshire Ryeland, for the finest cloths; and the Shropshire, or some of the more hardy breeds, for the healthy mountainous situations. The Spanish and Chievot forts 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 fullained; 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 croffing with proper breeds for the particular purpose, on the principles that have been explained in speaking of the nature of breeding, and which is farther shewn below. (See Breed, Breeding, and Livestock.) Indeed this last circumstance is one which should particularly engage the notice of the farmer in the business of stockling his lands with sheep, as it Seems from numerous statements, that wool of the finest quality may be produced in this country by means of Spanish sheep, and their being properly crossed with our fine-woolled 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 indispenisible article. The breeding sheep-farmer should therefore be particularly interested in promoting this sort of improvement, in all situations where the nature of his land will admit of it, which lord Somerville has shewn may be the case in most instances where the short-woolled 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 fort 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 flesh in the different divisions of sheep inclines to the nature of the wool, the short-woolled sheep being cleare in the grain of their fleth, of course heavy in the scale, and in the talle high-flavoured; while the polled long-woolled 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, grazier, 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 state of fatness, &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 state to go off many months before the others are ready, although put on the same land in equal flesh; 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 most are in the best state at the lambing time. But there are, it is supposed, some instances of exception in this and other descriptions of sheep, which poffefs good qualities, that have bad properties, which such sheep improves as the above should also be careful in detecting, otherwise they may be liable to sustain 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 those 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 conduce to this end, but they are of less certainty in their operation, such as the rate and action of the blood in their yflems, &c. The external forms and qualities of sheep which flew 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 intestine: the skin middling 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 port 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 fofs, to such as are of a better and more rich kind, as in the cafe of feeds: but the removing of them from rich feeds or keep, to such as are of a worse nature, has directly the contrary effect. The quality of the flesh, in one cafe, 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, if it is benevolent, throw out the ufual fize 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 fuch a cafe improvements may have a probability of being produced, by having the male smaller in fize than the female, and by changing him from too good or rich keep, fo that his constitution may be in some measure delicate, by the female having her nourishment regular, and fo as at no time to be lowered in fpirit; and when a more full supply of food may be obtained, by the increafe being moderate, fo as to preserve rich keep for the lambs when young, in its advancing growth; by breeding from such sheep as are the most kindly, threw the best disposition, and allow the fufcient profit, on the particular foil or land on which they are bred and fattled; by choofing and selecting the middle fized sheep of the flock to breed from, and not the largeft, as it is favourable to be rather under than over the quality of the foil or land for forming good disposition; by refraining to breed from fheep defplaying a bad disposition, or which have defects; and by cautiously fwing for this pur- pose ewes which have had lambs, and are not too old, as disposition is fuppofed more likely to be produced from the second than the ftrait lamb: and laftly, by the mode of breeding that is called in and in, or in the fame line, which greatly contributes to form disposition.

In the degenerated form of sheep, the reverse of all this will, of course, moftly take place; they will have these qualities or properties in a larger or smaller degree; their heads will be generally short and thick, though occa- fionally rather long, and of a coarse nature; the neck, for the moft part, long, thick, and concave in the higher part; the carcase long and thin, and the ribs flat, ufually termed "flat-fid-d," 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 goutly; the breast or chest contracted, without being deeply let down; the legs long, and thigh

not full or fleghy; the flefth thin, of a clofe texture, and thick about the intestine of the fucular parts; the feet large and coarfe; the flefth hard in handling, or what is sometimes denominated "ficky;" the countenance far from pleasant, and the nature wild; the wool coarfe and humpy; 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 quan- tity of food for their growth and support, and for fattening, than the improved fort, which is a confluence that molt evidently be difadvantageous to the breeder, graizer, and the whole community.

All such perfonas are in the habit of breeding and fattening sheep, and have fufficient 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 molt commonly occurs in fuch 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 some confider almost the whole of the breeds or varieties of this country to be more or less in this flate, or that there is not probably more than one which can be faid to be truly in an improved condition, on the exact principles of improved forms.

This degeneracy is in a great measure the confluence 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 refega, fitteable 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 flate of degeneracy, it proceeds from neglect, harvation, and the want of fuch true principles in their regulation and management. As though a lamb may posfeft good proportions, yet from neglect and other caufes, it may be reduced to a flate 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 fystem. The longer it is kept in this flate, and the more frequent the change it may undergo, the more confpicious will be a degeneracy be. Nature, then, it is fuppofed, will throw out indications in conformity to this decline; the head will increafe in fize 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 fystem. The caufes which are the foundation of fuch degeneracy are believed to be thefe; the rams being too large in fize, and kept in too high a manner; thefe and the ewes not being well adapted to the foil, but too large; the lambs being kept in an occluial flate of want or harvation; the neglect in not breeding a proper number for the pofufe of fegation; the ignorance of breeders in regard to the true principles, in refpeft to the forms of sheep or their management; the frequent crossings of varieties of the fame breed; the prefence of dry fummers and hard winters, which tend to incline the constitution to an unfavourable action, and confequent degeneracy; and the want of good water, which is very prejudicial to sheep.

It is fuggeted, that it is to be lamented, that almost all the breeds, in every fitation, 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 worft which is produced; and the Wilthire, the Welsh, and many other breeds, are not without partaking of too many of the properties and imperfections of the fame kind, in addition
SHEEP.

to their other defects. It is to be hoped, however, that a
more active exertion, and investigation of the matter, in sheep-
farmers, will in a short time be productive of the requisite
improvement in this fort of live-stock, and that by having
recourse to superior modes of breeding, rearing, and man-
gement, an equal pace will be kept in their 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 flated to be almost universally and unanimously
the practice of the breeders on the South Down hills, to ex-
change the rams every third, fourth, or fifth year, as it is
conceived essentially necessary to the preservation of the
health, the size, and the bone of the flocks, though quite
contrary to the maxims laid down by some eminent sheep-
farmers, who are itenary promoters of the method of breed-
ing in and in, or in the same line, continually, when there
is a good breed or fort of sheep. Flocks that are flated 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 belt and most profitable size
of sheep for the purpose of the grazing farmer, and for
producing the largest acriable 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 sized animals of this fort must
be had recourse to for different situations, forts, and qualities
of land, &c. yet the confiderate sheep-farmer will, perhaps,
mostly perceive the propriety of having his ground stocked
with not too large a fort of sheep. It will most likely be
the belt way for such farmers to fully confult the nature
and properties of the foils of their pature or other lands,
previously to their fixing upon the size of their sheep-flock
which will be the most suitable and advantageous for them,
as where their pature or other grounds are inferior in their
nature and riches, the size, of the live-flock of this fort,
which is admitted, cannot with propriety be so large as in the
contrary circumstances, even where light floocking is prac-
tified, for hard and pinching feafons will reduce the flock to
the quality of the land. Though many are advocates for
very large-sized sheep, probably from want of sufficiently
considering the nature of the subject, it is never found that
those who flock with such animals, ever produce fo
much mutton on the acre, or gain fo great a profit on it, as
those who make use of a middling-sized flock. Some indeed
think that four small-sized 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 dispo-
sion, the fame number of small ones, of about nine (the
each, may be fattened on the land that will barely be suffi-
cient to feed three of from ten to eleven (none. Small-sized
sheep-flock have also many other advantages attending them.
Many make complaints against sheep with improved forms,
such as the new Leiceliter, as being too small, from the mis-
taken idea of their close form, as although they may be
short and compact, there is a greater width and depth of car-
cafe in them; by which they do not come much, if any thing,
short of the weight of the more apparently large breed.

It is unquestionably a great error and defect in the sheep-
grazing practice 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 sizes in sheep-flock, if they be readily
maintained on the same fort of land for some length of time,
and this in some measure has produced the differences of size
in the different breeds of this animal.

The particular advantages of the different sizes of sheep
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as are the cloths flocked, are found in common to afford sheep that give the best proof, but it has probably less 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 it fat is enabled to be collected and formed internally; but disposing 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 loose inside fat. And though some think long white watery 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 of the head, the neck, the back, the breadth, the barrel, the bone, the skin or pelt, and the fleece, often afford indications of proof, though not always such as are certain; as when the head is large, the second long and thin, the third narrow, thin, and high, the back thin and straight, the carcase thin and not well rounded, the bone long and large, the hide or skin ficky 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 counteracted 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 fleece 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 fatted by sufficient time, or pastured, as it is sometimes termed, there is a different sized cushion or projection of the 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, it is 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 stated on the subject of proof, that the interests 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 under flood.

In the Agricultural Survey of the County of Norfolk, lately published, it is noticed, that the South Down breed is getting rapidly into the posession of all the country from Swaffham to Holkham; but that from Brandon to Swaffham many Norfolks remain. However, some mixture was observed even in that district. And it is stated that Mr. Coke is well satisfied of the advantage of the breed from Leicester ewes and Bakewell tups. His flock of 160 new Leicesters were produced, in 1802, 100 lambs; his flock of 630 South Downs produced 830 lambs living in June. The same farm, it is added, yields a most interesting comparison 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 sheaves produced 36s. of wool each in the same year, yet they had been kept hard kept on feeds fed very bare. And it is stated, that though he had a high opinion formerly of the crosses between the new Leicester 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 Leicester ram. And it is added, that Mr. Coke has had the fame crosses, and they come to 32l. a quarter, at two-sheer. He put a Norfolk tup and a Bakewell tup at the same time to the same parcel of Norfolk ewes, and at St. Ives fair sold the lambs fat at six or seven months old, and the Bakewells brought just double the price of the Norfolks. In April 1799, Mr. Coke, on fending Norfolk, South Down, and new Leicester three-sheer wethers to Smithfield, that had been fed together, the return was:

<table>
<thead>
<tr>
<th>Breed</th>
<th>Average per head, Norfolks</th>
<th>South Downs</th>
<th>Ditto, fleeces included, the others being in their coats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£</td>
<td>d.</td>
<td>£</td>
</tr>
<tr>
<td>Leicesters</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>South Downs</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

And in May following above 100 going, the South Downs beat the new Leicesters by 2r. a-head. It is also observed, that at Waterden, Mr. Money Hill, with about 500 acres less land than at present, kept 27 score breeding Norfolk ewes, and sold the produce of lambs; now he has 35 score South Down ewes, and keeps their produce, selling his wool at 5r. a tod more than the Norfolk. And further, that Mr. Bevan, in 1792, had a South Down flock, of 30 score, on one farm, and having a flock of Norfolk ewes on an adjoining farm at Knattishall, he had an opportunity of comparing the wool exactly: 34 score of Norfolk ewes produced 43 tod at 28l. 6s. and 34 score of South Downs produced 61 tod; which 61, kept till November, became 64, but the summer very wet.

<table>
<thead>
<tr>
<th>Breed</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Downs</td>
<td>1708</td>
</tr>
<tr>
<td>Norfolks</td>
<td>1204</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Superiority</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 lb. each</td>
<td>504</td>
</tr>
</tbody>
</table>

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 5l. 5r. each; but afterwards repenting, because they would stain his flock, Mr. Bevan offered him 6d. a-head, for all their lambs, more than he sold his Norfolks for, in the same flock, at Ipswich fair. The offer was accepted; the price proved 6s. 3d. for the ewe lambs, and 9s. for the wethers. Mr. Bevan refold the ewes for 9s. and the wethers for 10r. 6d., or 2r. 13d. a-head in favour of the half-breds. Further, that when his sheep were Norfolks, he kept 500; but in 1794, he had 960 South Downs. That the produce
SHEEP.

The duce of 116 ewe lambs, bred by Mr. Eeuan at Riddleworth, 1792, was:

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wool, 12 tods 16lbs.</td>
<td>26 0</td>
</tr>
<tr>
<td>48 Lambs, fold for</td>
<td>32 2</td>
</tr>
<tr>
<td>5 Ram lambs, ditto</td>
<td>8 8</td>
</tr>
<tr>
<td>6 Refuse ditto</td>
<td>2 10</td>
</tr>
<tr>
<td>2 Refuse shearings ditto</td>
<td>5 10</td>
</tr>
<tr>
<td>10 Good ditto</td>
<td>10 10</td>
</tr>
<tr>
<td>1 Ditto</td>
<td>1 0</td>
</tr>
<tr>
<td>8 Ditto</td>
<td>91 7</td>
</tr>
</tbody>
</table>

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 Leicester cross; these he abandoned, and got back to the South Downs, but fell in love with a tender breed, and that they ought to have yards sheltered and littered 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 stated, 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: had some Leicesters; and often he can get worth his money. Little farmers, who keep a few sheep, find the polled breed very convenient from their quietness, and therefore prefer them. Norfolk lambs bred near Cromer, bought by Mr. G. Jones at 14s., were run on byphiles in the autumn, and put to turnips at Christmas, then to layers of the first year, probably as the best food for sheep, and fold shearers wethers at Michaelmas at 5s. each; 20lbs. to 24lbs. a quarter. And colonel Butler, at Haydon, is said to be convinced that Norfolk sheep answer better than South Downs; the Seaflax breed sometimes affording 20lbs. and 25lbs. a quarter, and 15lbs. of tallow; he has a breeding flock of 400, and sold his wethers lambs at 26s. and his ewe lambs at 24s. Mr. Johnson, of Thurning, has 40 head of South Downs, which he has been rearing these five years, having bought many ewes, and got good tops. He has, however, a good opinion of Norfolks, and would not be surprised to see them come into fashion again. In May 1792, he sold two-shear Norfolk wethers at Smithfield for 3l. each. He admits their straining disposition, but 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 thrived wonderfully; never having had any sheep that did better, infamously, that he was forsy 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 long: has had three-shear South Downs of 28lbs. a quarter. Also at Snetesham, Mr. Styleman, the waiter asserts, 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 deducted, 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 cross-breeds, he thinks the first cross of the Leicester tup on the Norfolk ewe the best, and that wool now (1802) sells at 46s. a tod; fleeces 41lbs. And at Hillington, all are either Norfolk or half-breeds, a Leicester tup on a Norfolk ewe. Captain Beeforth thinks there are no sheep in the island which the Leicesters will not improve. He has grazed many Wiltshires, and thinks them the best of all for chase-grazing in the fens. But Mr. Beck, of Castle Rising, has had South Downs thirteenth years, beginning with some from Mr. Tyrrel, of Lamport, 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 all made of his own making, and in such a farm quietness is a valuable object: his farm 486 acres. He gained the first prize for wethers, both 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 toed 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, Lincoln and Leicesters; higher up, Norfolks and South Downs. Mr. Saffory likes the South Downs best, but thinks that if 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 breed. Norfolk three-shear wethers sold in April last at St. Ives, at from 4l. 4s. to 4l. 10s. each. At Brutenham, Mr. Twill keeps 68 head of breeding Norfolk ewes on 1800 acres of poor land. He had a South Down tup five years ago from Mr. Crow, but he could not perceive that the breed did better than Norfolks, though they did fold the full as well.

In the district called Marchland, Mr. Dennis, of Wigenhall, St. Mary, grazes only the best Lincoln wethers; 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 18lbs. in the two fleeces; he has good land will carry 4s. per acre, an average, in summer; in winter, on three acres, and thre has quite enjoy their flesh; if the season be favourable, you get something: he thinks that there is no other breed so profitable here; even a flax of the new Leicester 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 grays; 32lbs. a quarter his average of fat wethers. But Mr. Stanswell of Waterpole, prefers the crosses between Lincoln and Leicester: he buys them shearing-wethers, about Lady-day; the early year, 3l. to 3l. 10s. each, and has had them at 36s. and 34s. He clips the bell twice, three to a tod, which he likes better than heavier fleeces of sheep demanding more food. Some give 17lbs. or 18lbs. of wool. At Michaelmas he pulls the world, or buys cole for them, if reasonable; falls all by Midsummer, making 6s. or 10s. a-head, when bought in high, besides the wool. Very few beards are kept.

Also in Hertfordshire, some prefer the South Downs to Wiltshires, as the latter have the goggle over, but the South Downs never. But the long-legged Wiltshires tuffer lets in folding on wet land. But in other places the result of the comparison seems to be, that South Downs do better on...
Thefe had the dry South Downs. The Wiltfhi res are large sheep, and consequently require to be well kept. In the trials of Mr. Hale, of King’s Walden, for five or six years, nothing beats South Downs, where there is much graft; but on artificial grafts and turnips, without a breadth of natural grafts, they will not do like the Wiltfhi res; for which reason Mr. Roberts, on his own farm, keeps Wiltfhir eewes, and crosses them with South Down rams; so that they lamb in March. When put to grafts they are folded, and some lambs are fold at 34l. in the beginning of harvest; some twins at 3l. 6d.; and the best 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 Wiltfhi re breed; and lately, he changed these 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 Pelham’s breed, both lambs and ewes, and considers the more modern attempts to raise a finer race, as likely to prove mischievous: he will not have anything to do with them. His six-toothed wethers weigh eleven stone and a half. He finds the breed extremely healthy; they very rarely die; and are subject to much fewer distempers than the Wiltfhi res. And Mr. Smith has changed Wiltfhi res for South Downs. He has about 400 in all, some of them Wiltfhi res; they are fed and worked together, and folded on wet lands. The South Downs in exceeding good order, but the Wiltfhi res very inferior. But about Barkway, South Downs are not yet introduced; Mr. Whittle, however, gave it as his decided opinion, that feed and work Wiltfhi res 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 thin in hair and legs; it was tried at Kimpton Hoo, and such was the result. He has fold Wiltfhi res wethers thrie thorn, at 7l. 15s. each. And Mr. Doe, of Bygrave, keeps Wiltfhi res, which he croses every year by new Leicel fer rams; but goes no farther than the first cros. These answer greatly, whether the fat 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. Heremarks, 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 Sulix; 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 per- suasion, as many well know, the late Mr. Macro, of Barrow, purchased that flock which the earl of Orford, after his death, bought and established at Houghton. Mr. Macro died in 1789. And in a paper printed in the Annales, in 1790, he (Mr. Young) remarks, “I have had six and twenty years’ experience in Norfolk sheep, and once thought so 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 all of the sheep which I had examined particularly, none promised to answer 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. Macro, 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 proportionably 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 ex- periment: 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 shep herd, after three years’ obdurate pre- ference to Norfolks, gave up his old friends, and actually set South Downs for his shepherd’s flock. Whether the breed should or should not, in the long run, establish 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 established.”

The farmers in Oxfordshire employ many different sorts of sheep, as the Wiltfhi res, Berkshire, and some others; but the South Down and new Leicel ter, and their croses, are fast driving the other sorts out of the county, as being more profitable in the number that can be kept on the same 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 long-wooll ed sheep are very profitable on farms of the fine-bra th kind, and have large flocks of that sort. In this district, 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 Wiltfhi res and the breed of the county are giving way to the South Down, and other small- sized breeds, as yielding more profit, fattening quicker, and doing better in general. The new Leicel ter, so far as they have been tried in proper situations, have also answered well. Some croses of these smaller breeds have likewise been employed with considerable success.

In the county of Elles, several sorts of sheep-flock are made use of by the farmers, as the Norfolks, Wiltfhi res, Lincolns, new Leicel ters, South Downs, and different crosed kinds; but the superiority and advantage of the Downs are now almost everywhere admitted. The Dihley or new Leicel ter fort is also held in much estimation in many places, especially where the soil is of a dry light nature; as the wether lambs of this breed, and that of the Downs, on being constantly kept together on the same land, until they became fat, the former were invari ably drawn off the first, and were the fatter and heaviest. Besides, rams of this fort are preferred for being put to Norfolk ewes, to those of other breeds; as the produce is larger, and fatter fat. The new Leicel ters are by fome, however, thought inferior to the South Downs, as being such bad breeders; one hundred of them only producing eighty lambs, while the same number of the Downs will bring one hundred and twenty.
SHEEP.

In the district of Devonshire, many kinds of sheep, besides the native breeds, are had recourse to by the farmers, as the Dorset, new Leicelser, Cotswold, and South Down, with crofs of thefe and feveral other kinds, as may be feen by the table introduced above. The laft of these breeds feems to be falt making its way, in fome places where the land is dry, in this county too; but other forts and crofs are held in great favour for different purpofes and ufe, as for mutton, wool, feeding, and different others.

In many of the northern and other counties, as in Yorkshire, Lancashire, Cumberland, and feveral others, the new Leicelser, South Down, and different improved breeds, are now beginning to be had recourse to, and supplanting the old native or other kinds.

The trials have hitherto been fo few, in regard to the comparative advantages of different breeds of fheep, in what regards the relative proportion of food to mutton, offal, tallow, live and dead weight, and many other points, that the Rock-famer has been kept much in the dark. In order, however, to fully clear up and ascertain these effentially important matters, fo absolutely neceffary to the perfect knowledge of the fubjeét, the earl of Egremonl lately ordered the following experiment to be made. The wether lambs of the preceding fpring were ordered to be put up by themselves, into a paddock adjoining the Home-park.

There were of

South Down wether lambs
New Leicelser do.
Half-bred new Leicelser and South Down wether lambs,
from fame get as above
Romney-Marfh wether lambs,
out of Mr. Wall's ewes by his own ram, which, from the custom thare, of not having artificial food, were not lambed till May, being therefore nearly two months younger than any of the reft

Dedue fams

These fifty-five wether lambs, put into the paddock in the month of August, were brought up and examined on the 25th of the June following, when it was found that twelve of the South Down, and all the half-bred South Down and new Leicelser, were in a marketable condition; but that none of the true new Leicelser or Romney-Marifes were in any proper flate for fale.

Of the South Downs, ten out of the twelve were fent off to Smithfield market, fome days afterwards, and fetched per fheep

Of the half-bred new Leicelser and South Downs, ten of the twelve, fent a week before the fame market, brought per fheep

It is remarked, that the half-breeds were feemingly the better fheep; but they went to a bad market, when the prices were low.

The two of the half-bred fort that remained, and which were in equal condition for the market, were kept back, as forming part of the trial, detailed next column.

Here, however, it is neceffary to fay, it is faid, as the experiment is already defcife of one point, namely, that at this age of fix months, as noticed above, thofe two breeds were fo much more advanced than the others, that they might be profitably cleared from the land, and a frefh flock fent in. It will remain, it is faid, for the future progress of the trial, to asceroin whether fuch frefh flock would not pay better, than continuing the old; and for this purpofe it may be calculated, that the fheep now fold at the above market at 34s., with the addition of 32 for wool, pay for fixty-four weeks 7d. the pound from the time of their being lambid. This is noticed to be a very conliderable profit; and that if it fhould turn out, that keeping them much longer is not attended with an advantage somewhat proportionate, it will clearly prove the fuperior benefit of that breed, which may be got rid of at fo early an age. And it is thought worthy of remark, that not one of the true new Leicelser being in any condition fit to be drawn off in the firft lot for market, is a circumstance most strangely contradictory of affertions without end, that fattening at an early age is almost peculiarly a characteristic of that breed.

But to proceed with the trial.

<table>
<thead>
<tr>
<th>Breed</th>
<th>Weighed Ten Weeks' Gain per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbs.</td>
</tr>
<tr>
<td>Sept. 7</td>
<td></td>
</tr>
<tr>
<td>South Downs</td>
<td>273</td>
</tr>
<tr>
<td>Leicelser</td>
<td>258</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>204</td>
</tr>
<tr>
<td>Romney-Marfhes</td>
<td>270</td>
</tr>
</tbody>
</table>

It is noticed, that this result is not very different from what might have been expected; for as the Romney-Marfhes and new Leicelser were very much behind the South Downs and half-breeds ten weeks before, it was natural to fuppofe, that when they did begin to thrive, they would do it in a more rapid manner.

<table>
<thead>
<tr>
<th>Breed</th>
<th>Weighed Lbs in 12 Weeks</th>
<th>Lbs 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>Leicelser</td>
<td>251</td>
<td>7</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>282</td>
<td>12</td>
</tr>
<tr>
<td>Romney-Marfhes</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 fuch attempts double, by not only fhewing when the fheep thrive, and which do belt, but equally by marking when they go backward, and which breed is most capable of withftanding thofe circumftances which operate against them all. In the above fcale, the difference is not very material. In that lot which did the word, the lbs, it is faid, amounts to about 1d. per week; but that it is unfavourable to every lot, that in a period including the belt part of the autumn, as fheep fhould thrive, when the weather is fuitable, deep into the month of November, none of them fhould have gained, which they ought to have done conliderably. Their pailure, however, though good in quality, was bare.

The refult being found, the fheep were ordered to be flaved for twenty-four hours; and after which, to be turned out for other twenty-four hours; propofing, by thus weighing them, to asceroin the quantity of food eaten, and the quantity voided; it being rightly conceived, that if, upon the repetition of fuch trials, there existed any remarkable superiority, or any material difference, between the refpective breeds, it might throw fome light upon the general inquiry.
The sheep were then turned out, and twice weighed, after twenty-four hours eating each time.

<table>
<thead>
<tr>
<th>Gain in the 1st 24 Hours</th>
<th>Gain in the 2nd 24 Hours</th>
<th>Total Gain</th>
<th>Gain per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs.</td>
<td>lbs.</td>
<td>lbs. oz.</td>
<td>per 100 lbs.</td>
</tr>
<tr>
<td>South Downs</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Leicesters</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>10</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Romney-Marshes</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

The result of these weighings showed that the half-breeds lost most and gained most; that the Romney-Marshes 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-Marshes, in the first twenty-four hours, could gain nothing, is not to be accounted for, as the weighing was performed with accuracy.

Weighted again in the succeeding month of March, in the next year, which, as it will mark the loss sustained by the severe part of the winter season, deserves particular attention. They were at grass the whole of the time.

<table>
<thead>
<tr>
<th>Weighted Loss in 4 Months</th>
<th>Loss per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs.</td>
<td>lbs. oz.</td>
</tr>
<tr>
<td>South Downs</td>
<td>253</td>
</tr>
<tr>
<td>Leicesters</td>
<td>214</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>253</td>
</tr>
<tr>
<td>Romney-Marshes</td>
<td>254</td>
</tr>
</tbody>
</table>

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-breeds are the next in the order of demerit; the South Downs are the best of all.

<table>
<thead>
<tr>
<th>Weighed</th>
<th>Gain in 12 Weeks</th>
<th>Gain per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs.</td>
<td>lbs.</td>
<td>lbs.</td>
</tr>
<tr>
<td>June 19 South Downs</td>
<td>299</td>
<td>46</td>
</tr>
<tr>
<td>Leicesters</td>
<td>275</td>
<td>61</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>310</td>
<td>57</td>
</tr>
<tr>
<td>Romney-Marshes</td>
<td>317</td>
<td>63</td>
</tr>
</tbody>
</table>

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 flow of the spring growth of grass. 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 case, from season, they exceed all the rest. The Romney-Marshes, however, approach near to them; and as these had lost, in pinching circumstances, much less, their superiority upon these two weighings seems to be clearly ascertained; and which will appear the plainer, by comparing the weight of December 11th with that of June 19th.

The merit of the Romney-Marshes, in this stage of the trial, is, it is said, conspicuous. The South Downs are next, the Leicesters and half-breeds being equal.

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 so profitable to the grazier. The half-breeds are found the next to these.

The five remaining Romney-Marshes were sent to Smithfield on the 4th of July, and brought 48s. each; and on August the 7th, the remaining Leicesters went at 42s each, also seven at 40s 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-Marshes, 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-breeds in 64 weeks gave 7d. per week profit; and that the Romney-Marshes 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 5d. per week. This is, it is said, a most interesting circumstance, and which manifestly tends to ascertain how much better it would be to the grazier to get rid of these sheep at an earlier age, and re-stock his land with those which are most saleable at the earlist period.

November 21st to December 25th. Weighed again.

<table>
<thead>
<tr>
<th>Weighed</th>
<th>Gain in 12 Weeks</th>
<th>Gain per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs.</td>
<td>lbs.</td>
<td>lbs.</td>
</tr>
<tr>
<td>South Downs</td>
<td>320</td>
<td>4</td>
</tr>
<tr>
<td>Leicesters</td>
<td>326</td>
<td>14</td>
</tr>
<tr>
<td>Half-breeds</td>
<td>346</td>
<td>6</td>
</tr>
<tr>
<td>Romney-Marshes</td>
<td>331</td>
<td>6</td>
</tr>
</tbody>
</table>

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 practices 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 paiture 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 fords, 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 want of food, but the animals thrive better, and the pastures 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 sheep-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-miller must act according to his circumstances, situation, and the capital which he possesses, either selling the lambs to go to keep, fattening them for grasa-lamb, suckling them for house-lamb, or keeping them on to be grazed and fold as fore 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 fore flock, as lambs, wethers, and what are termed crones, or old ewes; some of the last 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 sides, in what are termed couples, 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 palling and support of these animals, but not the fattening of them; the more rich deep grassa-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 circum- spéction are necessary, whatever the fort or intention with which they are bought may be. In these cases much ad vantage, especially when at a considerable distance, may be derived by employing a halifax upon the spot.

And the appearances which shew the face to be in a proper found state of health, are a rather wild or lively briskness, a brilliant clearness in the eye, a florid ruddy colour on the inside of the eyelids and what are termed the eye linings, 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 brisket. 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 neccesary 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 pellies, in the highest degree, those qualities or properties which are wanted, whatever the breed or variety of sheep may be; as it 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 object, had every ram with the lambs got by him the preceding year put in distinct 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 cull lambs, mull, 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 forting 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 darkness forced them to dinner. See Sortirg Sheep-flock.

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 shewn: 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 flock. 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 featon 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 sucking 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 fulfil 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-feaston is March, or the early part of April; but it has been observed, that in many of the more southern districts, where sheep-husbandry is carried on to a considerable extent, some parts of the ewes' flock are put to the rams at much earlier periods, so as to lamb a month or six weeks sooner; a practice which is attended with much profit and advantage in many situations where early grassa-lamb is in great demand. It is usual for the
the rams to remain with the ewes for a month or six weeks, and in some cases longer, in order to complete the business of impregnation, which in some districts is ascertained by smearing the fore-hoofs of the rams with some colouring substance. The method formerly in practice, and which is too commonly the cafe 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 best 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 stated 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 some 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 fole the ram immediately after lambing, but brought the second time only single lambs, though a breed that generally produces twins. The former writer thinks there is no doubt the sheep would produce young three a year, were the bad practice reforted to, which has been so currently 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 tupped in August, the lamb would be dropped in the middle of January, and might be weaned in mid March, the ewe again receive the ram on the turn of the milk, like the fow, perhaps in or before April, the 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 fuckling during gestation.

And it is necessary, that during the time the ewes are in lamb they should be kept in parfures, 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 cast in the furrows, &c. Where any of the ewes flip their lambs, it is advised by Mr. Bannister 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 los of lambing-time, from the ewes being stronger, and the lambs more healthy, and better capable of contending with the fate 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 constantly have regard to the fuckling of the lambs, and see that the udders of the ewes are not diseased. 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 faving 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-stock, that the ewe brings off 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-poll'd Belgic sheep, with their descendants, our Toffwater, 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 cause very rarely, natural defect; sometimes over-fatness, a morbid rate of body, from poverty, or neglect of the ram; in other words, want of fylleum in the sheep.

Further, it has been recommended, that where rich pastures, or other forts of good grafs-lands cannot be reformed 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 see that they are put upon a dry sheltered pature, free from disturbance, and that neither they nor their lambs suffer injury from the too great severity of the season. Whenever this is the cafe, they should be carefully removed into a proper degree of warmth and shelter, until perfectly reforted. It is likewise necessary, as well as ufeful practice, as they lamb down, to take them and their lambs away from the common poflcock, putting them into a piece of turnips, or freh dry pature, where there is fheret when necefsary, as by this means much fewer lambs will be lost than would otherwise be the cafe. It is also found, that by a proper fupply of turnips, or other fimilar 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 finted at this early period of their existence, they never turn out so well afterwards for the farmer. With the green and root crops, and preferved after-grafts, hay, straw, corn, and oilcake, are in fome cafes made ufe of in the winter fupport of fheep-flock. With turnips, where the foil is not sufficiently dry to admit the sheep, it is the practice to draw them and convey them to a fround firm pature, that the ewes may be baiitated 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 fupply that may be daily necefsary. In this way this fort of food will be confumed with the greatefl 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 hurried off as wanted, is a good practice; And with this fort of food, especially where it produces fouring in the ewes, green roots, hay, cut straw, or pea-fea-haulm, should conftantly be given, and also with rape, &c. Mr. Young has flated, that in fome 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 fuggcfs, at the fame time, that it must be a good breed for fuch a practice to repay. And it has been adved, when the weather is very wet, flormy, or there is much snow upon the ground, that the ewes and lambs should have hay given them in baits as may be necessary, which is mostly done in covered moveable racks, a portion being given fresh every day. It is, however, much better to have it cut into chaff, and given in troughs, as much less waste is made. There is still a higher practice of feeding made ufe of by fome farmers, with ewe-flock of the
the more improved kinds, and which is said to have been found to answer better than the common keep in particular cases; which is that of employing parnips, or carrots with hay of the green rhen kind, or a portion of pea, bean, or barley-meal, also malt-combs, with potatoes and hay, &c. These sorts of keep are, however, obviously much too expensive, except under particular circumstances, and for the more improved breeds. It is obvious, 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 hay-flacks, which is common with some farmers, is flown and wasteful, 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 essentially 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 hubble turnips when necessary, the ewe and lamb-flack may be well supported through the severity of the season, 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 sorts of rye or rye-meal may be ready to receive them; which is considered by farmers as the most to be depended upon through this and the following months, which, with 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 grass that is upon it; but which, when removed, presents a new growth of fresh green grafs, five or six inches in height, brought up by the shelter and warmth afforded by the covering of old grafs. 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 shillings an acre; in April it is worth thirty or forty shillings; and if it be a backward season, a farmer that has it would not be tempted to sell it for much more. But in the support of his sheep and lamb-flack, 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 cafés, however, where thefe cannot be fully depended on for the support of the sheep-flack at this difficult season, the most 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, fo as that their shoots 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-grafs and clover, fo 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 conduct 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 foon 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 fown in proper time; nor is the food of great confequences, for many acres of turnip-tops are requisite, the number of which must be in proportion to the flock of sheep; and as to the roots, they grow too fickly and hard after the tops are at all advanced, that their value is trifling. With respect to ray-grafs, the clover mixed with it is seldom above three inches high at this season; and a great breadth of ground to a given flock must be assigned to keep the sheep through April. The number of acres of that young growth necessary to keep a hundred sheep and lambs, is, it is said, surprising, so that these farmers, although they manage to spring-feed more sheep than the world of their brethren, yet effect it at a great expense, and at last not in any degree comparable to what might be done. A turnip should never be seen on the ground after March. For in 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 baga, will last as long as wanted; and though they run the risk, yet the bulbs will not be sickly. The green borecole may be fed off several times in it is impenetrable to frost, and will make hoots in the winter. And another crop, continues Mr. Young, for feeding sheep in spring, which is of particular merit, is burnet. An acre of it managed properly, will at this season yield much more food than an acre of clover and ray-grafs. It should be four or five inches high in November, and left to 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 sheep. It will be better in March, and if kept, ready in April, not only for sheep, but horses, cows, or any other flock. These systeams 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 turnips 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 fed on the pastures and layers till the time of yeaning, 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, followed by the hoggetts. In April the couples go to cole-feed in hurdles; 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 still in hurdles, with a good deal of room to fall back, and continue so on the layers till about the 10th of June, when the ewes are washed for clipping, and until the lambs are weaned; the ewes then go to fold with the fhears on the fallows 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 80 acres of turnips, 20 of cole, and 30 of rye, for the spring. Mr. Bevan ploughs in his rye-tilth-holes before the flocks 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 30l. per acre, and cole at 25l. After turnip-fowing, the

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flock is folded on old layers for rye, till the end of August, when the ewes intended for breeding are put to good pasturage till the tups are let in. But in 1802, the tups now put to the ewes about 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 fatting 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 faifoin 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 flacked. 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 bushels every day, giving a quart to each; and which, for 120 days, is 6120 bushels: 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, or 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>Acres</th>
<th>Turnips</th>
<th>Hay</th>
<th>Rye</th>
<th>Potatoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>248</td>
<td>10</td>
<td>62</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Value of crops, as applicable to each county, without regard to the expences.**

<table>
<thead>
<tr>
<th></th>
<th>£</th>
</tr>
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<tbody>
<tr>
<td>Turnips</td>
<td>2</td>
</tr>
<tr>
<td>Hay</td>
<td>5</td>
</tr>
<tr>
<td>Rye</td>
<td>0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>4</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 accounted on the above farm on a very large scale, a more disputed and doubtful circumstance; and for this reason, they are allowed, hinted, or hinted 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 is requisite in the fattening fylem, as may be seen below, in speaking of that part 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 inerced flock, where good management is followed.

The artificial grazes, such as ray-grasfs 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 grazes of this sort, as well as some of the natural grazes kind, might be very beneficially grown in this intention, as the cock's-foot in some cafes, faifoin, &c. on foils of the calcareous kind, and some of the peas and alopecurces, in other circumstances; by which means earliness, quantity, and quality of keep might be secured.
SHEEP.

Tares, rye, and cole, are in great request as spring food for sheep-flock, the first being raised on the stronger sorts of land, the second on such as are of a lighter quality, and the last on many kinds, even the billy calcareous sort. They are all sufficiently early for being fed in April, or the following month, when turnips are done. Spring tares are likewise often put in to be fed off at the close of the autumns. These practices answer 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, of course there is much loss. These and other mixed crops are, however, frequently had recourse to in this sort of management, with evident benefit.

The flrubble turnip system of food is very good in this sort of husbandry, for late succor or other feed; where crops of such kinds take well in succession to those of other sorts.

The plan of preferring after-grafs 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 sheep-food is seldom good. It is mostly the bafe of necessity and want of forecast in the sheep manager. On light and dry lands it may occasionally be useful, but it often does much harm.

Winter barley, 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 pinching ever answers any 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 preferred in a much better state of condition, and they would be in a much more profitable situation for the purposes of breeding or being fattened, and consequently 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 fluted 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 lands are inclosed, into proper divisions, in proportion to the quantity each pasture can support, care being taken not to over-flock 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 those of the inferior kinds. This must depend much upon circumstances; but whatever mode is adopted, the punt of having the flock preferred 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 irremediable in the course of a very short time in such situations, if not attended to, in hot seasons. With the view of fully guarding against this infest, a very frequent and particular examination must be made by the shepherd.

Further, on this subject it may be noticed, that the next circumstance in the management of these animals is that of weaning the lambs, which is a business that shou'd be effected when they are three or four months old, as about July, but it is done more early in some districts than in others. And to effect it in the best and most beneficial manner, a proper retire of some fresh pasture graze, where there may be a good bite for the lambs to feed upon, should be had recourse to, as it is of much consequence that an ample provision of this sort be had, in order that the growth of this young flock may not suffer any check on being taken from the mother. Where they have been continued so long as to graze with the dams, little check will be sustained in their separation, if turned upon such good feed. Some advise clover in blossom as the most forcing food of the season in this intention, and with others fainbon rosen 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 sustain any inconvenience from their milk, as by their udders swelling, it should be drawn once or twice, as by this means bad conceptions 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 starved by too quick and full feeding, and be made the more valuable by the means and benefit, as it is termed; keeping them gently moving about the field has also been advised in this intention. In some places where the lands are of the most poor kind, it is a custom to send the lambs to the more rich vale or marsh districts, to be brought forward in condition, or fattened. In these cases, where the lambs of the male kind are reared on the home lands, as wethers, they are usually restored 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 best 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 in the southern part of the island, this selection, or setting of the lamb-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 suitable 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 selection, the farmer or his shepherd usually (whatever the breed may be) rejects all that manifest any departure from certain signs 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,
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, reason in all this; for customers who have been used to and prefer certain breeds, as having paid them well, are apt to be faddish when they purchase. Some farmers in this section look chiefly at size, always keeping the largest frame; but this is probably erroneous, unless they keep very high. It connects with a question by no means ascertained, 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 select 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 district where the price of the year is given equally to all flocks, there is little encouragement to lessen quantity for the sake of quality; retaining, however, the idea, that both are attainable, that it is very common to feed coarse bred sheep with light flkes, and those of a fine quality heavy in weight. The Spanish flkes, which are finer than any other, are heavier than those of our finest woolled sheep. With combing wool the importance of the flkee depends still more on price; we have seen it at 8s. a tod; and it has lately been 36s. Quality is of very little consequence indeed, compared with quantity; and when wool sells high, no prudent breeder will fet his flock without being governed considerably by this object. And it is added by the lame writer, that the high prices at which new Leiceter and new South Down rams let and fell, has opened a field of speculation in flkee-breeding. It is sufficient to remark, that this spirit of breeding, whether it shall prove durable or not, whether much money shall or shall not be made in it, is not what any prudent man beginning business will adventure in, but with great caution: men of such immense fortune are now taking a lead in it, and are in many respects doing it on such liberal principles, that the wiseft conduct of such farmers as he may be supposed to address, is to take proper opportunities of converting their experiments to their own (the farmer's) profit. Leave the expense to them; but, when you can, convert the profit to your own advantage. In letting a flock of lambs, therefore, you may mark a fcore of the best, for a future ram to be picked upon, when opportunity offers it. Better still, to lend to the top of some ram-letter that takes them in at a reasonable price per head. By every year selecting five or six 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 expense. Altogether this period, besides filling up the deficiencies in the ewe flock, the increasing or diminishing the quantity of flock usually kept, by rearing 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 useful directions on this subject, in his Calendar of Husbandry.

On a farm, says he, with a given stationary sheep-walk, it is probably regulated by circumstances that rarely change; but on inclosed farms, where the sheep are supported by fields alternately in grass and tillage, variations may easily be supposed, and the question of hard or light flkeering, that is of close feeding or a head of grass, 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 flke lightly; but if the return is looked for in corn from fields laid down for refreshment by rest, then close feeding is a very material point, and the number kept will depend on it. With all grazes, &c. that do not decline from age, the more sheep you keep the more you may keep, and the more corn you will reap when such are ploughed; a circumstance too important to be forgotten. But the young farmer will remember, that upon this system he must not have a brow flock, or let the variety of a farm have the least influence with him: if in this way he will have a something to talk of, a score or two of pampered favourites, the fewer the better, for they may cost him more than they are worth.

And as soon as this has been properly executed, the ewe and wether lambs that are left are mostly sent to the neighbouring lamb-fairs to be fold off. But where the fairs for this purpose happen later than the above period, as in the beginning or latter end of September, as is the case in some situations, it has been advised by the writer first mentioned, that great care be taken to keep them in forcing food, as in spring fairs, early fawn fome, good grazes of the right degree of bite, &c. &c. in order to promote their growth and increase their value; but to sell in August is more beneficial.

It cannot but be obvious, that in the management of breeding flocks, the lambs come to be disposed of at different periods; irksome that have been fputed or fattened in the house, in which the time of fattening, much attention is required to have them early, to their being well, regularly, and very cleanly kept and fucted, as well as to the ewes being of the right fort, and the bell milkers that can be provided, and to their being fully supplied with food of the most nourishing and fuculent 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 state. 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 Sucking.

And as soon as these have been fold off, the lambs which have been fattened on the belt grazes-land will be ready to succeed them at the markets, in the spring and summer months, and there will be followed by the sale of the fore- lambs at the different antumnal fairs, or more properly the winter fairs.

Further, there are different local practices also adopted in different counties, to suit the particular methods in which their sheep husbandry is conducted, as well as the particular objects of it. The following is given as a hint from Sir Joseph Banks, by the writer of the Lincolnshire Agricultural Survey, on the sheep system of that extensive district: that as tups are there always hired by the breeders, the lambs may be paid 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 considerable price, finds the lambs he has got not sufficiently above the ordinary fort to pay him the difference, with interest; he complains to the tup-man, who generally views the lambs with him, and makes a fair abatement, which is generally settled in the price of the hire of the next year's tup; this regulates the price of letting, and makes the tup-men a most useful set of people. The great mafs of breeders in Lincolnshire sell their breeder lambs about old Michaelmas time, or a little after: a succession of fairs for that purpose are held in the village called Partney. These lambs are refold in the spring at Lincoln fair, under the name of hogs; at Midsummer their owners clip, and then winter them; the succeeding spring they are carried to Bolton, where, in a long succession of markets, they are sold to the graziers, with their wool
wool, under the name of shearlings, and immediately turned into the marsh to fatten; the graziers take their fheep, and having wintered them, get the kindleff to Smithfield in the course of the succeeding spring; those that do not fat fo early, yield the grazer a fleece at Midsummer, and are got off the ground in the course of the next autumn. Here you see a combined fystem of fheep agriculture, for as the animals are eternally either changing hands or yielding fleeces, they make a return of some kind or other to their owners, nearly half-yearly from the time of their birth, to that of their final pollution at Smithfield.

See RAM.

In the fheep fystem of management which is practised on the large rich tracts of the Romney, Walland, and Denge marhes 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 these marhes, is that of feeding them about the beginning of September to be kept by the neighbouring 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 ervants. They are then commonly put upon the stubbles or grartons, as they are called; but in some places they have also 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 feasons, once a day, some fort of dry food, such as hay, or thofe of better kinds in particular cases. It is not improbable, indeed, that lambs might be safely kept in these marhes through the winter, by the use of fuch food and proper care. It is found that there is a prodigious benefit in keeping the lambs in winter, in fuch situations, in having the grounds dry and warm, instead of being of a cold, wet, clayey nature. Lambs should by no means be flocket along with the ewes, as the old fheep will continually take the feed, and fleece the land, by which the lambs may be greatly hurt. They should always be flocket 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 grafs, after having been fed on luxuriant food, such as turnips, old tares, rye-grafs, &c.

The price of the keeping of lambs in these cafes is very different; some paying only 4s. 6d. the lamb, while others pay 5s.; and where no neat flock are kept, they charge as high as from 6s. to 6s. 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 object. The lots of lambs in this fystem of winter management, is occasionally consider- able, but depends much on the nature of the feafon, as to mildness or severity, amounting in some cafes to four or more in a hundred.

The tegs, or one-year-old lambs, in this fystem are brought from the uplands, where they have been wintered too often in a low state of condition, for the supply of the fheep graziers, which enables them to keep more ewes and fattening-fheep 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 recompence 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 fheep being just fold to make room for them. There are commonly the left conditioned tegs, in which there may sometimes be lots from the sudden transition from poor to too good keep, though they are not, in general, fo subject to some forts of disease as the old ones, on such changes being made in their food.

The fheep graziers have lately been much in the practice of prevailing on the farmers to keep fuch flocks a fortnight, or even double that time, on turnips, which has the advantage of enabling them to double the flock on the fame pastures during the summer; while on the other hand, it is evident, that when they are fo hard flocket early in the spring, they can neither have fo luxuriant a growth, nor be fo full of grafs. The pastures are likewise falted gradually, as the fat ewes or wethers are taken off, and their places supplied by the wether-tegs, while the ewe-tegs are suffered to remain on their original pastures, until they are fected, or let for going to the farms.

In the ewe management of the fheep fystem, which is by no means well regulated, the ewe-tegs, one-lamb, two-lamb, and three-lamb ewes, are all mixed together, fo that they cannot be diftinguifhed by the grazer, 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 pofible; as many advan- tages would refult from it. In winter the land is flocket in proportion of from two to three ewes on the acre, as it may be of a more or lefs good quality, and in summer with from three to four and their lambs. In cafe of twin lambs, with not ever more than three to the acre upon the bell pastures. The fummer flocket with ewes is here fuppoled to have too much uniformity in it, though it may perhaps be proper in the winter, yet when that feafon is mild more might certainly be kept than under the contrary circumstances, for which no fort of allowance is made. It is conceived, that it would be good policy, when there is the probability of plenty of keep, to increase the number of ewes on the breeding pa- tures, though there fhould be a neceffity, on that account, to provide an additional pafture field or two; however, fo prejudiced are many fheep-farmers in favour of the common practice, that they do not even make the neceffary additions of flock to keep the grafs properly under, by which means it is apt to become benty, the pafture injured, and con- siderable wafte sustained. The old fheep, or thofe which have had the third fheep, are commonly cut off for fatt- ening, and the others marked for fores, and weaned from their lambs, by putting them into one of the pafture 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 fheep management is 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 furred condition, for even a short time, than by throwing them at once into fresh keep. Whatever of this is, the moft eligible practice is not attempted to be decided, but the moft general one is that of bleating aged fheep are not fo liable to be struck with disease as young ones in such cafes, or the feafon of the year or favourable.

The fystem of the marf for the management of the wethers, and the time of drawing them for the market, is this: 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 fuit the defigns of the grazer. Thofe who intend to keep them for a whole year, commonly put three on each acre of the bell pastures for the winter flock; but thofe whole intention is to make a fecond or third return, are satisfied with two on the fame extent; in which cafe, however, it is neceffary that they be put more early upon the land, in order that they
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 fummer pastures, 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 fize, 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 summer keep; as mutton may often fall for 6s. or 7s. the stone in the spring, and not bring more than from 4s. to 5s. at that period in the autumn. It has long been a question, whether other fheep or old barrens fatten the moit quickly, on which it may be noticed, that any increafe in the food of full-grown fheep must have a tendency to the formation of fat, whereas in wethers or other young fheep, it must be partly expended in the evolution and development of their frames, and, of course, lefs fat be produced. Much, however, will depend upon the fize and disposition of the fheep.

There is great difference in the practice of different graziers, in regard to the time and manner of drawing the fheep for the market, some beginning much earlier than others, though the fheep were all put into the fattening pastures at the fame time. Some draw the worl of the fheep firft, conceiving that the prime fheep 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 moft 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 fuch fheep as are deficient in disposition to fatten, is a complete loss of the keep of them. Towards the end of the summer, keep, however, is of but little value, and of course, their remaining a little longer is not of any material conquence. 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 march, or to difpofe of them to lamb butchers at a somewhat reduced price. This inconvenience would, however, be much removed by a better and more proper felection of the fheep than that which at preftent is the cafe.

In fending the fheep to market, care should be taken to have them as nearly as possible of the fame fize and condition, as a few inferior ones are apt to lower the value with the butchers. In this intention they are by fome divided into two or three lots, while others fend them in one only; the former, however, in general obtain the highest price. By more attention to the regulation of fize and keep, a greater equality would be met with in the vether fheep on the fattening pastures of the district than that which at preftent prevails.

In the fystem of these marches, 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 fizes which are thought the belt calculated for this purpofe, in the notions of different graziers; fome preferring large, others middling fizes, while many fteem molt, fuch as have long legs and bodies. There is here, however, much too little principle in the management of this buifiness. Such ewe lambs as come from ram-lamb ewes, fhoould be fo marked as to diftinguifh them, and be constantly preferred for breeding ram-lambs from. The ram-lamb ewes are mostly lambed by themselves, and have superior keep. Thofe which do not fuit the intention of the grazer are caflrated; while fuch as are to be faved have a small part of the tip end of the ferum cut off, and two marks fixed upon them, one on the shoulder and the other on the hip; being continually indulged with the belt fattening keep, as it is the common opinion that they cannot be too large. They are fend to particular situations on the neighbouring hills during the winter feafon, where they are tended with the utmoft care and circumpection, having hay and turnips occasionally given them. On being brought back to the marches in the spring, they have the run of the bell pastures, being flocked focompactly upon them, as to be in every way disadvantageous to the grazing farmer.

Another felection sometimes takes place from them during the fummer, in which, thofe which do not fuit are either fend to market, or nettled, while thofe which are approved are employed in the enfuing riding time. Thofe young rams should only have a few ewes, as thirty or forty; as more greatly injures their growth, &c. They are usually fold or hired out, by which much money is often made.

It is the practice here to keep too many rams together in the fame pasture, as much fols is fometimes fublimed by it. The ufual time of putting the rams to the ewes here is about the middle of November, though fome 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 fo large as to fland 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 buifinesfs properly; fome change the rams occasionally, as after the firft fortnight, and at other times according to circumstances. Sixty ewes are ufually allowed to an old ram, and thirty to a teq ram in this march fystem. See Stocking Land.

It may be observed that there is fome difference in the method of managing heath, down, and mountain flocks of fheep, from thofe which are purfued on the inclofed pasture lands, though in the felection of the rams and breeding flock, the fame practices are followed by the bell fheep-mafters. The principal difference consists in the manner of keeping them, by putting them as early as possible in the spring month, as in the beginning of April, upon the downs, heaths, and commons, and keeping them upon the march until the approach of the autumn, as the beginning of October; the fine loft sweet herbage in these cafes preferring them in a flate of tolerably good condition. And where it begins to grow scanty and decline in goodnefs, other sorts of feed which have been previously provided are had recourse to, fuch as turpines, coke, &c. on which they are fedded during the autunm and winter till confumed, when hay which has been facked for the purpofe in fuch fitions, is employed until the grazes has again advanced to a proper fize. In cafes the fystem of feeding is generally recurved 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 feedion often on the flabbles, though more extenfively upon the downs and pastures; while in the spring feedion the lands under preparation for the barley crops receive them. This fystem is considered as very beneficial by the farmers in thofe districts where it is in ufe. And in the more hilly and elevated fitions in the northern parts of the kingdom, other methods of management with this fort of stock are employed. In Argyll being the principal circumftances attended to by the moft intelligent fheep-farmers are thofe: to flock lightly, which will mend the fize of the fheep, with
SHEEP.

with the quantity and quality of the wool; and also render
them less subject to diseases. In all these respects, it is al-
lowed by good judges, that 500 kept well, will return more
profit than 600 kept indifferently. To feed the bell lambs,
and such as have the finest, clofled, and whitest wool, the
fants and breeding ewes, and to cut and play the word. To
get a change of rams frequently, and of breeding ewes occa-
sonally.

To put the bell-tups to the bell ewes, which is con-
sidered as necessary for bringing any breed to perfection.
Not to tup their year-old ewes; which, if allowed to fatten
especially, would render the lambs produced by them of little
value, as the ewes would not have a suficiently of milk;
and would also tend to lessen the size of the flock. To
keep no rams above three, or at most four years old, nor any
breeding ewes above five or fix. To separate the rams from
the 10th of October, for a month, or fix weeks, to prevent
the lambs from coming too early in spring. To separate
the lambs between the 15th and 25th of June; to have good
grafts prepared for them; and, if they can, to keep them
separate, and on good grafts, all winter; that they may be
better attended to, and have the better chance of avoiding
diseases. A few wood calves will enable them to do it;
keep not only their lambs or hogs, but also their wedders,
ewe, &c. in separate herds; by which every shepherd, hav-
ing his own charge, can attend it to better than if all were
in common; and each kind had the pasture that suit it.

But in Linten, the following management, according
to the survey of that district, is observed: in summer the
flock is divided into three herds. In the first are all the
hogs and yield sheep; in the second, the milk ewes; in the
third, the lambs. In winter they are kept only in two herds.
In the one are the hogs, in the other the ewes and yield
sheep. The lambs are weaned about the end of June, the
ewes milked from the 1st of July to the middle of August,
and the milk made into cheese. The sheep are clipped
from the end of June to the end of July, according to the weather
and condition of the flock. The rams are let to the ewes
from the 15th to the end of November, according to the
situation of the ground, and the nature of the grafts. From
40 to 50 ewes are allowed to one tup. The breeding flock
is changed every five years, by selling off the superannu-
ated ewes. Some ewes, however, are kept longer than five years,
and some shorter, according to their condition; for they do
not all decline equally soon. In East Lothian, sheep are in
much esteem, and kept in considerable numbers every where,
especially on the coast lands. Permanent flocks, however,
and regular sheep management, may be said to be almost
confined still to the higher parts of the country. In the
low country they are kept chiefly to eat the turnips, and
sometimes fawn grafts, which is permitted to be a year or
Two for pasture. Flying flocks therefore are generally kept,
and as soon as they are fattened for the market, which is
usually within the year, they are sold off. A considerable
number of lambs likewise are reared, only so far how-
ever as to render them fit for the butcher, or to be sold fat.

But as the great object, in the lower districts, is feeding,
little attention is paid to particular kinds; every farmer
keeps those which he thinks are likely to pay well for the
food which they consume. The black-faced, or Tweeddale
breed, are most generally preferred for feeding on turnips,
because they are most esteemed in the market; but many
of the Cheviot breed are likewise kept, and even some of
the Improved Leicesters.

It may be noticed, that it is, however, only in the Lam-
mer-muir district that sheep husbandry can be said to be
regularly practised, the management of which is this, ac-

...
when the bleak tracts on which they live are deeply covered with snow. According to the writer of the Perthshire Agricultural Report, in their 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 herbages. But when the snow is falling, or blown by a storm, the shepherds drive their flocks, without internal flocks, 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 fads 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 deposited in handfuls upon the snow.

Mr. Marshall has suggested', that cultivating plots of furze, broom, juniper, &c. by sod-burning, and rapping 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 deeps, snow, when the herbage of the eaves was buried too deep and too evenly to be uncovered by the raking of the sheep, by keeping the most exposed part of the eaves full herbage for legs general coverings of snow, and by reverence of care for the season of lambing, even ewe-flocks might be supported through the winter with some degree of certainty, without dry fodder, and without being left to the uncertainty of the seasons, and the mercy of the winds and weather, as they are at present.

The practice of birfeling, where no more lambs are kept than what is necessary for drawing the flock, is now much objectified to by fome, though it may be beneficial in rearing wether hoggs; 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 till they are gimmers or diminutos, and then introducing them among the old sheep, the lambs being every year laid on the land, where such gimmers or diminutos had been the previous year; by keeping the hogs and diminutos or gimmers together, and putting the gimmers or diminutos 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.

Profits 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, it should be the constant aim of this kind of farmer to have his pasture or other land so focked 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 systems 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 flock in different places, and from the case or difficulty of providing it, at different times, as well as the nature of the season, 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 year, or probably the same farms for two succeeding years together; as farmers of this fort must be directed and regulated in their management by times, circumstances, and seasons, so as to have their lands focked according to the growth, or the probability of the growth, of grasps on them; taking care to have them always provided during the early summer months. Particular 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 sheep-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 least flate; but which is not always the case. And where the grazing farmer, as in the Romney-Marsh practice, can either fend them readily to the uplands for the winter, or feed them on turnips, and have their lambs well fed, and fend out a sufficient number, as well of them as of the tegs or two-years old sheep, or render these lall fat, as is sometimes the case, a greater profit, it is said, will be produced than in other ways. The value of the wool is likewise to be taken into consideration in this sort of flock, as it tends to profit.

The profits of the breeding system, in the above marsh, with sheep, depends much upon the qualities and properties of the lands for the purpose, as some will carry and keep a far greater number of them than others; as two to the acre, two and a half, and three on the same extent of ground. It is unquestionable, that by lightly flocking such lands in the winter season, the growth of the summer grasps would be greatly benefited; but 100 acres of such breeding pasture land, which keep only 200 sheep, producing 220 lambs, will not pay so well, it is thought, as if 300 ewes were kept, producing 340 lambs. Two returns, therefore, are not capable of being made in the breeding system, as many ewes are, of course, under the necessity of being kept in the winter time as such lands will support. It is, however, suggested, that by the use of hay and artificial food, much increase of profit might not only be produced, but
such pastures be improved; which should be the constant aim of the sheep-grazing farmer, whenever the expences will allow of it. Further, the expences of labour and keeping such pasture-lands in proper order, losses of flock, &c. must take greatly away from the profits of this kind of farming. It is, on the whole, thought, that though the profits of the breeding system 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 prolific or scanty crop, an increase or decrease of rent; which circumstances cannot fail to alter the profits of a breeding grazer." 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 system of sheep management, which is more varying, will be afterwards particularly considered, and in some measure 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 system 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 store 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 sorts of keep, situations and kinds of land, must be well considered; the differences in the forage of food, in regard to the improvement of the sheep; and the most beneficial methods of employing it in different cafes; 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 grufs-piece, or any other sort 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 constantly the most promoted by the allowance of only the prime fresh food.

There are many different sorts of food made use of in this business, such as the different sorts of turnips, which are very extensively applied in this system, and some use them alone, but it is probably a better practice to give some sort of dry food with them, especially where the common turnip is employed, as it is more watery and less nutrient than that of the Swedifh kind. Cut hay, chaff, bran, corn, oil-cake, all answer well in this intention; and of the first two or three sorts they should have a pretty full supply; but the latter, from their expence, should be more sparingly given; several pounds of oats will however be required for each sheep per day, according to the kind and size. It is stated in the Norfolk Agricultural Survey, lately published, that captain Beacher having 700 fatting sheep, and turnips running short, put 200 of them to oats (not ground); he found that the practice would not answer if oats were more than 6s. per coomb, and then not for longer than six weeks: they were fed on a pature, and the improvement of it very great. He thinks grey pea or beans would have answered much better.

With oil-cake, some give half a cake a day to each sheep, but the quantity must depend in some measure upon the other keep which they have. All food of this sort should be given in moveable troughs, divided in the middle, so that the sheep may feed on each side, with a floping roof over them, so as to cover the sheep's heads and necks while feeding, 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, while it would be very convenient for holding that material, and preventing waste. The whole should be fixed on wheels, and be made to stand ready, and a sufficient number for the quantity of sheep be always in readiness.

Steamed or baked potatoes, cheap convenient contrivances for the preparation of which have been lately invented, have been suppolled by some 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 sort of crop is good, an acre is supposed to support about five score sheep in the field, six or seven weeks in the winter feason: an acre of good grazs supporting at the rate of one hundred couples from five days to a week.

In the fattening of wedders, the use of barley meal, with grazs or some other fort of green food, has likewise been found highly beneficial, and when it can be procured at a reasable 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 feason, and some sustances of other kinds. It is not known that any fort of pure saccharine 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 experimentitious manner, if the expence 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 purpose, suitable other sorts of food being had recourse to at the same time.

On the most usual sort of food for this use, that of turnips, sheep are very apt to go backward, unless fattened out before the winter feason sets in. Indeed the loss from keeping fat sheep through the winter is often so considerable, that it is advisable to have them ready to fall at the close of summer, to prevent the winter keep from being thrown away. The most beneficial application of this sort of food in fattening sheep, has, however, probably not yet been fully hewn, 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 fixed, and put into covered sheep-troughs, a gallon being sufficient for a sheep in the day. They mostly prove well on this sort of food, so that if a fair trial be made, the potato system will probably be found the most expeditious of any in fattening these animals. When compared with different sorts 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 business. A little hay is mostly given with the potatoes, morning and evening. A salt mixt of excellent manure is likewise raised by this practice, where due care is bestowed in the preparation of the yard. Many other sustances tried in the same way, may possibly be equally beneficial 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 management...
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 bet-
ter. Such commonly make the largest profits as have con-
tantly 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 like-
wise be carried further than is proper and beneficial, by which
the profits of the individuals will be lessened, and a less sup-
tained 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
cheap or dear market. The belt way in general, is to sell
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
by the sheep-farmer; and the practical management which is
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 left 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 sold off in March or the
following month, in their wool, so as 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 mar-
kets, fairs, hills, or neighbouring high grounds, or the two-
years old wethers that have been kept out, or, which is per-
haps the best flock in these cases, with such teats as have been
well kept through the winter, and which are equal in weight
with furred or inturled two-yearlings. This is a most pro-
fitable sheep-fattening system, where it can be carried into
practice, that of putting, what are denominated make bar-
rens, or such ewes as have miffed going to lamb, upon the
fattening land; but as these will not form the necessary
supply of flock, other sheep or mixed flock must be pro-
vided to produce sufficient profit. It is never a good prac-
tice to turn poor lean sheep directly upon the rich fat-
tening 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 sheep may be put immediately
upon them without danger, and be fed out, often in the
course of a few months or less, by which the sheep-grazing
farmer is enabled to have another return, which may con-
tribute greatly to his profits.
In the sheep-fattening system, 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 re-
gular quantity of flock was kept upon the different fields,
but the less rich pastures be flock'd 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 ef-
eft in this system of sheep management; but the profits
will materially depend on the proportion, the richfness, and
the quality of the farmer's fattening to his other lands, on
the judgment which he pofticles in the buying in lean flock,
not to be prevented from doing. The taibe is much more
than lost in mutton. And Mr. Reeve, of Wighton, never
folds; folding from layers, upon fallow, is only robbing one
field to enrich 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 manuring for wheat, which, the writer says, comes
to the question: he never sows tempered land with
wheat, without either oil-cake, or muck, except on pieces
from which the sheep were not folded while feeding the
layers. And Mr. Durigate remarks, that folded sheep
certainly demand more food than those which are not folded;
and a quarter of a ton of rape-cake is equal to the fold; and the
flock, without any doubt, suffers 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. Becker, of Riving, 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 ex-
periment, 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
sumner; but from the other part they were not folded at all,
but left in the layer 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 saltmarsh; and Mr. Tuttle,
his neighbour, averted, he would never fold at all had he no
marlflies. Nor does Mr. Etheridge, of Stanhow, fold. These
casts should, the writer says, be combined with an-
other, that of heaths and sheep-walks that have been fed
with sheep for centuries; but these sheep continually folded 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 Snct-
tifham, turned his flock loose, and without folding, in twenty
acres of allotment every night, for the same 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 face 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 chewed by a
regular verdure, that they had distributed the manure equally
in every part. He concedes that hams fell 2s. 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 Abbots, finds that no mucking,
on his burning gravels, will do so much good as the fold,
and especially on a white clover and trefoil layer for bar-
ley. And in the clay district of the county of Hertford,
Mr. Byde remarks that sheep have been too much leaffed.
Of all the common manures, he considers the fold as the
best; and he has observed in many farms the general appear-
ance of the crops decline, as the number of the sheep kept
has leaffed. 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 good as the
manure of the fold is, Mr. Chapman has found by trial in
the same field, for turnips, that yard-dung was much better
than both fold and malt-dung together. However, Mr. Ro-
borts, of King's Walden, thinks nothing is equal to the
fold; he never reckoned it worth less than 40s. per acre,
corn being cheap; but of late much more; he folds two
poles of ground with twenty sheep. And Mr. Sedgwick,
of Rickmanworth, is clearly in favour of folding on all farms.
See Folding of Sheep.
It has been observed by Mr. Ellman, in the Annals of
Agriculture, that just twenty South Down sheep (if a large
forty, a less number will do) will fold one rood per night: three
thousand two hundred will fold one English acre per night.
We value the manure at from 35s. to 50s. per acre, the goodnees
of which depends much on the manner in which the sheep are
kept; if kept on artificial food, such as tares, rape, clover,
turnips, &c. they will drop more foel than if fed on grasss only.
Suppose we estimate the folding at 40s. per acre, it will
amount per year to 42l. 62d. per sheep; 22l. 16s. 3d. per
hundred; or 223l. 28s. 6d. per thousand, supposing the sheep
folded throughout the year. If it be a breeding flock, it
might be well to omit folding for five or six weeks imme-
diately 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
attained during winter on all soils, without the inconveni-
cences of the former plan. This is flated to be by confining
them at night in a sheep-yard, well and regularly littered
with straw, flable, or fern; by which means you keep your
flock warm and healthy in bad weasons, and, at the same time,
obtain a surprizing 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 paf-
ture) 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 baited; but if their pasture be a distance, they should
then, instead of baiting 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 confection to
all farms, the quantity of dung raised will be very great.
If this method is pursd through the months of December,
January, February, March, and April, with plenty of litter,
a hundred sheep will make a dunghill of, at least, fifty loads
of excelellent fluff, 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 in
for standing fold for littering and for folding in bad wea-
ther convenient; and is fully convinced of the great ad-
vantage of it. He intends in future to have his flock in it
for yeaning, whether the season be good or bad. And in
Hertfordshire, the earl of Clarendon has a fold which con-
tains good room for three hundred sheep, the number kept
in it: an open shed surrounds it, except on one side, where
a barn is the fence; the outside of the shed is formed of
wattled hurdle-work, without straw or other materials, for
coolnefs, left a greater clofenefs should make the yard too
hot: it is all kept well littered with fltable, and yields, from
three hundred sheep, eighty large cart-loads of manure.
This systlem agrees perfectly well with the shee and keeps
Sheep.
SHEEP.

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 level. 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 grass-lands. It is superseded 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 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 100l. for fifty acres, which, taking the average at 94l. for that amount of stock, the annual advantage of the fold may be set at 32. 9d. a-head, or rather more; taking it at 100l. it would be 42. 3½d., or rather more. This shows the great utility of it in some places. All sorts of sheep, except the fattening ones, and those disposed to that plate, are mostly folded. It forms a sort of moving dung-hill, which enriches the land 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 grass-lands, as well as in confining particular sorts of crops. See Sheep-Fold.

Hurdling-Management of Sheep.—It may be noticed, that the great utility of hurdlings off different kinds of green crops, in confining them by sheep, has been long known and practiced; and equal advantage may be derived in many cases, by having recourse to the same method on rich grass-lands in large enclosures, so as to let the animals have a fresh space or bite every day. The sheep are found to thrive better, and the same extent of land to support considerably more in number, while the land is at the same time much improved. And it is not improbable, but that other sorts of flocks may be managed in the same way with similar advantage. In these cases the hurdlings must be let according to the nature of the grain; where it is bare and thin, larger pieces should be folded, than in the contrary circumstances. See Hurdles.

Washing-Management of Sheep.—From the flocks 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 business to have the washers standing up to the breast in the water; but from the inconvenience and danger of it, the men requiring a large supply of spirituous liquors, and being liable to be attacked with colds, rheumatism, and other diseases, as well as being apt to dispart the work with too much expedition, so as to leave the wool insufficiently clean; it has been proposed by Mr. Young, in his Calendar, to raise off a portion of the water (in a stream or pond) for the sheep to walk into by a sloping 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 end to let in on each side of this passage, where the depth is just sufficient for the water to flow over the sheep's back, a cask either fixed or led, for a man to stand in dry; the sheep being in the water between them, 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 pasture, is to receive them; of course there is a bridge rail-way 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 washers. But other more cheap contrivances may be provided where there is clean water at hand for the purpose. And sheep should on no account be driven on dry or dusty 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 will them through the water, without their being touched by the washers. As soon as they have been washed, the sheep should have a clean hard pail time for a few days, until they are perfectly dry, and in a proper condition to be shorn. The lambs are generally shorn, especially in the northern districts, a few weeks after the old sheep, and the operation is termed shearing. The lambs that are sold in Smithfield market are, we believe, seldom or ever shorn. See Sheep-Shearing, and Shearing of Lambs.

The practice of washing the sheep before they are shorn is a custom that prevails over most part of the kingdom, especially with the long-wooled breeds, and pretty generally with those of the short-wooled kinds also, but which is performed with more difficulty in them from the closer-matted nature of the fleece. It is said, however, to have been the custom in Devonshire, for a great length of time, never to wash the short-wooled sheep, but to shear them dry, as is constantly the case 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. 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 is considered of 1s. 6d. The weight of a fleece in the yolk, is to the same fleece when washed, it is said, as six 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-wooled sheep before shearing, but to fell the long and coarse fleeced flocks in the yolk.

Good clean washing is a matter of great consequence 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 business, is that of the wool being fully grown, or at the state of maturity; as where the clipping precedes that period, it is said, in the Annals of Agriculture, to be weak, and scarcely capable of being spun; and if protracted later, it is yellow, felted, and of an imperfect nature. It has been stated, 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 month may be more suitable, provided the season be favourable. But with the fattening sheep in the inclosures, it will mostly be 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 about the thighs and docks, some weeks before the usual time of walking and clipping the sheep; as by this means the sheep are kept clean and cool, when the season is hot, and with ewes 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. Elliman sells his, 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, as well as a larger quantity of wool; but it is probable that such a practice cannot be of any general advantage, though the trials that have been made in Northumberland in this way seem to have shown 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 the fleece 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 expence 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 reddle, ochre, or some similar substance; and some also cut the ear in different ways. The marking with tar has been said to be prejudicial; 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 stricken with the fly. 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 shears in different districts, in 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-pastures the hedges should be well cleared from briars, as their roots 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 shears of cutting or giving the lambs, it may be performed any time from the age of a fortnight or three weeks to that of a month or six 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 ferotum or cod, and drawing out the teaticles, with the periment 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 fearing-iron. The shears, if possible, should be done in fine weather, when not too warm; and the gilded 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 thorn from them, as one-flee, two-flee, &c. The sheep of one-flee having two broad teeth before; that of two-flee, four; that of three, six; and 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 wedder-lamb is sometimes termed hog, hoggit, tag, or tag; during the whole of the first year; and the female lamb, an ewe or gimmer-lamb, and ewe-tag. The second year, the wedder has the title of fheer-hog, or a two-toothed tag or tag; and the ewe is called a tharoe, tharoe, or two-toothed ewe. In the third year, a fheer-hog, or four-toothed wedder; and a four-toothed ewe, or tharoe. The fourth year, a six-toothed wedder, or ewe. And in some places, from the time of lambing till that of salting, 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 gilded male lambs, caffated wedder-lambs, wedder-hogs, dammonds, or dinmons, wedders. Crones 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 stock, 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 fort of stock, as soon as they occur themselves; as a very short time often renders them irrecoverable. 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 benefits and advantages 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 furnished 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
SHEEP.

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-woolléd sheep; the produce of the two latter differing from each other in the mode of manufacture, and the use 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 subfemile 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 kamats baran, or sheep of the rocks, from its ordinary place of abode. According to Pallas, it is the same with the mouffon of Pliny, and the opinion of the Greeks. It is found, in all its native wildness, vigour, and activity, inhabiting the vail 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 Hindoostan, and Persia. 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 Asiatic Siberia. This animal loves a flat 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 is sometimes the case.

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 fraggling hairs about the mouth, but no beard like the goat. The horns, according to the drawing given by Pallas, bear a similiarity 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 fleeces 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 fleece 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 there have flourished, a race of sheep which yield wool of a superior quality to those around them. In Persia and Syria, the influence of ancient manufactures is full visible in the superiority of their sheep, as fine-woolléd animals. From Asia Minor these animals were transported into Greece, and from thence into Italy and Sicily. They were diffused 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 sixteen 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 fleeces of Greece and Italy were of the short-woolléd 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 fleeces at present in Italy, we can be at no loss to determine the nature of the former Tarentine fleece. Thirteen centuries of neglected 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 allerting, that by judicious and careful selection, 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 possess any superior merit, compared with the fine-woolléd sheep of Spain. The circumstances respecting the management of the Tarentine fleeces, recorded by ancient writers, when compared with the present treatment of the Merino fleeces 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 traphumantes, 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 subsistence, and were termed Merinos ovijas, or the sheep under the care of the merino or mayor. The names peculiar to the establishment of these flocks, such as mejillas, savanas, &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 pecorum of Varro and Columella, and was superior to the opiniones and pastores. The practice of dividing half the sheep at their birth, and of suckling each of the survivors on two ewes; of shearing the sheep before they were born, to increase the softness of the fleece; and of conducting 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-woolled sheep, while the molles oves, or fine-woolled flocks of antiquity, were always housed.

The experiment of Columella's uncle sets the stage for the introduction of fine-woolled sheep into Spain. Having procured some wild African rams at Cadiz of a coarse fleece, but of an admirable colour, he gave them to some fine-woolled ewes, and the male progeny being again given to Tarentine ewes, the offspring, with their descendants, united the paternal colour with the peculiar softness of the maternal fleece. Columella's uncle resided in Bocica, which comprised the modern Eltramadura; 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 colour which the elder Columella introduced by means of African rams into his Tarentine flock, we may conclude that the same successful experiment was employed by other agriculturalists of Bocica, to convert these coarse into fine-woolled 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 distinct breeds of native Spanish sheep with the Tarentine in different parts of Spain, may be inferred from other circumstances: each cavea, or flock, forms a distinct breed; and the Nigrette no more resembles the Palaee, 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 cavea.

That the Merino is a mixed race, seems to be further indicated by the more tender constitutions of the fine-woolled flocks of antiquity. Of these, the Tarentine were most celebrated in Italy, and the Milefian in Asia Minor. They were termed pellite and teftex oves, from the coverings of skin with which they were clothed to deferve the fleece. They were denominated alfo molles oves, 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 coarser 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 sale 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 pile. This breed demanded constant care, when in the fields, to preserve their coverings from being torn, and the fleeces destroyed. At home they required even greater care than abroad, as they were not daily conducted to their pastures. They were frequently uncovered and exposed to refreshment. The staples of the fleece were opened and disparted, and were frequently molested with wine and oil. The whole flock was walked three times a-year, when the weather was warm. The staples 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 fleeces were held; and though such attention is remote from modern practice, we are fully convinced that, by selecting the very finest and softest Merino flocks, and covering the wool, and frequently anointing and washing, it would give to the pile 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 experimentalist, as the wool would be worth more than 30s. 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 expedient adopted, which was proved by experience to attenuate and soften the pile. The transition of these delicate animals into the Merinos of Spain, which are a hardy race, can only be explained by supposing that other agriculturalists had imitated Columella, and obtained a fine-woolled 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 Tiberius: he informs us that the inhabitants of Truditia had formerly imported many garments, but that their wool in his time surprised that of the Coraxi, and exceeded it in beauty so much, that a talent, equal to two hundred guineas, was the lowest price of a ram to breed from; and that they excelled also in the fabrics which the Sal-tiatae manufactured. Truditia, according to Strabo, comprehended the province of Bocica, from the Guadana 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 soft-woolled Milefian 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 culling 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 dislodged from their villages, and dispersed into cantons. (Diodorus Siculus, lib. v. cap. 32.) The Moorish looms of Andaluflia and Catalonia, and those of the Christians at Segovia, in the 15th century, must have been supplied by the fine-woolled flocks introduced by the Romans. The vacant mountains, when cleared of banditti, offered a vast range of pasture from Eltramadura, northward, towards Galicia, and the Avaria. A similar opportunity occurred to establish or renew the institution of travelling flocks when the Christians defended, in the middle of the 13th century, to occupy the conquered provinces of Andaluflia and Murcia.

After that time the travelling flocks became so well established, that the montargo, or tolls, on their passage through the mountains, from province to province, the servicio, or tax to the crown, and the laws of the mesta, 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 Bocica were originally and gradually converted into fine-woolled animals, by repeated crossings with the Tarentine flocks, and thus an immense number of hardy sheep, producing a moft valuable pile, were spread over the country, and survived the successive conquests of the Goths and Vandals, and the protracted war-
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-wooled 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 sprung. 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 kamjnoi baran, or sheep of the rocks, from its ordinary place of abode. According to Pallas, it is the same with the mufon 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 Hindoosfan, and Peru. 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 Asiatic Siberia. This animal loves a flat 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 is sometimes the case.

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, fernambuline 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 drooping hairs about the mouth, but no beard like the goat. The horns, according to the drawing given by Pallas, bear a similarity to those of the Merino rams; their weight is about fourteen 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 Persia and Syria, the influence of ancient manufactures is still visible in the superiority of their sheep, as fine-wooled animals. From Asia Minor these animals were transported into Greece, and from hence into Italy and Sicily. They were diffused 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 sixteen 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-wooled 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. Thirteen centuries of neglected 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 asserting, that by judicious and careful selection, 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 possible any superior merit, compared with the fine-wooled 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 merinum, or majorinus: when united with ovijas, it signifies the royal judge, or superintendent of the sheep-walk. At the period when the trujbnantes, 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 the merino or mayor. The names peculiar to the establishment of these flocks, such as mesta, cavana, &c. are derived, not from the Moriscos, but from the provincial Latin that prevailed in Spain before and after it was subjugated by the Goths. (See Mesta.) The management of the flocks is peculiarly Roman; the merino, or mayor, corresponds exactly with the magister pecoros of Varro and Columella, and was superior to the opiliones and palfiores. The practice of destroying half the sheep at their birth, and of furloughing each of the survivors on two ewes; of swathing the sheep before they were born, to increase the softness of the fleece; and of conducting them from their winter to their summer pastures, by long journeys through public sheep-walks, has been derived from Roman institutions, with this difference, that in Italy their migrations
were confined to the coarse-woolled sheep, while the molle
over, or fine-woolled flocks of antiquity, were always housed.

The experiment of Columella's uncle ascertains the early
introduction of fine-woolled sheep into Spain. Having
procured some wild African rams at Cadiz of a coarse
fleece, but of an admirable colour, he gave them to some
fine-woolled ewes, and the male progeny being again given
to Tarentine ewes, the offspring, with their descendants,
united the paternal colour with the peculiar softness of the
maternal fleece. Columella's uncle resided in Batica,
which comprehended the modern Extremadura; and as
Columella Bournido under the emperor Claudius, the
Tarentine breed must have been introduced into that prov-
ince at the commencement of the Christian era. Whatever
was the peculiar colour which the elder Columella intro-
duced by means of African rams into his Tarentine flock,
we may conclude that the same successful expedient was
employed by other agriculturists of Batica, to convert
thee coarse into fine-woolled breeds, and to communi-
cate the purest white to the black or parti-coloured
native flocks, which, according to Pliny, were common in
Spain. The original intermixture of distinct breeds of
native Spanish sheep with the Tarentine in different parts
of Spain, may be inferred from other circumstances: each
cavano, or flock, forms a distinct breed; and the Nigrette
no more resembles the Panalac, than the Merino South Down
resembles the Merino Cheviot. The genuine unmixed
defendants of the Tarentine breed would have preferred
one uniform character; but the native flocks crossed with
Tarentine rams would retain the distinctive varieties, and
transmit them to each cavano.

That the Merino is a mixed race, seems to be further
indicated by the more tender constitutions of the fine-
woolled flocks of antiquity. Of these, the Tarentine were
most celebrated in Italy, and the Milehsian in Alba Minor.
They were termed pelita and tezca oves, from the cover-
ings of skin with which they were clothed to defend
the fleece. They were denominated also molle oves, not
only from the softness of the fleece, but from the delicacy
of the constitution. They were always fed in the house;
and though satiated with blemishes, or the coarsest food,
they are described as a most voracious breed: a diminu-
tion of their allowance from the fraud of servants, or the
parimony of the owner, was attended with certain destruc-
tion to the flock. (Plin. lib. viii. cap. 47.) As there was no
sale 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 pike. This breed
demanded constant care, when in the fields, to preserve their
coverings from being torn, and the fleshes 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
flepas of the fleece were opened and dispartoed, and were
frequently moistened with wine and oil. The whole flock
was washed three times a-year, when the weather was warm.
The flepas were frequently swept, cleaned, and fumigated:
for these different offices two shepherds were constantly re-
duced for every hundred sheep.

The excessive care bestowed on these flocks by the nations
of antiquity, shews in what estimation their fleces were
held; and though such attention is remote from modern
practice, we are fully convinced that, by selecting the very
finest and softest Merino flocks, and covering the wool, and
frequently anointing and washing, it would give to the
pale 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 fleees 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 experimentalists, as the
wool would be worth more than 30s. 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 expedient adopted, which was proved by
experience to attenuate and soften the pike. The transition
of these delicate animals into the Merinos of Spain, which are
a hardy race, can only be explained by supposing that other
agriculturalists had imitated Columella, and obtained a fine-
woolled race, by crossing their native breeds with the more
delicate animals from Italy. The beginning of this im-
provement is indeed described by Strabo in the reign of
Tiberius: he informs us that the inhabitants of Truditia
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 stated price of a ram to breed from; and
that they excelled also in the fabrics which the Salt-
turke manufactured. Truditia, according to Strabo,
comprehended the province of Batica, from the Guadiana
to the confines of Lusitania, and southward to Gibraltar,
and caftward 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 soft-
woolled Milehsian 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 dislodged
from their villages, and dispersed into cantons. (Diodorus
Siculus, lib. v. cap. 32.) The Moorish looms of Anda-
lusa and Catalonia, and those of the Chriltians at Segovia, in
the 13th century, must have been supplied by the fine-
woolled flocks introduced by the Romans. The vacant
mountains, when cleared of banditti, offered a vast range
of pasture from Extremadura northward, toward: Galicia
and the Alburis. A similar opportunity occurred to es-
ablish or renew the institution of travelling flocks when the
Chriltians defended, in the middle of the 13th century, to
occupy the conquered provinces of Andalusa and Murcia.
After that time the travelling flocks became so well es-
tablished, that the mentapo, or tolls, on their paige
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 dominion of Grenada
had been finally reduced.

We are thus enabled from history to trace the introduc-
tion and establishment of the Merino race of sheep in Spain,
from which, or from their descendants, nearly all the manu-
factories of fine cloth in Europe are at present supplied with
wool. See Wool.

The native breeds of Batica were originally and gra-
dually converted into fine-woolled animals, by repeated
crosses with the Tarentine flocks, and thus an immense num-
ber of hardy sheep, producing a most valuable pike, were
spread over the country, and survived the succesive con-
quests of the Goths and Vandals, and the protracted war-
fare
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-wooled flocks of England, though generally inferior to the Merinos in the quality of the wool, were also originally descended from croftes with the Tarentine breed introduced by the Romans, when they established a manufacture of woollen cloth at Winchester.

The deterioration or deterioration 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 intermixture 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 supposed to possess 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 fleeces 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 advanced the contrary, was regarded by agriculturalists and clothiers as a speculative 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 near the poles.

Mr. Allstroemer, 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. Allstroemer, and public funds were appointed for granting premiums to those who fold rams of the Spanish breed; and from the same period, to 1780, a premium of twenty-five per cent. was also granted on the sale of fine wool 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 fold 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 distance 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 32,384 of a mixed breed, producing fine wool. The Swedish Merinos prefer their primitive form; their fleece is 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. Laytfer examined the flock of M. Schulzenheim, at Gronfoe, 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 fleeces 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 the sheep degenerated which had been neglected, or treated in the same wretched manner as the native flocks, by confining them in damp, infested, and dirty stables during a part of the year, and omitting the requisite quantity of food; or paining them in summer in forests and marshes, or in low moit situations, where they could neither find the proper kind nor due quantity of herbage.

The introduction of the Merinos into Saxony took place in 1751, 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 croftes from this race with the native flocks were so greatly ameliorated, the attention of the agriculturalists 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 fources 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 best sort 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 stout 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 the sheep have continued to breed from the same flock, without any attention to confanuginity, 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, substitute oil-cakes, crushed seeds, and lentils. They take care to mow the crops before maturing, that they may be more nutritive, and to prevent the falling 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 feaon 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 threshed, 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 Saxon farmers collect with great care the horse-chef-nuts 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 feed 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 continual ventilation. Some proprietors keep their sheep confined 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 diffused, 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 of attention, which is, to shelter them during heavy rains, hailstorms, and thick fogs. In many sheep-houses, water is conducted in troughs, from which the sheep may drink at pleasure. Saxon farmers consider falt not only as necessary to the health of sheep, but as contributing to the finenes of the fleece; it is sprinkled in their forage, and is diffused in their drink; it is given principally in summer, when the weather is dry. They cease to give it to the ewes five or six 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 season. 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 swim through a river or dam; the following day they are again driven through, and plunged in separately, and the fleece piled 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 days, and torn on the third. Saxon wool, thus washed, is much cleaner than the English, which generally undergoes but one washing. It lofes 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 Saxon Merino sheep we consider as judicious, but we have frequently noticed that the wool had been somewhat injured by want of sufficient nourishment in winter, which renders it tender. The hay being given in racks, feeds and straw falls 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 Englih 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 1776 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 four distinct breeds, which he had on his estate in Auxes, demonstrated to the government that it was easy to introduce and prefer a race of sheep in France, producing superfine wool; and in the year 1786, a selecion of 375 rams and ewes, from the finest flocks in Spain, was conducted, under the care of a mayor, to the farm of Rambouillet. They consisted of individuals of extraordinary beauty, superior to any previously introduced into France, but having been chosen from a number of distant 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 best 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 variety.
tionated 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 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-woolled sheep from degenerating.

The advantages which the Merino sheep possess as wool-bearing animals, over the native breeds of English fine-woolled sheep, confift in three important peculiarities: 1ft, 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 bell English, is proved from this circumstance: the bell forted Spanish wool, or the R wool, as it is called, from the finest flocks, sells at nearly double the price of the bell English forted wool, or what the wool-staplers call the prime and picked lock. Those English fleeces which yield a portion of the bell fort, generally contain a larger portion of inferior fots; sometimes eight forts will be found in one fleece, and the fleece 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 fort, called the F wool, is also fine; and with the T wool, or third fort, bears a higher price than the bell English wool. The quantity of wool on a Merino sheep is considerably greater than on an English sheep of the same fize: 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 than on English sheep; that is, there are more filaments on the same surface. A moderate sized well-clothed Merino sheep will yield a fleece which, when brought to the same flaté of purity as the English wool, will weigh 3lbs. A Ryeland, Norfolk, or South Down sheep, of the same fize, 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 flaté, however, the Merino fleece is not clean, as the wools imported from Spain, which are scoured after they are shorn, and before they are forted, 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 case with the ewes. The average weight of a fat ram per quarter, is about 17lbs. of a cwe, about 11lbs. per quarter.

The shape of these animals by no means corresponds with the symmetry of form which an English grazier confiders 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 rote red colour: this is also confidered by the Spaniards as a sign of a robust constitution, and an abundant fleece. The only English sheep which have the same coloured skin with the pendulous dewlap, are the Ryeland, which produce also the finest English wool. In these circumstances, with the ancient practice of houing the sheep, continued in Herefordshire, where it is called cotting, confirm the opinion before advanced, that the Ryeland sheep were descended 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 flesh, should present that deformity of shape which at first was particularly offensive to the eye of the English farmer, accustomed to the new Leicester 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 same attention paid to selecting the most perfect type 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, polishing 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 preserved 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 finesness of the wool.

The Spanish breed of sheep were first introduced into Great Britain in the year 1787. 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 Alajize five rams and thirty-five ewes of the Nigrette race. They were imported in the year 1792, and were for some time at Oatlands, the seat of his royal highness the duke of York. On their arrival they were extremely low in flesh, but they soon began to improve; and the diseases with which they had been afflicted, were removed by a plentiful supply of food. They left Oatlands 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 surmounted, 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 stated, 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 forted; nor could they appreciate the losi it would sustain in scouring, which is not less than from 60 to 70 per cent. We are well persuaded that this uncertainty respecting the losi 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
our manufacturers ever greatly encourage the growth of this wool, until it be brought to market, either furred and scoured like the wools from Spain, or in the same state of purity in the fleece as the fine English or Saxon wool. 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 scouring. 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 fair trial. The clip was sold that year for 2s. per pound, and the following year for 2s. 2d. In the years 1797 and 1798 the wool was forced in the Spanish manner, and scoured, after having been previously washed on the sheep's back. The following is an account of the produce.

<table>
<thead>
<tr>
<th>Description</th>
<th>lbs.</th>
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</thead>
<tbody>
<tr>
<td>Eighty-nine ewe and wether fleeces washed on the back</td>
<td>295</td>
</tr>
<tr>
<td>Lofs by subsequent scouring</td>
<td>92</td>
</tr>
<tr>
<td>Pure wool</td>
<td>203</td>
</tr>
<tr>
<td>Which yielded, Rafinos, or R wool, 167 lbs. at 5s.</td>
<td></td>
</tr>
<tr>
<td>Finos, or F wool, 23 lbs. at 3s. 6d.</td>
<td></td>
</tr>
<tr>
<td>Terceros, or T wool, 13 lbs. at 2s. 6d.</td>
<td></td>
</tr>
<tr>
<td>In 1798 one hundred and one ewe and wether fleeces, washed in the same manner, yielded</td>
<td>346</td>
</tr>
<tr>
<td>Lofs by subsequent scouring</td>
<td>92</td>
</tr>
<tr>
<td>Pure wool</td>
<td>254</td>
</tr>
<tr>
<td>Of which there was Rafinos, 207 lbs. at 5s. 6d.</td>
<td></td>
</tr>
<tr>
<td>Finos, 28 lbs. at 3s. 6d.</td>
<td></td>
</tr>
<tr>
<td>Terceros, 19 lbs. at 2s.</td>
<td></td>
</tr>
<tr>
<td>The rams' fleeces of both clips</td>
<td>314</td>
</tr>
<tr>
<td>Lofs by subsequent scouring</td>
<td>99</td>
</tr>
<tr>
<td>Pure wool</td>
<td>215</td>
</tr>
<tr>
<td>Of which there was Rafinos, 181 lbs. at 4s. 6d.</td>
<td></td>
</tr>
<tr>
<td>Finos, 22 lbs. at 3s. 6d.</td>
<td></td>
</tr>
<tr>
<td>Terceros, 12 lbs. at 2s.</td>
<td></td>
</tr>
</tbody>
</table>

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 were in the greatest degree the excellence of the fleece with a good carcasse. 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 flock of these sheep in England at present is sufficiently great to change, in a few years, the whole race of fine-wooled sheep in Great Britain, which was such a change desirable. Many of the native flocks of fine-wooled sheep in England have been considerably diminished in the last forty years, owing to the numerous enclosures of fowls and common; that were formerly only suited to fatten 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 extensive range; and the latter, a rich and more confined pasture. The Ryeland sheep in Herefordshire afford the finest wool in England, of any of our native breeds; but the pure race is nearly extinct. The fleece weighs less than two pounds, but if generally cleared from the Shank-locks and skirts before it is wound, in this state it bears the highest price of any English fleeces. It is not a little remarkable, that the practice of cotting or housing the sheep is peculiar to Herefordshire; and it is not improbable but it may have been originally introduced by the Romans, with the race of sheep from which the Ryelands originally sprung. A mixture of the Ryeland sheep is spread over some of the counties adjoining to Herefordshire, but the number is not very considerable. The light sandy soil of Norfolk is pattered by another breed of fine-wooled sheep, which supply a considerable quantity of fine English wool for the Yorkshire market, and it is not only free from the property of Sufle, when manufactured, which is wanting in many of our English wools. The original Norfolk breed have black faces and spiral horns, small, long, thin carcasses, with long black or grey legs. The fleece weighs from one pound and a half to two pounds. The form of the animal is not such as to recommend it to the grazer, but it has been greatly improved by an intermixure with the South Down breed. Mr. Coke of Holkham, the celebrated agriculturist of Norfolk, has disposed of his native flocks of that county, from a conviction, founded on long experience, that they are an unprofitable breed. The principal recommendation of this breed was the excellence of their wool; and they might be well suited to the former uncultivated state of the sandy tracks in that district.

Of all the native fine-wooled breeds of England, the South Downs appear to polles, in the most eminent degree, the combined advantage of excellence of form, with a superior quality of the fleece. The average weight of the two-year old wethers is 18 pounds per quarter; the mutton is fine-grained, and of an excellent flavour. The weight of the fleece of the finest kind is about two pounds on the average. Some of the coarse fleeces exceed three pounds. The South Down breed takes its name from the district on which these sheep were originally cultivated. It is a long range of rather elevated chalk hills, extending from the south-western side of the counties of Kent and Surrey, through Sufle, into Hampshire, confining of open downs, well suited for sheep-walks.

The animal has no horns; its face and legs are grey; the bones fine, and the form compact. It has indeed greatly improved of late years, by the particular care of intelligent growers. The lambs are generally dropped from the middle of March to the end of April. If the ewes have been well kept, one-third will be twins. The wethers are fit for the butcher in two years; many graziers fatten them at 18 months. From the South Downs these sheep have been sent to different parts of the kingdom; and in all dry and rather elevated situations they will preserve the excellent qualities of their wool. Indeed, in all situations where the soil is covered by a good clove herbage, and the sub-soil is not calcareous, the wool will be of a superior quality to that of the same animal would produce on the chalky downs of Sufle. Of this we have had decisive proofs. The South Downs, though in many respects well suited to sheep, yet in those parts where the chalk is exposed, or near the surface, the calcareous particles get intermixed with the yolk or natural grease of the fleece, and produce a degree of hardflees in the wool, which is very perceptible, when it is manufactured into cloth: it also injures the felt-
ing quality of the wool. This is so well known to
Yorkshire manufacturers, that they always avoid the cloths
grown on chalk foils, when they want a soft thick pile to
the cloth. The fine wool from the South Down fleeces is
chiefly used for light goods, such as kerseymeres and pelleth
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 possess all the
good qualities of the best native English wool.

The action of the foil on the fleece was long known to
manufacturers, viz. that wool grown on argillaceous foils
were softer, and proved better in the process of manufac-
ture, than those on calcareous foils. The cause of this was
involved in much obscurity, and generally supposed to be
owing to the quality of the herbage on different soils. 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 foil on the fleece arose from the action
of the minute particles on the surface of the fibre or flake.
"Not only can this action affect the quality, but impart
indefibly the colour of the foil to the wool. In part of
Gloucestershire the fleece acquires a deep orange colour
from the foil. 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 in England the
action of the foil is evinced, by communicating its own
colour to the fleece. The colour thus acquired is as inde-
libly fixed in the wool as the colouring matter of an arti-
ficial dye, nor can its whiteness be perfectly restored by any
artificial process hitherto known.

"That the same cause can change the hardness or softness
of wool, is proved from the different effects which argil-
laceous, silicious, 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 flax are so abruptly broken, that two adjoining
farms, separated by a small brook, will not unfrequently be
found, the one upon lime-foile, the other on a silicious
grit or sand-foile. 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 foil. 'My wool is grit-foile,
and I expect a better price than my neighbours,' was the
language in common use, and the meaning was well under-
flood by the buyer. In the process of separating wool
from the skin by the fell-monger, the pelts are steeped
some days in lime and water. The softest wool, when thus
exposed to the action of lime, loses its distinguishing ex-
cellence, and acquire all the hardness of wools grown on lime-
foile foils.'

To remedy this injurious effect of calcareous foils, Mr.
Bakewell recommends the practice of the farmers in North-
umberland, 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 confidence. In Northumberland this is
practised with the fine-woolled sheep on the Cheviots;
and the wool from these sheep bears a higher price in Yorksire,
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 used to defend the animal
against flies and sheep-ticks, and to be a prejudicive against
the severity of the weather. The only inconvenience is,
that the whiteness 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 shorn, would be found a most effective
remedy against flies and insects when the skin is exposed:
and it is also proved by experience to be a preferrible against
the feb.

The South Down breed, so far as relates to the fleece,
will admit of considerable improvement in the following par-
ticulars. 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-tapler 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, those parts from the bellies, and
shanks will also be as coarse as the coarsest wool from heavy
sheep. These defects in the South Down fleeces are common
to almost all our native fine-woolled sheep, 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-tapler
were first taken on the qualities of the different fleeces of
those ewes from which it were 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
chozen: and if these were still too strongly marked with
the character of the Merino form, another cross with per-
fect South Down ewes would produce a progeny from
which a race might be selected possessing whatever was
desirable in the carcase, 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
weight 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 intel-
ligent wool-tapler 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 unpractifed 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 supposéd 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

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the two-thousandth part of an inch? Yet many of our English wool-growers will decide, with the utmost confidence, 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 on this subject, more than to 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 Cheviots 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 supplant the coarse-woolled sheep in the Highlands of Scotland, 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 kinds 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 thechine; fine, clean, small-boned legs; thin pelts; weight of carcass, when fat, from 12lbs. to 18lbs. per quarter; fleeces from 2lbs. to 3lbs. 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 finest 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 best quality. 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 infenstly 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 Lammermuir are covered with the Cheviot breed. The best kind of the Cheviot sheep is certainly a valuable mountain-sheep, where the pasture is mostly green sward, or contains a large portion of that kind of herbage, which is the caese with all the hills around the Cheviots, where these sheep are bred; and the fine herbage which the border hills give every where produce, supports them well in summer, as to enable them to stand the severities of the winter.

The shape of this breed of sheep has been greatly improved of late years, but will still admit of much improvement. “We cannot (says Mr. Culley) expect the perfection 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 moli profit to the farmer will always be preferred, but this object is not to be obtained in this district by fine wool alone. Perfect mountain 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 use of a mountain farmer’s flock, can be added a fleece of fine wool, a breed of sheep might then be obtained, the properest 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 hardiness, and producing a portion of fine wool, are the properest flock for laying the foundation of so desirable a change.”

With these sentiments of Mr. Culley we entirely agree, and particularly in the propriety of selecting from the finest breeds, from the Cheviots to lay the foundation of a valuable flock of mountain sheep, which might supplant the coarse-woolled Heath sheep in 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 some instances 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 folly to attempt to stock the mountainous parts of Britain with the Difley or Lincolnshire 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 fine-wooled native or Anglo-merino 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 tend to 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 deferring attention, in all situations suited for fine-wooled 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 Tibet, than any of the European sheep with which we are acquainted. From the report of Mr. Thomas Johnson, addressed 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 resemble long hairs more than wool, and are termed by the common people in Scotland isles and feuudas. When the wool begins to loosen at the roots, which generally happens about the month of February, the hairs or feuuda spiring 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 forspire 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 dreeling the fleece, by an operation called forfing. The feuuda remains upon the skin of the animal, as if it were a thick coat or fence against the inclemency of the seasons, 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 delilute of a covering of long hairs. These soft-woolled fleeces are very often loof or rubbed off, during the winter or early in the spring, which it supposeth might be prevented by clipping or shearing the sheep, in place of pulling off the wool, a barbarous practice, tending to weaken the sheep and hurt the length of the flake.

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 mornat, or brown, is very little inferior; it
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is all of the softest texture, fit for the finest manufactory, and in some instances has been found to rival Spanish wool itself; but the pure white is generally the most valuable for all the finer purposes for which combing wool can be used. For softfens and for lustre, no wool equals it; and the skin, 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 sea-weed very greedily, and often during long and severe snows they have little else to live upon. Nature seem 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-flakes, although feeding on the hills hundreds miles distant from the sea, where they remain until the tide returns and obliges them to seek their usual haunts.

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, polishes a most extraordinary degree of softness, approaching, if not equaling, that from the sheep of Tibet, 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 wools which we have seen, polishes this quality in any degree to be compared with that from the Shetland sheep. The circumference 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 cause originally with all our fine-woolly sheep, many of which, if neglected, few indications of their original condition, growing coarse hair intermixed with the finer parts of the fleece. Even in the coarser-woolly 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 benificent 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, when sheep have the advantage of a mountain pasture, that with care and proper shelter these fleeces might be preserved, but they would certainly be a useless incumbrance. Fine fleeces seem to be more particularly the produce of cool or temperate climates; for it is observed, in most of our English sheep, that the part of the wool or flâpe 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 improbable that the Shetland sheep may have been originally descended from the Tarentine breed, the "molles ovae," which the Romans had introduced into Britain; their infallible situation protecting them, in a considerable degree, from intermixture. For, according to Dr. Anderson, though the coarse-woolly 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 fraggles. The whole system of management, respecting these sheep, is directly the reverse of what it should be, and it is truly alarming that they have preferred to 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 fabrication of shawls, approaching in softness to those of Cashmere.

We have now to describe the long-woolly 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 have no exift with the fame perfection of form, and producing the same quantity 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 six to about nine or more inches in the length of the flâpe, or filaments. In the manufacture of this wool by the comb, the fibres are laid parallel; whereas in short-clothing wool, they are broken in all directions by the cards.

Long wool is manufactured into shalloons, camblets, morrens, bombazesens, and various other articles; and a large quantity is also manufactured into what is called hose millinery, confisting of girts, fringes, and other articles of use or ornament in equipges. 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 Leiceter or Didley breed, have nearly supplanted the other varieties of long-woolly sheep. The Lincolnshire breed has also been generally somewhat changed of late, by an intermixture with the Leiceter breed. The original Lincolnshire sheep have no horns, and long carcases; 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 90 lbs., or three fleeces to the tod 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 24, 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 Leiceter 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 soon fall under 13. 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 carcase. For though the wool from the Leiceter breed is somewhat finer, the weight seldom exceeds 7 lbs., and the difference of price is not more than about 24.
per tod of 28 lbs. The advantage of the latter breed consists in being made fit for the butcher in less time; in this it excels all the other breeds before known. At the time when Mr. Robert Bakewell of Ditby, in Leicestershire, directed his attention to the improvement of sheep, the price of long wool was less than 4d. per pound; the fleece was hence of little value to the grower, and Mr. Bakewell was exclusively employed in improving the carcasse of sheep, and all other domestic quadrupeds. Previously to about the middle of the last century, little attention was paid to the improvement of live-flock, except horses. Nothing could be more repugnant to common sense than the general practice of farmers; they selected for daughter that part of their flock which was most disposed to fatten, as offering them an early profit; the remainder were left to breed from promiscuously. A considerable part of England was then unimproved, and the flocks of different proprietors being unavoidably intermixed, prevented a due regard to the improvement of the breed. Mr. Bakewell commenced his improvements subsequent to the year 1760, and succeeded in exciting the attention of the public to the amelioration of live-flock, by shewing the most effectual method of accomplishing this important object. The principal object which Mr. Bakewell had in view, in his improvement of different animals, except horses, was to produce the greatest weight and value of flesh, with the smallest expense of food.

Vailing himself of the observations which he had made on different animals, that certain peculiarities of form were always attended by a disposition to grow fat, and that animals inherited this disposition from their ancestors; and if they were kept free from intermixtures with other breeds, in the course of a few generations the peculiar properties will be perpetuated, and form a distinct species; the laws of animal life being in this respect regular and permanent. He, therefore, selected from his own flock, and from the flocks of others, those sheep to breed from, which possessed in the greatest degree that perfection of form he was desirous to attain and perpetuate. By judiciously crossing them, and selecting the most perfect of their progeny, he at length succeeded in forming the breed, which has been distinguished by the name of the new Leicestershire breed; and having attained his object, he carefully guarded against any future intermixtures with other breeds. This breed excels all others in its propensity to fatten; and by crossing with rams from this breed, a very considerable portion of the long-wooled sheep in England have been greatly improved in this respect.

The peculiar characters of these sheep have been well described by Mr. Cudley, an eminent grazier in Northumberland, who introduced the breed into that part of England.

"The Ditby breed are particularly distinguished from other long-wooled breeds, by their fine lively eyes, clean heads, square, broad, flat backs, round (barrel-like) bodies, very fine small bones, thin pelts, and inclination to fat at an early age. The latter property is probably owing to the before-specified qualities, which, from observation and experience, there is reason to believe extends generally through every species of domestic quadrupeds. The Ditby breed is not only peculiar for its mutton being fat, but also for the finenesse of the grain: the flavour is superior to the mutton of most other long-wooled breeds. The weight of the carcasse may be stated 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. Cudley at 38 lbs.; but in Leicestershire, we believe, the average weight is not more than 6 or 7 lbs., about four and five to the tod. The wool is finer and shorter than the Lincolnshire, and a portion of it is better suited for the hosiery trade than for thin goods, such as stockings, &c.; but considering the difference of weight, the fleece is not so profitable to the grower as that from the Lincolnshire sheep.

There are two reasons for killing the wethers of the Ditby breed at two years old: first, they leave the most profit; and, secondly, if kept longer, they grow too fat for gentry 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 all down the back. Even ewes of this kind, which have bred andangkan 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 ewes, under such circumstances, generally produce from 18 lbs. to 24 lbs. of tallow each. This mutton is not so inviting 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 flocks, 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, that they became desirous of introducing the breed; and the table for growing fat mutton became generally adopted, and in many instances without proper regard to other considerations. In some instances, fine-wooled flocks were crossed with this breed, and it was widely expected that they should preserve the quality of the wool, and increase the carcasse at the same time. In other instances, the Leicestershire 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 favour to that of the smaller sheep.

The object of Mr. Bakewell was in 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 fatted meat. In this respect they resemble the North American Indians and the back settlers, who regard fat as the only nutritious part of meat, and accordingly Volney describes the lean by a name which signifies meat bread. The rage for excessively fat meat has in some degree subsided, and the new Leicestershires 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-wooled 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 carcasse 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 carcase 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 devoting 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 carcase must in a considerable degree supercede the improvement of the wool, at least so far as relates to its finer flees; 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 Difhley breed with the heavy fleece of Lincoln, is what will best reward the owners of long-wooled fleeces.

There are, besides long and short-wooled sheep, numerous fleeces 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 hosiery. A very considerable quantity of wool, suited for hosiery, 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.) Persons exporting sheep shall forfeit them, and 20s. for every sheep, &c. (12 Car. II. c. 32.) And persons in the counties of Kent and Suffolk, within ten miles of the sea, are to give an account, in writing, after sheep-shearing, of the number of fleeces, to the next officer of the customs, &c. (9 & 10 W. III. c. 40.)

SHEEP, Cladding 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 singly 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 insides of their thighs. This becomes necessary, in consequence of the dirt and filth which often adheres to the wool about these parts, especially in moist growing spring seasons, 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 lamber, or person who has the care and direction of the busines of lambing, to dilinguish when the ewes have lambed, by the mark or flain 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, pafuring 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 skipping about in a nimble manner; such being usually turned off directly upon the fattening grounds.

SHEEP, Lambing of, the busineses of managing the lambing of the ewe flocks, which is very essential and important, though but little known or attended to in many places, even where sheep are at once the whole flock of the farmer. However, in consequence 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 enclosed, dry, and warm kind, and the more poor mountainous ones, as well as the upland pastures and downs, such a very minute attention to this busines need not, perhaps, be bestowed, as accidents less frequently occur, than on rich pastures or marshes, where the lambs are much exposed to danger and destruction from many causes, unless very carefully attended to at this time. The nature of the principles and practices which are necessary in the busineses 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 use of small light hurdles, about two feet in height, with two rails, fixed down around them or in the most dangerous parts; by placing brush-faggots of a proper size round the fides of their banks, and faking them well down to prevent their being disturbed by the winds and storms: by hanging old sea-nets along their banks or borders: or by some other kind of cheap low defence, which the local nature of the situation may suggest. The nature of the pastures for this use should constantly be such as are fine and short in their grasf, and neither of too poor nor too rich a quality, as inconveniences are liable to take place from each of these fates.

It was formerly the practice to have the lambing of the ewe flocks performed on a great breadth of pasture-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 cafes; as it is not only more convenient and successful, but far more profitable. By thus doing it in a narrow compass, according to the state of the grasf, the work is more safely gone on with, is more under the direction of the manager, and more convenient in case of difficulties arising in it, while there is much less danger of lobs among the ewes in consequence of the nature of the keep, which is very material, as it is often
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 fort of pature-field for the reception of such ewes as may chance to have twin-lambs, as more food is required for them. This is best when in or near the middle part of the lambing pature, 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 lambs, which should always be marked and removed as soon as they are enabled to walk.

The next preparatory business, in some situations, is that of clathing the ewes, which commonly takes place a little before the lambing begins; but in many places this is wholly neglected and thought quite useless. See Sheep, Clathing of.

The lambing season 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 favourable, and the flocking of the land has been more light or more hard. But about the beginning of April is probably the best and most general time. Early lambing is mortally advantageous, where the circumstances of the land will admit of it. The season of lambing mortally continues about a month, and in some places, where lambers are employed without any lookers, two guineas and the lamb-laws are paid for that time.

In the actual business 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 law that is done, perhaps, in general, the better, as nature will for the most part effect the business in the safest and most proper manner. The chief difficulty, it has been said, consists in knowing when the ewes should be affiled, as young persons employed in this management are much too apt to interfere, from which much mischief and loss unfortunately proceed. The nature of the particular case, 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 rise and walk off on being approached without any thing being the matter, they require no interference; but that when they will not rise, but appear a good deal spent, they should have immediate affilation. Some also suppose, that 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 ewes in this business, as affilation will be left necessary in such as are cold, than when they are warm. The ewes should, in fact, never be meddled with in their lambing, in their cases, until there is an absolute necessity.

In all unnatural cases of this kind, which vary very much in different instances, according to the nature of the unnatural 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 business, 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 cautiously be used to have it exerted and done 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 with caution 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 noes 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 droop 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 lambs, 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 in the lambing state, every fort of exertion, trouble, and fatigue, is to be injured them, should be avoided as much as possible; in order that they may lamb, or be affiled to lamb, in a cool suitable state.

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, so that they are not injured or hurt by neglect in any way.

In cases where this business is carried on upon a large scale, when every thing has been properly prepared and got in readiness, the lambher, or other person employed in the management, begins his labours and difficult undertaking, by entering and going over the lambing pature 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 sucking, which is commonly readily decided by the length of the belly. In cases where this last is not able to be done, the ewes are either caught, and the lambs struck, or the lambher is provided with some ewe's milk in a bottle for the purpose, a precaution which is usually proper on many occasions, as when the weather is severe, wet, and stormy, 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 noises 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
the summer. 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 ewes 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 pounds 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. Lambing pounds are mostly supplied with suitable pens or coops for the convenience ofucking 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 cafes for taming the refractory ewes, and causing them to fuckle the lambs in a proper manner.

It will now be necessary for the lammer to be particularly careful of the twin and other lambs, to see that they are regularly kept, and properly fuccked in all cafes, 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 forts 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 fea compas, and the lambing-field or pasture be cleared of all the twins and molt 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 fort 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 interefts and profits of the sheep-breeding farmer be 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.

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<td>From that of weaning until that of the first clip</td>
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<td>Hogs.</td>
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<td>Dinmonts.</td>
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<td>Young</td>
<td>Gridlings, Hogs.</td>
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<td>Full-grown</td>
<td>Crones in Norfolk and Suffolk.</td>
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<td>Such ewes as are broken mouthed and refuse are denominated</td>
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<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, Smearing of, the practice of salving or laying them over with some sort of substance of the unctuous 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 blister sheep, causing the wool to fall off, and the death of the animals. When it is thin, and appears black on ftringer, with an offensive smell, and caustic acrid taste, it should never be used for sheep, especially without boiling, to destroy such properties. The persons engaged in the work of salving often find proofs of the danger of this sort of tar, in the burning effects which it has on their fingers. Good salving tar, it is said, on being firmed, has a thick, brown, ropy
ropiness, and a more pleasant smell, with a less acid taste than the other kind. Tar should probably always be well mixed with butter in performing this sort of work.

**Sheep, Teeth of**, the parts of the mouth of these animals by which their ages are often, in some measure, ascertained. When full-mouthed, they have usually eight teeth of the inferior kind in the lower jaw. They throw up two such each year until this takes place, by which means their walking teeth are displaced or lost. See Age of Sheep, and Teeth.

**Sheep-Shearing**, in Rural Economy, the business of clipping or cutting off the coats or fleeces of sheep, by means of shears constructed for the purpose, which are termed wool-shears. It also sometimes signifies the feaçon in which this sort of work is usually performed, which was formerly, and is even in some cafes at present, a sort of festival. The operation is performed in different ways by different persons, but the best mode is that of the circular, or round the sheep, instead 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 late, proportionately, 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.

Good 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. 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 means wool is left by being left upon the sheep, and the busines is performed in a more expeditious, neat, and convenient manner. It was much the practice formerly to clip lengthways of the sheep, and in some cafes 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 interfides 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 busines with these sheep-masters. It is stated by the former, that the sheep-shearing in Romney-Marsh 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 late, apprehend they gain half a pound weight in every 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 filled with sheep ready for the coming of the shearers, in number from four to twelve, in proportion to the extent of the flock. The time employed is from two to four days. The sheep are led 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 account of the number sheared, with small laden tellers. These shearers by profession differ much as to quantity and method of performance; never begin early, but are satisfied with eight or ten hours shearing; a good shearer will shear ten an hour, a bad one seven. Their emulation tends only to dispatch and profit, not excellence of performance, and the sheep are too often pulled about in a rude and barbarous manner, and even wounded by the shears with cuts of the length of three or four inches, and the wool left unevenly thinned; tar, or some ointment, is then applied carefully by the boy, in order to keep off the flies. The master's office is usually to give the pitch-mark, and when one field is finished, the sheep are returned, and others are in readiness to take their place.

The common mode of catching the sheep is by the hinder 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 right, or common mode, he thinks the most safe. The parts of sheep fed on rich patures, and flethy, if handled hard, and bruised, are liable to fatal mortifications; an accident which often happens, on which account the pens upon some lands are obliged to be lined with woolen, or many would die from bruises. The price of shearing is 18d. or 2s. a score, with a dinner, and 2s. 6d. or 1l. a sheep without victuals, but with drink. They vary much in different places. A good wind 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 process commences with the shears at the crown of the sheep's head, with a straight cut along to the loins, returning to the shoulder, and making a circular sheared round the off-side to the middle of the belly; the off hinder leg next; the left hand holding the tail, a circular sheared of the rump to the near back of the sheep's hind leg; the two forefeet are taken next in the left hand, the sheep raised, and the shears set in at the breast, when the remaining part of the belly is sheared round to the near rife; 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 observation 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, if fallen upon those parts where the points of the shears have made the smallest scratch. But that, in regard to shearing seven or ten sheep in an hour, nothing can be more absurd and improper than such attempts, since it is impossible 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 practice prevailed in Durham, and particular men would clip sixty or seventy of that large breed in a day; but the consequence of such improvident haste was, that besides imperfect shearing, large pieces of skin were cut, particularly from the bellies of the sheep, which,
when, being constantly pestered and tortured in those parts by the flies throughout the summer, suffered much injury in their health and condition, some of them never recovering. Several sheep have died immediately after shearing, owing, perhaps, to having their legs tied, which, with hurrying and toffing them about, brought on a colic or cramp, putting a period to their existence in a moment. At that time, in a flock of two hundred sheep, we seldom escaped without the loss of one or two in a season; since, in the clipping of three thousand and upwards annually, we have not lost one these seven years. But, says he, instead of tying their legs, and trying who could clip the most per hour, or day, we have wisely begun to try who could clip the best, and from that change of system, instead of clipping fifty sheep per day, we think it a fair day's work to clip twenty-five upon an average. Where sheep are clipped by the great, and the men paid for number done, thirty or upwards may be sheared in the day; but ours are done by the day, without hurry, and fearlessly winding a sheep in the day. Each shearer makes his peculiar mark on the sheep, red or blue, that bad shearing may be detected; an useful stimulus to exertion. And he thinks that the sheep may be caught by the hinder leg, above the hough, but not by any means drawn backwards; on the contrary, as soon as the catcher has caught the sheep by the hough, he should draw it backwards, until he can, with his left hand, reach the throat, then, with the right hand behind its tail, he conveys it along with ease and safety. He thus continues: thirty years ago, it was the general practice in this county (Northumberland), and some old-fashioned bigoted people adhere to it still, to shear the sheep thus; the clipper first opened the belly, and then, after tying all the four legs, fat down upon a jack filled with straw, the sheep lying between his legs; when, in the most awkward manner, he flushed and tore the fleece off, beginning at the neck, and going down the left side first, finishing at the right. Instead of clipping around the sheep, as at present, they then clipped them molly lengthways. The present method is to begin at the back part of the head, in order to give room for the shears to make their way down the right side of the neck, to the open of the breast. The man then fits down upon his right knee, laying the head of the sheep over his left knee bent, and beginning at the breast, clips the underside of the throat upwards to the left cheek; then takes off the back of the neck, and all the way down below the left shoulder. He then changes to the contrary side, and makes his way down to the open of the right flank. This done, he returns to the breast, and takes off the belly, after which it matters not which side he clips, because being able to clip with either hand, he meets his shears-points exactly at the middle of the back, all the way, until he arrive at the thighs or legs. He then places the sheep on its left side, and putting his right foot over the neck, and the other foot upward to the undermost hind leg, clears the right side; then turning the sheep over, finishes the whole.

Our price for clipping used to be one shilling per dozen, and a half of a shilling about ten o'clock, and another at four in the afternoon. He supposes a man will have one shilling and sixpence per dozen now; but we clip all with our own men, mostly the shepherds, many of whom now do it most admirably: and we have in general prevailed upon them to clip with either hand; which is not only the easiest for the clipper, but enables him to do his work in the neatest and most complete manner.

These remarks deserve the regard of the sheep-farmers in other districts, as well as the following hint by Mr. Price. It is, says he, astonishing to see a good shearer handle a sheep; he studies its cafe, and the sheep seems delighted in its situation. This should always be the cafe with these animals, which are often much injured by coarse management, and the most sober men be constantly employed.

The fat sheep should always be thorn earlier than those which are lean. In the South Down sheep district, a good sheep-shearer is paid to be able to sheaf fifty sheep daily, for which he has 2s. 6d. or 3s. the score, and board. Great care should at all times be taken not to injure the sheep in shearing, as the least cut is sometimes dangerous, though at others not. In cases of cuts, wax ointment or well boiled tar must be used, and the sheep have an open airy pasture.

The very same method is taken in shearing the lambs as in that of the old sheep, which, in many districts, takes place nearly at the same time, or about the last end of June and the beginning of the following month; some shearing them immediately on their being weaned, but others some little time before, for the sake of allowing the old ewes to become fat. See Sherling of Lambs.

The writer of the "General Treatise on Cattle," states, that the royal flocks of fine-woollen sheep in Spain are sheared in the beginning of May. There are shearing-houses, each of which will contain twenty thousand sheep, and cost in building above five thousand pounds sterling. To shear a flock of sixteen thousand sheep requires one hundred and twenty-five men, a man shearing twelve ewes, or eight rams, in a day. The sheep are sweating previously to being sheared, in a long, narrow, low, calf, called the sweating-place, where they remain a night, crowded as close together as the shepherd can keep them. The thorn sheep are permitted to go to pasture if the weather be fine, returning home in the evening, to pass the night within shelter of the walls, or in the house, 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 depositories. Some bore 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.

Sheep-fold, in Agriculture, a space of arable or other land huddled in for the purpose of being manured, or a fort of yard or other contrivance for the purpose of confining and keeping sheep in during the nights or in bad weather, in order to afford them protection and shelter. They are sometimes fixed, being constructed of any convenient fort of light materials, so as to incline a space in proportion to the number of sheep in the form of a kind of yard or fold, which is kept constantly well littered with some sort of dry substance, such as flufhe, refuse straw, dry land, etc., during the whole of the time the sheep are folded and foddered in them, in order that such mansure may be raised as possible. In some cafes also, for the more perfect protection of the sheep, they have heds all round them, under which the sheep may be without injury from rain, snow, or any sort of moisture. These are usually termed flandering folds, and are either formed about the hom-falls, or in some dry, rather elevated situations, on the farms, having the bottoms well laid with some sort of material that is capable of keeping the sheep dry and clean. And in the covered fold, or what is termed covering, which is in use in Herefordshire, there are sometimes formed into different divisions, so as to contain a certain number or kinds of sheep.

They are, however, in other cafes formed so as to be movable,
SHEEP.

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 sheepfold, which is formed by the planting of trees in different methods, so as 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-folds, and sometimes plantation folds, from the manner in which they are formed. See Tree-Fold.

In the construction of the second sort of sheep-folds, which were mostly formed in some distant parts of the farm, in which cases they were often denominated standing-out folds, a cheap and simple method was had recourse to by an excellent sheep-farmer in Suffolk (Mr. Macro). He inflicted a double fold with thirteen dozen of old hurdles seven feet long each, formed of wands, and raised a baulk fence around them, composed of upwards of sixty loads of when rubble, in the works being littered with about thirty loads more: in this the flock were to be lodged where the fold was unsafe, or could not be removed from place to place, on account of frost, snow, or flood; and it is stated, that he made during the same winter season, 493 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 manured from the home-fall. 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 wires on which the dung was heaped in large quantity became a cause and four, that nothing would eat it: and that, exclusive of this injury, he used to lose by mortality, in a wet or severe season, 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 saved not less 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 season 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-flour, forty pounds to the truss, made twenty-eight large loads of manure, consuming two acres of turnips within the time.

The great superiority of this sort of fold over that of the naked moveable kind, is therefore sufficiently obvious, and may probably be had recourse to at all lessons with some advantage. See Sheep, and FOLDING of Sheep. Also SHEEP-FOLD.

A sheep-fold has been lately invented by Mr. Plowman of Broome, Norfolk, 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 feed; 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 nights folding in the year, owing to the land being hard in dry seasons; which renders folding almost impracticable, as they never can be kept without great labour and destruction 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 answering to keep a man for that purpose only; but by this plan, they may keep a boy at 32. or 33. 2d. per week, who can attend on 100 or 200 sheep, and move the fold himself without any assistance. In heavy gales of wind it frequently happens that the hurdles are blown down, and the sheep of course being at liberty to range over the crops do irreparable mischief, which cannot happen with this fold. And in some counties in England, where hogs are folded, great difficulties are experienced for want of hayage, for them to feed off winter tares, &c. &c. as they root up every flake or hurdle; and having tried the experiment, he is certain this fold will keep them in, and defy their attempts to displace it. And an astonishing quantity of time is saved, as a man can remove a fold to contain 500 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 downward to the bottom for the sake of removing it, and then drawn up again with a horse. This, 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 panelled 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. Houset 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 bottom 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, wet with lined moveable hurdles, that when it thaws the whole may be had 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, to 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 Villers, in Hertfordshire, which is very complete, is described, with a plate, in the Corrected Agricultural Survey.
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The survey of that district, lately published by the Board of Agriculture,

In this sheep-house the wheels are fixed to the sides, being sixteen inches in diameter, and having an axletree to harness the horse to, with weather-boarded flaps hung with hinges, to turn up and button against the sides 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 sideways, 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 shewn; nor has perhaps a sufficient number of trials been made to shew the benefit 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 disuse 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 flake or fort of fence-gates which are set 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 that in this fort of husbandry and farming, the most benefit and advantage may often be derived where there is a judicious intermixture and conjunction of other sorts 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 consequence to have recourse to the fixing upon such plans and methods as are the most and most suited to the climate and nature of the farms and markets for the fates of the animals. In cases where the farms are high, and of a cold exposed nature, the weather may often enter largely into the plan which is to be adopted. Where they are of the more mixed nature, and of high, as well as low lands, they may sometimes be most suitably stocked, in a partial manner, with ewes and lambs, and with wethers. In those of the more common fort, the breeding or rearing fyllens, according to circumstances, may frequently be the most profitable modes. And in rich grazds land and mixed farms, which are provided with parks and paturages, as well as arable lands, the sheep-farmer may not unfrequently be tempted to fatten the saleable part of his sheep-rock, 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 be carefully directed with the same intention. The means of feeding 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 Markings, 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. These 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 ufe of, the initials of the name of the farmer being most commonly employed. With the other matters different methods are taken; such as wetting and rubbing them on flates, statues, 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 face, on the fides, 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 caers is performed by cutting them with a sharp knife in different forms and manners, as in that of a fork, an under and upper flint, an under and upper square, an under and upper notch, a flake, an under and upper flint, a straight flint, a crop, a crop and flint, a hole, a hole and flint, &c. All these several modes may be well represented in Price's System of Romney-Marsh Sheep-grazing.

Marking sheep in the caers, in these or other methods, forms excellent and correct means of distinction, for knowing them by, in a variety of cafes and circumstances in sheep-farming.

Dr. Lewis recommends the following composition for marking of sheep; viz. melted tallow, with so much charcoal, in fine powder, heated 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, before moderate rubbing, refulted the sun and rain, and yet could be washed out freely with soap, or ley, or flake urine. In order to render it full more durable, and prevent its being rubbed off, with the tallow may be melted an eighth, a sixth, or fourth of its weight.
weight of tar, which will readily wash out along with it from the wool. Lewis's Com. Phil. Techn. p. 361.

Sheep-Pens, the divisions made by the small movable gates or hurdles, which are set up to keep sheep in some particular situation. They are usually formed on a dry place, about the corners where different inclosures of the pasture kinds meet, so as to be convenient for the whole. They are useful in examining and selecting the sheep, being divided so as to contain about three dozen each, as by this means they are always at the command of the shepherd for any purposes he may have in view. The bottoms should be firm and dry, so that the sheep may not be foiled.

Pens or coops are likewise made and used in the pounds where the ewes are lambed or 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 buckled, where there is a disinclination 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 beat 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 fort 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, pasturing, and droving 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-Polls, the small polls and pieces of wood which are fixed up in sheep-paddles for them to rub themselves against. They are sometimes simple upright polls, but at others they have crofs pieces put through them. They are very necessary and useful to the animals. See Rubbing-Polls.

Sheep-Shares, the shears used in clipping or shearing of sheep. They are frequently termed wool-shears. They are made with a spring bow in the handle part, which causes them to open readily in working with them. The handle part is molly about six inches in length, and that of the blade about five; but shears of this kind very much in size in different places.

Sheep-Skin, or Pelt, 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 pelt, or skin, 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 constant contracts by the year, at different prices, as from the time of shearing to Michaelmas, at from 1s. to 1s. 6d. from that until Shrove tide, at from 2s. to 2s. 6d. and from Shrove tide to shearing-time again, at from 3s. to 3s. 6d. Something 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 Washing-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 forts of half circles, with a little straight portion in the middle, to which the handle is joined, and, in short, quite straight portions. They are very useful, in some inclusions, in guiding and directing the sheep in this business.

Sheep-Yard, any fort of inclosed yard or place in which sheep are confined and kept, either for the purpose of bringing forth their young, feeding, or fattening. These forts of yards are now becoming pretty general in many sheep districts, as well as some other places. They are made in several different ways, according to the nature of the situation and other circumstances; and are often capable of being formed in easy, cheap, and convenient methods. See Sheep-Fold, and Sheep-House.

It is stated in the Agricultural Report of the County of Oxford, that at Clifton, Mrs. Latham has one of the most complete sheep-yards in it; a shed surrounds three sides of it, in which are racks and troughs for the sheep to take their food from; it is thirty-one yards in length and sixteen in breadth; the sheds 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 so often as to prevent its taking on heat, it has also been found, in Essex, to prove dangerous to lambing ewes, as well as ewes and lambs.

The sheds may be raised on the sides of these yards so as to serve as fences also. Stubble, blue, 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 Suffolk, 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 inclusions a yard of this nature, including the sheds, comprehends a space of not less than three hundred and fifty-five square yards; the sheds around which are about four yards wide. The whole are kept, for the mott 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 frill of the above counties, natural grasses being extremely scarce, light is given in large quantities to sheep, as soon as ever the frosty mornings come on; barley-light is laid recourse to in these yards, or in lambing pens; and afterwards bean and pea-light, which are very good of; they pick off the pods and tops, and do very well with these sustenance. These forts of light 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.

Pens 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
SHEEP.

fort of food, but they mostly come on gradually, until a foree will eat a peck a day. Peas are sometimes given in this manner, till they reach fix shillings a bufler, 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-Clutter, in Rural Economy, a term applied in some sheep districts to the person who has the care of clotting the ewes just before the lambing-time begins.

Sheep-Lamb, a name given to the person who has the care and management of the ewe-flocks, which are under the slate of lambing, in some sheep districts. It is of very great advantage to a sheep-farmer to have a careful, steady, active lamb, 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 left 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 had been lookers, it is so much the better, but this is far from being always the case, even in the principal stations where sheep are kept. In the great sheep district of Romney-Marsh, it is the custom for the lambers to have the fleas of the dead lambs as a perquisite, which are usually sold at about $2. the dozen. This is certainly a bad practice, as it tends to the making of rogues. The interest of the sheep-matter 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 lamber to go his regular rounds at four o’clock in the morning, 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 too much to do, that he cannot come home above once or twice a day; the lambling should on no account be ever left until the lamber 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, steady, active dispositions; with sufficient experience, and a full knowledge of the different modes of sheep management. See SHEEP.

SHEEP LAMING-Hooks and MARKS, the instruments of the hook and mark kind, which are made use of in laying hold of the lambs, and in marking them, in particular cafes 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 has 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 fort of rack which is provided for the use of sheep in their consumption of hay and other forts 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 one foot ten inches, but which sometimes contracted at the bottom 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 forts of these racks prevent the animals getting into them. When formed with covers and fences 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 readily moved about.

These racks are of very great use and convenience on all farms where sheep are kept in any quantity. See RACK.

SHEEP Coro-Bin, any fort 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 movable 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 consider able length, the box or trough for the food having only the depth of a few inches.

Sheep-bins of this fort 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, bubble, &c. may, in many cafes, be increased to a consider able 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 soft and damp sheep-walks and pathways 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 spit and the flowing in depth. They are most suited to that fort of wetness where the bottom is of a clayey or silty nature. Such fort of work can, in some places, often be done at three-halfpence the rod of Scotch eels. These drains should constantly have a gentle slope or declination across the declivities of the grounds on which they are made.

SHEEP-Farm, that fort 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 substructure is of a lime-stone quality, this is mostly 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 cafes in which it can be properly admitted. Sheep-
farms should constantly be formed with great attention to
the nature of the grass, the exposure, and the shelter for the
animals. They should also be kept dry and in good order
on the surface, with every fort of proper convenience for
the management of sheep. See SHEEP-Husbandry, and
FARMING.

SHEEP-LEAF, a term applied to pasture-land appro-
riated to the feeding or supporting of sheep; or any fort
of pasture-land on which this kind of animal or live-rock
is kept.

SHEEP-POULTRY, that kind of dry, firm pasture land which
is suitable for the purposes of grazing, feeding, and fattening
sheep. Many forts of moit land are not at all proper for,
or adapted to this use, though well suited for some
other forts of farm management.

SHEEP'S-TROTTERS, a refuse material procured from fell-
mongers, which is made use of in some places as a manure to
be turned into the land. They are bought at about 6d. the
bushel, loosely heaped, in some places, and coal about 2d.
more in carriage, being used in the proportion of from twenty
to forty bushels the acre, being afterwards pricked in to
prevent their being eaten by dogs, crows, &c. They answer
belt on such lands as are rather dry, and where the sea-
on is rather moit. They contain a large proportion of
lime, and are often adulterated by being mixed with sand, as
well as oak sawdust; which half is said not to injure them.
Furriers' cuttings are nearly the same, and made use of in a
similar manner.

SHEEP'S COVE, in Geography, a bay on the E. coast of
Newfoundland, between Bay Robert and Port Grave.

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° 0'.—Also, a small island on the
northern coast of the county of Antrim, Ireland, oppo-
to the extreme point of the head-land, between Ballintoy
and Ballycally, not far from the remarkable rock, called
Carrick-a-Rede. N. lat. 55° 15'. W. long. 6° 11'.

SHEEP-FISEE GROAS, in Agriculture, a sort of grass which,
while it has been much praised by some as useful in pastures,
having 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 succed well with leas soillier than most other
forts of grass. As forming a close-matted turf, where no
great produce is required, it may be found a beneficial
plant. See FESTUC A OVA ANA, and GRASS.

SHEEP-Nose-Worms, in Natural History, a species of fly-
worm, found in the noes of sheeps, goats, and rams, and
produced there from the egg of a large two-winged fly.
The frontal sinuses above the nose in sheeps, 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. Valintier, to whom the world
owes so many discoveries in the infest clafs, 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, un-
known, the creatures themselves were very early discovered,
and many ages since were esteemed great medicines in
epilepsies.

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The fly, produced from this worm, has all the time of
its life a very lazy disposition, and does not like to make
any use of either of its legs or wings. Its head and corneal
Together are about as long as its body, which is com-posed
of five rings, streaked on the back; a pale yellow and
brown are there dispersed in irregular spots; the belly is of
the same colours, but they are there more regularly dis-
pofed, 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 nearly of the same length
with the body, and are a little inclined in their position,
so as to lie upon the body; they do not, however, cover it, but a naked space is left between them; the
aikrons, or petty wings, which are found under each of
the wings, are of a whitish colour, and perfectly cover the
balancers, so that they are not to be seen without lifting
up theve.

The fly will live two months after it is first produced,
but will take no nourishment of any kind; and possibly it
may be of the same nature with the butterflies, which never
take any food during the whole time of their living in that

SHEEP-SCABIOUS, in Botany. See JASION.

SHEEP-SHANK, in Sea Language, is a sort of knot, or
hitch, cast 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 weighty body is to be hoisted into a ship, &c.
and it be found that the blocks of the tackle meet, or
block and block, before the object can reach the top of
the side, it will be necessary to lower it again, or hang it by
some other method, till the runner of the tackle be sheep-
shanked, by which the blocks will again be separated to
a competent distance. See RIGGING, Plate 1, fig. 16.

SHEEPCADE, in Agriculture, a name provincially ap-
plied to the large sheep-loaue.

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'.

SHEEPHAVEN, a harbour on the northern coast of
the county of Donegal, Ireland, situated west of the Mul-
roy, and separated from it by a long, and, in some parts,
very narrow peninsula. The surrounding country is moun-
tainous, and thinly inhabited; nor is there any town of
consequence in the neighbourhood. Dunfanagh, near
Hornhead, is no more than a village, though ruins near
it seem to indicate that it was formerly much larger. The
fertile sand 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 boundary of the harbour, we noticed, on the author-
ity of the late Dr. William Hamilton, in the Trance-
factions of the Royal Irish Academy, the effect of drifting sands in
overwhelming the vestiges 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 a century ago, an elegant
defile, according to the tale of that age, was built on the
peninsula, between the harbours of Sheephaven and Mulroy,
which at present stands like Tadmor of the East; the soli-
tary wonder of a surrounding desert." The gardens are
totally denuded of trees and shrubs by the fury of the
western winds; their walls, unable to sustain the masts of
overbearing ships, have bent before the accumulated pre-
sumption; and, overthrown in numberless places, have given rise
pallage
pallage to this reflets enemy of all fertility. The courts, the flights of steps, the terraces, are all involved in equal ruin; and their limits only discoverable by tops of embattled walls, visible amid hills of ruin. The mansion itself, yielding to the unconquerable fury of the temple, approaches fall to destruction: the frightful 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 defoliation, are reduced to one undistinguishable scene of sterile uniformity, and twelve hundred acres of land are said thus to have been buried, within a short period, in irrecoverable ruin." N. lat. 55° 12'. W. long. 7° 45'. Transactions of the Irish Academy, vol. vi.

SHEEPSCUT, a river of the United States, which joins the Kennebeck E. of its mouth, and is navigable 20 or 30 miles. On the W. side of this river is the excellent port of Wiccalet.

SHEEPHEAD, a cape on the S. coast of Ireland, between Bantry bay and Dunkinmous bay. N. lat. 51° 29'. W. long. 9° 45'.

SHEER, a town of Candahar; 40 miles W. of Ghiziniz.

Sheer, in Agriculture, a term used to signify pure, clean, unmixed, as in the case of grain-feeds, and many kinds of substrances.

Sheer, in Ship-building, the fore and aft curve or hang of a ship's sides or deck.

Sheer-Draft, the plan of elevation of a ship, on which is described the out-board: works, as the sheer-rails, wales, ports, drifts, head, quarter, poll, and stern, &c. The hang or sheer of each deck inside, the height of the water-lines, &c. See Ship-building, Plate I.

Sheer-Hooks, are large iron hooks used when a ship desires to board another.

Sheer-Hulk, is an old ship of war of 74 guns, cut down to the lower deck, or nearly so, and fitted in the following manner, to fix or take out the lower masts of ships in the royal navy, as occasion requires. It has a mast fixed in midships, about 33 inches in diameter, and 108 feet high, supported by stays, the upper shore 87, and the lower shore 81 feet long, and each 19 inches in diameter, their heels reeling against the inside, abreast the heels of the sheers, which are three in number, each composed of two pieces, 22 inches diameter, bedded together in the middle, to make 116 feet in height. The heels rest upon the outside, abreast the mate, the heads unite, and are firmly moored together, and incline outwards, to hang to the vessel whole masts are to be fixed or taken out. The sheers are likewise supported by a derrick, which is 100 feet long, and 22 inches in diameter. The mast is further secured by shrouds and stays, and the sheers by stays and large tackles, from the masts to each sheer. From the head of the sheers depend two large tackles, by which the largest masts are raised or lowered: the effort of these tackles is produced by two capstans, fixed on the hulk's deck for this purpose. There is also a luff-flanged tackle for halting small vessels. See Hulk.

Sheer-Rails. See Rail.

Sheer-Strake, the upper strake or strakes on the topside in midships. It forms the chief strength of the topside, and is therefore thicker, and continued the whole length parallel to the top timber-line and farchs at the buttts between the drifts.

Sheer-Weather, those strakes of thick stuff in the topside of three-decked ships, which are wrought between the middle and lower deck ports. Sometimes they are called middle-waides.


Sheer-Bucks, in Geography, a town of Peru, in Khorallan; 30 miles S. E. of Herat.

Sheer-Gotty, a town of Hindoostan, in Bahar; 68 miles S. S. W. of Patna. N. lat. 24° 30'. E. long. 84° 56'.

Sheer-Gur, a town of Hindoostan, in Malwa; 30 miles N. W. of Ragagur. N. lat. 24° 49'. E. long. 77°. — Also, a town of Hindoostan, in the cercar of Gohad; 5 miles E. of Narwa.

Sheering, or Shearing, in the Woollen Manufactures, the cloth-worker or sheerman's craft, or office; or the cutting off, with large sheers, the too long and superfluous knap, or flaps, found on the surface of woollen stuffs, fulkins, cottons, &c. in order to make them more smooth and even.

Stuffs are shown more or fewer times, according to their quality and fineness.

Some use the phrase sheering of hats, for the passing of hats made of wool over the flame of a clear fire made of straw, or sprue, to take off the long hairs; others call this flaming, and others singeing. Other hats, as calsars, femecallors, &c. are turned, by rubbing them over with pumice-stone. See Hat.

Sheering, or Shearing, 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 cleared steadily, or on account of the drift running of the tide, &c. in which case she is said to shear, or go a shearing. Hence, to shear off, is to remove to a greater distance.

When she lies at anchor, near port, &c. by reason of the drift running of the tide-gate, &c. she is often said to be in danger of sheering from her anchor, or sheering offshore. See Chest-Rope.

Sheer Mohammed Pett, in Geography, a town of Hindoostan, in the cercar of Condopilly, on the borders of Goleondia; 21 miles W. N. W. of Condopilly.

Sheerness, a sea-port and market-town in the Isle of Sheepy, 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, destroyed the fortifications, and failed up the Medway as far as Upnor castle. After returning again from this enterprise, the government directed some strong works to be formed here, because the spot was deemed of great importance. A regular fort 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 stations 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 subquent to 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 commissio-
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ioner, with two clerks, a master-shipwright, and other officers, with labourers, are stationed here.

A modern chapel has been erected at the expense of government; but in ecclesiastical rites and privileges this is subordinate to the parish church of Minster. According to the population reports of 1811, Sheerness was returned to contain 134 inhabited houses, and 96 uninhabited; and the inhabitants, including the convicts in the hulks, and independent of the garrison, were estimated at 1685. The hulks of the ships, called break-water, are occupied by about seventy or eighty families, and altogether present a very singular appearance, the chimneys being raised of brick from the lower gun-decks. The market-day at Sheerness is Saturday, weekly.

For a long period, the garrison and inhabitants of Sheerness experienced a scarcity 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 sink a well within the fort; and the execution of this was entrusted to Sir Thomas Hyde Page, an able engineer, whose skill and perseverance were found fully equal to the task that had been reposed in him. The preparation of the materials, and the boring, to ascertain the different strata, were begun in April, 1781; and the sinking of the well was commenced in June following. The land-springs, &c. which greatly interrupted the progress of the work during the first 100 or 150 feet, were excluded by regularly steaming in the inside of the well; till, at length, the workmen came to an immense stratam of chalk, which prevented the further necessity of steaming, and enabled them to proceed with less inconvenience. They went on, however, with great caution; and having dug to the vast depth of 328 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 fix hours it rode 189 feet, and in a few days was within eight feet of the top; and has ever since produced a never-failing supply; for, though constantly drawn from it, has never been lowered more than 200 feet. The quality of the water is fine and cold, and its temperature is somewhat warmer than commonly happens in other wells. From this well, conjointly with that of Queenborough, not only the garrison and inhabitants are supplied, but also the shipping which lies at anchor at the entrance of the Medway. (See QUEENBOROUGH.) Hallid's History, &c. of the County of Kent, fol. 1. 8vo. edit. Canterbury, 1798. Beauties of England and Wales, vol. vii. by E. W. Brayley, 8vo. 1806.

SHEEPOR, a town of Hindooistan, in Bahar; 43 miles S.S.W. of Patna. N. lat. 24° 55'. E. long. 85° 10'.

—ALO, a town of Hindooistan; 30 miles E. of Delhi.—Allo, a town of Hindooistan, in Mewat; 25 miles N.E. of Dig.

SHEERS, in Ship-Building, are two masts or spars, set across 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 heels are spread and lathed, or clefted, to prevent their flapping. By this contrivance very heavy bodies are raised, such as the stem, stern-frame, and the frame-timbers of ships; likewise ships are mated by sheers, or have their masts taken out where there is no sheer-hulk.

SHEET, in the Manege. See CARTAPANX.

SHEET, in Sea Language, a rope fastened to one or both the lower corners of a sail, to extend and retain it in a particular direction. When a ship falls with a lateral wind, the lower corner of the main and fore-sail are fattened by a tack and a sheet; the former being to windward, and the latter to leeward; the tack, however, is entirely suffused with a light wind, whereas the sail is never spread without the assistance of one or both of the sheets. The stay-falls and flapping-sails have only one tack, and one sheet each; the stay-falls are always felled fore and aft, and the sheet drawn aft; but the luffing-fall-tack draws the under edge of the sail to the extremity of the voile, whereas the sheet is employed to extend the mainsail. Falconer. See SHEETS.

SHEET, To hole home the. See HOME.

SHEET-Anchor. See ANCHOR.

SHEET-Nails. See NAIL.

SHEET-Stopper. See STOPPER.

SHEETING, a term signifying the flooring of jointed planks, under the lock-gates of a canal, and at the tail of every lock and sluice, &c.

SHEFFIELD, John, in Biography, duke of Buckinghamshire, son of the earl of Mulgrave, was born in the year 1649. At the death of his father he succeeded to his title; this was in the year 1658. At an early age he dismissed his governor, but supplying the want by his own industry, he acquired a considerable proficiency in literature. His patriotic ardour broke out at the age of seventeen, when he engaged in the first Dutch war as a volunteer. The indications which he gave of the love of pleasure, united with literary talents, which had a peculiar value in the reign of Charles II. rendered him a favourite at court, and he materially assisted in the obtaining for Dryden the appointment to the post of laureat. At the commencement of the second Dutch war, he was a volunteer in the fleet commanded by the duke of York, and was present at the battle of Solebay, in which he behaved with so much gallantry, that on his return he was made captain of a second-rate ship of war. In the following year he was appointed colonel of a regiment of foot under general Schomberg. In 1674 he was decorated with the order of the Garter. He was, in 1679, appointed lord-lieutenant of Yorkshire, and governor of Hull, in which year he wrote a piece, entitled "The Character of a Tory, in answer to that of a Trimmer." In this we have an avowal of his political principles, which were those of the party in whose name he wrote, and to which he adhered during life. In 1680 he went out with a force to the relief of Tangier, then invested by the Moors. In this expedition he completely succeeded, and with it ended the military services of lord Mulgrave. On the accession of James II. he was chosen of the privy-council, and made lord-chamberlain of the household. He returned these favours by a zealous attachment to his master, which led him to take a seat in the ecclesiastical commission; but in this he opposed those measures of the priets which brought on the speedy ruin of that exalted prince. Though inimical to the revolution, yet he voted for the conjunction of sovereignty of king William with Mary. In 1694 he was made marquis of Normanby; notwithstanding this, and his admission into the cabinet, with a pension, yet he still had a great dislike to the king. On the accession, however, of queen Anne, his former attachment to the court was revived, and he experienced her favour by an appointment to the privy-seal, and by other honours, which were terminated in 1703, by a nomination to the dukedom of Buckinghamshire. Jealous of the influence of the duke of Marlborough, he resigned the office of privy-seal, and remained out of office several years, during which he built the house in St. James's 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 steward of the

houte-
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 ferious thoughts of religion, though pro-
bably not restricted to any particular party. The following
is the epitaph which he composed for himself: "Dubius
fed non improbus vivit: incertus morior, fed interbus:
Humanum est necire et errare. Chirillum avdencer: Deco
confido omnipotenti, benevolentissimo: Ens certum miære mei."
This was inscribed on his magnificent monument in
Wellsminster Abbey, with the exception of the clause respect-
ing Chirill, which bishop Atterbury rejected, thinking simple
veneration a derogatory application 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 Elia on
Poetry," which, according to Dr. Johnson, contains judici-
ous precepts, which are sometimes new, and often happily
expressed, but with many weak lines, and some strange
instances of negligence. In his "Elia on Satire," he is
supposed to have been a pen name of 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
chorus; of these, Warburton says, that they have the usual
effect of ill-placed ornaments, they make the meanness of
the piece more conspicuous. In the collection of the duke's
works are likewise historical memoirs, speeches, effays, &c.

Sheffield, or Sheaffd, in Geography, a large and
populous market and manufacturing town in the South
division of the wapentake of Stratford and Tichill,
liberty of Hallamshire, Well Riding of Yorkshire, England,
is situated at the distance of 36 miles S. from Leeds, and
162 N.N.W. from London. The origin and remote history
of this town are totally unknown. In the 13th cen-
tury it was noted as a staple for articles of iron manufacture.
Chaucer, who wrote in the reign of Edward III., men-
tions the "Sheffield Whittle" in one of his poems. At that
period it was likewise distinguished by a strong caille, which
stood at the north-ea of the town, and is said to have been
designed during the sovereignty of Henry III. This caille
defended from the Lovelots to the Nevils, lords Furnival,
and padded from them to the Talbots, sons 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 caille suffered a long siege in the cause of royalty,
but eventually surrendered upon honourable terms, on the
tenth of August, 1644, and was soon afterwards ordered to be
demolished, which seems to have been done most effectually,
as fiercely a veiltige of it can now be discovered.

Though 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 pre-
carious, and consisted almost entirely in the making of sheath-
knives, scissors, sickles, and fcythes. About the commence-
ment of the 17th century, an ordinary kind of tobacco-box
of iron, and Jews' harps, began to be manufactured here;
and in 1625 the master manufacturers were first incor-
porated by the style of "The Company of Cutlers of
Hallamshire." This corporation is governed by a master,
elected annually, six searchers, and twenty-four assistants,
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 manu-
facturers 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 Bollower began
to plate brases and copper buttons with silver; and in 1758
the silver plated manufacture was commenced on an exten-
sive scale by Mr. Joseph Hancock, and has subsequently
been prosecuted with great advantage by a numerous claf
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 1795, 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 pleasurably 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 divi-
sions 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
to as tea-urns, coffee-pots, tankards, 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, lances, forks, hafts,
ink-stands, nails, knives of every description, scissors,
cythes, 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 Alte-
cliff, Bentgreen, Brightside, Butterwith, Carysbrook,
Darnel, Dyon-Holmes, Dungworth, Ecclesfield, Green-
side, Grimeshorpe, Hallam, Milno-rous, Newfield-Gre-
over, Pottsmoor, Stanington, Sheffeild, Upper-
Wheeley, Wadley, Woodfleets, &c.; all of which are
situated within four 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 houses
were entirely built of stone; but for the last century they
have been chiefly composed of brick. There are very 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 contains 7927 houses, and 35,840 inhabitants, being an increase of 4526 persons since 1801; the date of the preceding report, notwithstanding the retardation its manufacturing prosperity has sustained during that eventful period. According to Goffling’s plan of the town, made in 1732, there were 32 streets in Sheffield at that time: in 1771 these were increased by 25 new streets; and in 1792, seventeen 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 1700, Cutlers’-hall, the General Infirmary, the assembly-room, and theatre, and four churches belonging to the establishment. Neither the Town-hall nor Cutlers’-hall deserve attention as architectural productions; but the infirmary and theatre are handsome structures. The former, commenced in 1703, 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’s, 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 judge Jelfop of Broom-hall, and his lady. At the entrance to the same division of the church are deposited the remains of William Walker, of Darvel, in this parish, who is said to have been the executioner of Charles I. Besides the above churches, Sheffield contains seven meeting-houses for Protestant 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 eastern bank of the Sheaf. It was founded and endowed in 1670, by Henry, earl of Norwich, and received a considerable accession of property by Edward, duke of Norfolk, in 1770. The building consists of two quadrangles, each containing eighteen dwellings, for the accommodation of eighteen men, and the same number of women, all of whom receive five shillings a-week, with clothing and coals. Here is also an hospital founded by Mr. Thomas Hollis, a merchant of London, in 1703, for poor cutlers’ widows; likewise 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 1485, but undergone 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 fish-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 flanes and other conveniences, was formed and finished here Aug. 31, 1786. Sheffield supports a weekly newspaper, called the "Iris," which is edited by Mr. James Montgomery, the author of "The World before the Flood," and other interesting poems.

The scenery in the vicinity of this town may be characterized as romantic. It is surrounded by lofty hills, commanding fine views over a populous and varied country. At the distance of about a mile and a half to the eastward, and the ruins of Sheffield manor-house, the ancient seat of the earls of Shrewsbury, where cardinal Wolsey was feigned with the disease which terminated his life about a week afterwards, at the abbey of Leicestershire. Wharncliffe park, the seat of the honourable James Archibald Stuart Wortley, situated on the river Don, six miles to the north-west of Sheffield, is equally remarkable for the elegance of its mansion, and the beauty of the surrounding grounds. In the neighbourhood of Sheffield are some alum mines; and at Wickerley, near the town, is a quarry, which supplies the manufacturers with grind-stones for the finer articles of cutlery. Aikin’s Description of the Country round Manchester, 4to. 1795. Magna Britannia, 4to. 1793. Camden’s Britannia, fol. edit. 1789. Beauties of England and Wales, vol. xvi. by John Bigland, 8vo. 1812. Gentleman’s Magazine, April and September, 1764.

Sheffield, a town of America, in the state of Vermont, and county of Caledonia, containing 455 inhabitants.—Also, a town of the state of Massachusetts, in the county of Berkshire; incorporated in 1733, and containing 2459 inhabitants. It is traversed by Hoquastonic river, which supplies water for several mills and river-works. South mountain extends along the whole length of the town, on the E. side of the river.

Sheffieldia, in Botany, Forl. Gen. t. 9, was so called by Forster in honour of the Rev. Mr. Sheffield, whom he designates as the chief botanist 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 1788. The genus in question is now sunk in Samoaus; see that article.

Sheffield, in Geography, a market-town in the parish of Compton, hundred of Chifton, and 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 four annual fairs, held on the 23rd of January, Easter Monday, the 19th of May, and the 10th of October. The two first usually afford a large supply of sheep and cows; the third is less important; and the fourth is now only a holiday fair. Sheffield is a chapelry, having distinct officers of its own, and maintaining its own poor. Here is a Roman Catholic chapel, endowed with an annual rental left in trust for that purpose. According to the parliamentary returns of 1811, this town contained 123 houses and 536 inhabitants.

In the parish of Flinton, and at the distance of about four miles from Sheffield, is Wreel Park, the seat of baronets Lucas, as representative of the family of the Greys, earls and dukes of Kent. In its present state the house retains little appearance of antiquity, having been at various times altered 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 terraqueous canal, which nearly surrounds the garden, and is supplied by a spring rising near the house. At the spring-head 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 banqueting house, which terminates a spacious avenue in front of the house. Lyford’s Magna Britannia, Bedfordshire, 4to. 1806. Beauties of England and Wales, vol. i. by John Britton and E. W. Brayley, 8vo. 1803.

SHENAL. See Shappal.

SHEHERON, a town of Peru, in the province of Irak; 15 miles E. of Kermanshaw.

SHEHERVERD, a town of Peru, in the province of Irak; 30 miles S.W. of Sultania.

SHEHOUN, a town of Syria, under the jurisdiction of an independent aga, called “Capparares,” 18 miles N. of Hamah.

SHEHHRAN, or Shereban, a town of the Arabian Irak, on the Diala; 50 miles N. of Bagdad. N. lat. 34° 8’. E. long. 44° 5’.

SHEHrichter, a town of Peru, in the province of Irak; 33 miles W.S.W. of Kom.

SHEHRISTAN, a town of Peru, in Khorasan; 210 miles W. of Herat. N. lat. 35° 10’. E. long. 56° 20’.—Allo, a town of Peru, in the province of Chufidan, or Kuzifian; 50 miles N.W. of Schiras.

SHEIB, a lake of Egypt; 48 miles E.N.E. of Cairo.

SHEIKE, a mountain of Switzerland, in the S.E. part of the canton of Berne; 10 miles S.E. of Interlaken.

SHEIK, or Sheik, in the Oriental Caglams, the person who has the care of the mosques in Egypt; his duty is the same as that of the imans at Constantinople. 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 parish-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 this himself. In such it is their business to open the mosque, to cry to prayers, and to begin their short devotions at the head of the congregation, who stand 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-Bellek, the name of an officer in the Oriental nations.

In Egypt the sheik bellek is the head of a city, and is appointed by the pacha. The business of this officer is to take care that no innovation be made, which may be prejudicial to the Porte, and that they send no orders which may hurt the liberties of the people. But all his authority depends on his credit and interest, not his office: for the government of Egypt is of such a kind, that often the people of the leal power by their poth have the greatest influence; and a cala of the janizaries, or Arabs, and sometimes one of their meanest officers, an oda-balha, finds means, by his parts and abilities, to govern all things. Pococke’s Egypt, p. 161.

SHELKAUT, in Geography, a town of Bengal; 8 miles N. of Hulamabad.

SHEIKH-UL-JEBAL, Dominions of, or lord of the mountains (commonly called the old man of the mountain) compris’d the whole of that elevated tract in the province of Azerbijan in the Persian empire, which runs parallel with the course of the Kizilkes and the greater part of Golan. When destroyed by Holak, the Houtiens, or Afshins, polleled upwards of 100 strong holds; but the residence of the prince was generally confined to the caftles Roodbar and Allah Ahmaud both of which are situated in the Kohr Caucasus, near Kazawen.

SHEIKPOUR, a town of Hindoostan, in Bahar; 28 miles E. of Bahar. N. lat. 25° 9’. E. long. 80° 9’.

SHEIMERS, a town of New Jersey; 34 miles N.W. of Morristown.

SHEK ABAD, a town of Egypt, anciently called Antinöe; 8 miles N. of Abu Girge.

SHEK ABDELLA, a village of Syria, in the pachalic of Aleppo, where are some springs of water; 20 miles S.E. of Aleppo.

SHEK Abu Enaur, a town of Egypt; 7 miles S. of Benfifuef.

SHEK Amur, a town of Egypt, situated on the Nile; 17 miles N. of Syene.

SHEK Embadhe, a town of Egypt, on the right bank of the Nile; 16 miles S.S.E. of Girge.

SHEK ERED, or Haradhe, a town of Egypt, on the E. side of the Nile. Here is the tomb of a Turkish laint, 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 Ashrawn.

SHEK il Eitman, a town of Egypt, on the Nile; 7 miles S.S.W. of Cairo.

SHEK Fadhe, a town of Egypt, on the right bank of the Nile; 10 miles S. of Abu Girge.

SHEK Zaimeddin, a town of Egypt, on the left bank of the Nile; 3 miles N. of Tabtha.

SHEKEL, Shekhe, Shekles, Siclus, an ancient Hebrew silver coin, which was originally a drachm, but, after the Maccabees, about the value of the Greek tetradrachm, or four Attic 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 9d. 286, equal to £2. 14s. 3d. See Denarius and Drachm.

In the Bible, the shekel is sometimes also rendered solidus, and sometimes stater.

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 Attic drachms.

Father Socquet has described several of these shekels in his Dissertation on the Hebrew Medals. By the way he observes, that the third and fourth parts of a shekel, described by Waeferus, de Ant. Numb. Heb. are counterfeits 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 several, 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
mean didrachm, of 133 troy grains, must be very near its just weight, and its half, or 66_\frac{1}{2} grains, that of the Attic drachm. The weight of the shilling would therefore be 66_\frac{1}{2} \times 4 = 266 troy grains.

Some are of opinion, that the Hebrews had two kinds of shekels, the common, or profane shekel, called didrachm; and the shekel of the sanctuary; which last they will have to be double the former. By this expedient they think we may get clear of some difficulties occurring in Scripture, where things are mentioned as of incredible weight; particularly that passage where it is said, that every time Aba-lom cut off his hair, the weight of which we used to incommod e him, he cut off the weight of two hundred shekels.

But Villalpando will not hear of such a distinction; nor do bishop Cumberland, M. Morin, Greaves, &c. take the opinion to have any foundation. The profane shekel, or shekel of four drachmas, they agree, was the same with the faceel shekel; and it was only called by this last name, because the standard of it was kept in the sanctuary by the priests.

Greaves apprehends, that the τρίγωνα σηχείας, or 30 pieces of silver, which were given to Judas, as the reward of his treason, were 30 shekels. Some modern writers, he says, imagine they were 30 denarii, and others, that they were triginta librae, or triginta talenta. Greaves's Works, vol. i. p. 257, note n.

It is maintained by several, that the Jews had also a gold shekel, Thiên aureus, of the same weight with the silver one; and valued at 16. 6s. 6d. Berling.

The shekel is supposed to have been first struck in the Defart, on the footing of 100 to the Attic mina, weighing 160 grains of wheat, and current for 10 geratis, or obols; but that afterwards they were struck of double that weight. Some will have the shekel to be the oldest piece of money in the world, as being in use in Abraham's time; but this was not coined, or minted, nor had any other value besides its intrinsic worth.

Xenophon mentions shekels as current in Arabia; and Du-Cange speaks of others struck and current in England.

Pinkerton, in his Essay on Medals, (vol. i. p. 291.) fig- ures, that the Hebrew shekel, and also the brals coins, with Samaritan characters, were not most of them later than the Christi an era, and generally the fabrications of the Jews. At any rate, the same impression of a sprig on one side, and a vafe upon the other, runs through all the coins of that barbarous nation; and the admixture of but one of them is rightly esteemed to be almost a disgrace to a cabinet.

SHEKIDJEK, in Geography, a town of Grand Bu- charia; 60 miles N.W. of Sagana.

SHEKOABAD, a town of Hindoostan, in Doob; 60 miles W. of Canage. N. lat. 27° 9'. E. long. 79° 2'.

SHELAH, a town of Afiatic Turkey, in Nautola, near the Black sea; 12 miles N. of llm.

SHELAN, a town of Persia, in the province of Far- fallan, near the Persian gulf; 75 miles S.S.W. of Jamor.

SHELURN, a town of America, in the province of Ve- rmont, and county of Chittenden, on the E. side of Lake Champlain, containing 987 inhabitants.

SHELURN Bay, a bay on the N. coast of New Hol- land, between Oxfordnse and Cape Grenville.

SHELURNE, sometimes called Port Refway, a fea- 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'.

SHELURN, a town of America, in the province of Massachussetts and county of Hampshire, containing 661 inhabitants; 98 miles W. of Boflon.—Also, a town of New Hampshire, in the county of Coxs, incorporated in 1769, and containing 1756 inhabitants.

SHELBY. See SHEBBY.

SHELDAFLE, a name used in several parts of the kingdom for the chaffinch.

SHELTON, Gilbert, in Biography, archbishop of Canterbury, was born in 1598, at Stanton, in Staffordshire. His father was a memial servant of Gilbert, earl of Shrew- bury, though defended from an ancient family in Stafford- shire. The subject of this article took his name from the earl, who was his god-father. Having laid the foundation of a good education, he was entered of Trinity college, Oxford, in 1613, 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 presbend of Glo- celter, 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 further promotion 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 promoted 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 disputation, and inflamed 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 conclude was not his object; he was resolved to carry his point by power: when it was debated in council in Augllt 1662, whether the act of Uniformity should be punctually executed that month, or be suspended for a time, bishop Sheldon pleaded against the suspension, 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 mani- fersence he fulfilled, after an exemplary manner, the char- acter of a great prelate. He expended 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 Clarendon from the chancellor- ship 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 auctore—quod cum intuor et circum- specto videor mili in ipfa Roma, vel in medii Athenis, antquis
tiquis illis, et cum maxime floribustibus versari." 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 86th 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 fenfe 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 poft-town of America, in the state of Vermont, and county of Franklin, containing 883 inhabitants; 14 miles E. of lake Champlain.

SHELE, 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 distinction of the inner structure of the earth, so little known to philosphers, that they have no word to express it by. These workmen sometimes also express it by the term soil ground, or soil 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 toled 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 loosened, and torn off; and the earth, and with it the mineral nodules, called loadstones, 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. N° 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 it has much mixed and incorporated with other earthy parts. It is a prevailong sort of land in some districts; this sort of roten flaty matter being largely intermixed with the light loamy mould that constitutes the earthy parts of it.

Where the subfoil or sublimate is a scyllitus, or soft

flate, as is al the cafe in some places in Cornwall, there is great difference, in point of fertility, in the land, according as the disposition of the lamine is more flat, or the contrary; as when flat, the surface is more retentive of the manure which is employed; but when on the edge, what is called a greedy or hungry fort of land is formed, that permits the manure to be washed down through it in too ready a manner, and be lost. See Soil.

SHELL, TESTA, in Natural history, a hard calcareous crust, serving to cover and inclose a kind of animal, hence called testaceous. See Conchology and Testaceology.

SHELLS, Collecting and cleaning of. See Conchology.

SHELLS, Figures and Colours, &c. of. It is observed, that river-shells have not so agreeable or diversified a colour as the land and sea-shells; but the variety in the figure, colours, and other characters of sea-shells, is almost infinite. The number of distinct species we find in the cabinets of the curious is very great; and doubtless the deep bottoms of the sea, and the yet unsearched shores, contain multitude more, yet unknown to us. Even the same species differ in some degree in almost every individual, so that it is rare to find any two shells which are alike in all respects.

Bonani observes, that the most beautiful shells we are acquainted with come from the East Indies, and from the Red Sea. This is in some degree countenanced by what is found to this day; from the general observations of the curious, it seems that the fun, by the great heat that it gives to the countries near the line, exalts the colours of the shells produced there, and gives them a luftre and brilliancy, that those of colder climates always want; and it may be, that the waters of those vast seas, which are not subject to be weakened by fresh rivers, give a nourishment to the fish, that may add to the brilliancy of their shells.

The shores of Asia furnish us with the pearl oysters and scallops in great perfection. About Ambonya are found the most beautiful specimens of the cabbage-shell, the arborfair, the ducal mantle, and the coral oysters, or echinated oysters. Here also are found a great variety of extremely beautiful mussels, tellins, and volution; some fine buccinums, and the shell called the Ethiopian crown, in its greatest perfection.

The dolia, the murices, and the cassinodes, are also found on these coasts in great beauty. Many elegant snails and screw-shells are also brought from thence; and finally the ferapion and spider-shells. Hist. Nat. Eclairc. p. 168.

The Maldive, and Philippine islands, B-negal, and the coast of Malabar, abound with the most elegant of all the species of snails, and furnish many other kinds of shells in great abundance and perfection.

China abounds in the finest species of porcelain shells, and has also a great variety of beautiful snails.

Japan furnishes us with all the thicker and larger bivalves; and the shell of Cyprus is famous above all other parts of the world, for the beauty and variety of the patellas, or limpet, found there.

America affords many very elegant shells, but neither in so great abundance nor beauty as the shores of Asia.

Panama is famous for the cylinders or rhombi, and we have beside, from the same place, some good porcelains, and a very fine species of dolium, or concha globosa, called from this place the Panama purple shell. One of the most beautiful of the cylinders is also known among our naturalists under the name of the Panama shell. About
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About Brazil, and in the gulfs of Mexico, there are found murexes and dolia of extreme beauty, and also a great variety of porcelains, purpure, pectens, nerites, baccardize, or heart-shells, and elegant limpets.

The isle of Cayenne affords one of the most beautiful of the buccinum kind, and the Midas ear is found principally about this place.

Jamaica, and the island of Barbadoes, have their shores covered with porcelains, chame, and baccina; 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 colours more pale and dead. The pearl oyster is found also on this coast, but smaller than in the Perian 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 mussels of very elegant pale blue and pale red colours; some species of these are remarkably 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 mussels of several species, some of which are of considerable beauty.

About Carthagena there are many mother-of-pearl shells, but they are not of so brilliant colours as those of the Perian gulf.

The isle of Magellan, at the southern point of America, furnishes us with a very remarkable species of muffle, 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 porcelain, which is used there as money; and there is another species of porcelain 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 *nux maris*, or sea-nut, is very frequent there. Befide these, and many other shells, there are found on this coast all the species of nautil, many of which are very beautiful.

The Canary Isles are found to abound with a vast variety of the murexes, and some other good shells; and we have from Madeira great variety of the echini, or sea-eggs, different from those of the European seas. Several species of mussels are also common there, and the aures marina is no where more abundant.

The Red sea is beyond all other parts of the world abundant in shells, so that scarcely any kind is wanting there; but those we principally have from thence are the purpure, porcelains, 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 a great variety of purpure, of porcelains, nautil, and elegant oysters; the coasts of Naples and Sardinia afford also the same, and with them a vast number of the molusks of all the known species.

The island of Sicily is famous for a very elegant kind of oyster, which is white all over; *pinna marina* and porcelains are also found in great plenty there, with tellina and *chaema* of many species, and a great variety of other beautiful shells.

Corfica is famous beyond all other places for vall qua-
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 buccina; a small kind of mere 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 mere, commonly called in England the horse mere, is too well known to need a description, and the fize 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 fee-shells is become so common among us, it may not be disagreeable to the reader to find some instructions in executing it pleasing a method of adding to their natural beauty, the rules for which are at present fo little known, though the effect of them is 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, art is to be called in, and the outer veig taken off, all the internal beauties appear.

Among the shells which are found naturally polished are the porcelains, or cowries, the callenders, the dolla, or conchae globosi or tuns, some buccina, the volutes, and the cylinders, or olives, or, as they are generally thought 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 share 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 telingas, the mucus, the coccles, and many others, are of this kind. The more nice collectors, as naturalists, insift 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 outsides, and will have all such polished. It would be very adviseable, however, for both kinds of collectors to have the fame shells in different specimens, both rough and polished; the naturalist would, by this means, besides knowing the out side 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 unpolished 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 affilience 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 has 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 chamoy leather, with some tripoli, or fine rotten stone, and will become of a perfectly bright and fine polish.

The operation requires the hand 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 cruddy, or covered with a tartarose 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 flitch, 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 appears not to have 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 sort of injury. The gum 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 alfo 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 case with several of the cylinders, which have not the natural polish of the reef.

When a shell is covered with a thick and fatty epidermis, as is the case with several of the mucus and telline; in this case aqua fortis will do no service, as it will not touch the skin; then a rough brush and coarse emery are to be used; and if this does not succeed, a telline skin, or, as the workmen call it, silk skin and pumice stone, 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 strong aqua fortis, till the thick crust is wholly eroded. The limpets, auris marina, the helmet-shells, and several other species of this kind, must have this sort of management; but as the design is to swell 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 was 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 stopped by the wax, the liquor cannot get in to the inside to spoil it; then there must be placed on a table a vessel 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 every 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 stopped up with wax; other-
wife the aqua fortis would soon eat through in those places. When the repeated dippings into the aqua fortis showed that the coat is sufficiently eaten away, then the shell is to be wrought carefully with fine emery and a brush; and when it is polished as high as can be by this means, it must be wiped clean, and rubbed over with gum-water, or the white of an egg. In this sort of work the operator must always have the caution to wear gloves, otherwise the least touch of the aqua fortis will burn the fingers, and turn them yellow; and often, if it be not regarded, will eat off the skin and the nails.

These are the methods to be used with shells, which require but a moderate quantity of the surface to be taken off; but there are others which require to have a larger quantity taken off, and to be uncovered deeper; this is called entirely scaling a shell. This is done by means of an horizontal wheel of lead or tin, impregnated with rough emery; and the shell is wrought down in the same manner in which stones are wrought by the lapidary. Nothing is more difficult; however, than the performing this work with nicety; very often shells are cut down too far by it, and wholly spoiled; and to avoid this, a coarse vein must be often left running in some place, and taken down afterwards with the file, when the cutting it down at the wheel would have spoiled the adjacent parts.

After the shell is thus cut down to a proper degree, it is to be polished with fine emery, tripoli, or rotten stone, with a wooden wheel turned by the same machine as the leaden one, or by the common method of working with the hand with the same ingredients, when a shell is full of tubercles, or protuberances, which must be preferred. It is then impossible to use the wheel; and if the common way of dipping into aqua fortis be attempted, the tubercles, being harder than the rest of the shell, will be eat through before the rest is sufficiently scaled, and the shell will be spoiled; in this case industry and patience are the only means of effecting a polish.

A camel's-hair pencil must be dipped in aqua fortis, and with this the intermediate parts of the shell must be wetted, leaving the protuberances dry; this is to be often repeated, and after a few moments the shell is always to be plunged into water to stop the erosion of the acid, which would otherwise eat too deep, and destroy the beauty of the shell. When this has sufficiently taken off the fouslens of the shell, it is to be polished with emery of the finest kind, or with tripoli, by means of a small block, or the common polishing stone of the goldsmiths may be used.

This is a very tedious and troublesome thing, especially when the ecchinate oysters and murices, and some other such shells, are to be wrought; and what is worse of all, that when all this labour has been employed, the business is not well done; for there still remain several places which could not be reached by any instrument; so that the shell must necessarily be rubbed over with gum-water, or the white of an egg afterwards, in order to bring out the colours, and give a gloss: in some cases it is even necessary to give a coat of varnish.

These are the means used by artists to brighten the colours, and add to the beauty of shells; and the changes produced by polishing in this manner are so great, that the shell is often not to be known afterwards for the same it was; and hence we hear of new shells in the cabinets of collectors, which have no real existence as separate species, but are the polished appearance of others well known. To caution the reader against errors of this kind, it may be proper to add the most remarkable species thus usually altered.

The onyx-shell, or volute, called by us the purple or violet-tip, which in its natural state is of a simple pale brown, when it is wrought slightly, or polished with just the superficialities taken off, is of a fine bright yellow; and when it is eaten away deeper, it appears of a fine milk-white, with the lower part blue; it is in this state that it is called the onyx-shell; and it is preferred in many cabinets in its rough state, and in its yellow appearance as different species of shells.

The violet-shell, so common among the curious, is a species of porcelain, or common cowry, which does not appear in that elegance till it has been polished; and the common auris marina flews itself in two or three different forms, as it is more or less deeply wrought. In its rough state it is dull and coarse, of a pale brown on the outside, and pearly within; when it is eaten down a little way below the surface, it flews variegations of black and green; and when full further eroded, it appears of a fine pearly hue within and without.

The nautilus, when it is polished down, appears all over of a fine pearly colour; but when it is eaten away but to a small depth, it appears of a fine yellowish colour, with dusty hairs. The burghen, 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 parquet-shell.

The common helmet-shell, when wrought, is of the colour of the finest agate; and the muscles, in general, though very plain shells, in their common appearance, become very beautiful when polished, and show 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 grey colour, with spots and veins of a very bright and highly polished white. The limpets, in general, become very different when polished, most of them showing very elegant colours; among these the tortoise-shell limpet is the principal; it does not appear at all of that colour or transparency, till it has been wrought.

That elegant species of shell called the junquil-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 loses 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 agates.

The sifles car-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 muff destroy the very characters 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 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 instructors 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 sickness in the shell. The greatest mischief happens to shells by the fih dying in them. The curious in these things pretend to be always able to distinguish a shell taken up with the fih alive, from one found on the shores: they call the fih 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 fea-worms is not the least: age renders the finest shells livid or dead in their colours.

The finest shells are those which are fished up at sea, not found on the shores. The other natural defects of shells are their having morbid cavities, or protuberances, 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 marble, dissolved in spirit of wine, or with tinfoil: these subfiances must be either coloured to the tinge of the shell, or else a pencil dipped in water-colours must fill them up to the reclamation of the reef, and then the whole shell being rubbed over with gum-water, or with the white of an egg, scarcely any eye can perceive the artifice; the fame subfiances may be used to repair the battered edge of a shell, provided the pieces chipped off be not too large. And when the excreances of a shell are faulty, they are to be taken down with a fine file. If the lip of a shell be fo battered, that it will not admit of repairing by any cement, the whole must be filled down to an eveness, 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 eafy opinion is, that those parts have been formerly sea, or, at leaft, have been overflown thereby; 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 seem of as absolute a shellfy subfiance as any in the sea. In effect, they fay, there may be only fo many different gradations of nature, which can as well produce shells in mines as in the sea, there being no want of fahine or earty particles for the purpofe; nor is there any great difference between fome forts of fars and fahills.

Dr. Litter judges, that the shells found in ftony quarries were never any part of an animal, and gives this reason for it, that quarries of different fone yield quite different fpecies of shells; different not only from one anothers, but from any thing in nature besides, which either sea or land does yield. This opinion has been fince proved erroneous, and all these bodies to have been really once parts of living animals. See Fossil, Adventitious, Marine Remains, and Formed Stones.

Of these shells, some are found remaining almost entirely in their native state, but others are variously altered, by being impregnated with particles of ftony, and of other fossils; in the place of others there is found mere ftony or spar, or other native mineral body, exprefling all their linesments in the greatest nicety, as having been formed wholly from them, the fhell having been firft deposited in some folid matrix, and thence diffolved by very flow degrees, and this matter left in its place, on the cavities of ftony and other folid subfiances, out of which shells had been diffolved and washed away, being afterwards filled up fhes flowly with these different subfances, whether fpar or whatever else; these subfances, in filling the cavities, can apparently be of no other form than that of the fhell, to the absence of which the cavity was owing, though all the nicer linesments may not be fo exactly expreffed. Before thofe, we have alfo in many places masses of ftony formed within various shells; and thofe having been received into the cavities of the ftons, while they were perfectly fluid, and having therefore nicely filled all their cavities, must retain the perfect figures of the internal part of the fshell, when the shell itself should be worn away, or perifhed from their outside. The various species we find of thofe are in many genera as numerous as the known recent ones; and as we have in our own ifland not only the shells of our own fhores, but thofe of many other very diftant ones, fo we have also many species, and thofe in great numbers, which are in their recent flate, the inhabitants of other yet unknown or unfeard fons and fhores.

The cockles, mufcles, oysters, and the other common bivalves of our own fons, are very abundant; but we have also an amazing number of the nautilus kind, particularly of the nautilus gracerom, which though a fhell not found living in our own, or any neighbouring fons, yet is found buried in all our clay-pits about London and elsewhere; and the moft frequent of all fossil shells in fome of our counties, are the conchæ anomies, which yet we know not of in any part of the world in their recent flate. Of this fort alfo are the conus ammonis and the gyphites, with ferveral of the echinæ and others.

The eztact fimilitude of the known shells, recent and fossil, in their ferveral kinds, will by no means fuffer us to believe, that thofe, though not yet known to us in their living fate, are, as fome have idly thought, a fort of fulus nature.

It is certain, that of the many known fones, very few, not even thofe of our own ifland, have been yet carefully searched for the shell-fih that inhabit them; and as we fee in the nautilus gracerom an infance of shells being brought from very diftant parts of the world to be buried there, we cannot wonder, that yet unknown fones, or the unknown bottoms of deep fons, should have furnished us with many unknown shell-fish, which may have been brought with the fels; 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 matter of our ftons and clayey ftrata. Hill's Hift. of Foss. p. 616.

Fossil shells are found to be of great ufe in manuring land. See Manuring.
They are much used in France for this purpose; and Mr. Reaumur treats of their effects in fertilizing the earth very fully, concluding his useful 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 our 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 very plain that a large body of waters, let in at one part of the kingdom, must have taken, in order to getting out at another. Mem. de l'Acad. Par. 1720.

**Shell, Arabian**, 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 Arabick characters.

**Shell, Aurora**, a very remarkable species of shell-fish, found in cabinets of the curious. 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 cardo or hinge; the wings are the body of the shells; and the tail is a peculiar process, like that of the marten, 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, Centre**, 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, Chiaries, or Cup-shell**, a species of the balanus. See Balanus.

**Shell, Gnaws-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 as 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.

**Shell, Dog-tooth**, a species of dentalis.

**Shell, Ear**, See Auris.

**Shell, Guinea**, the English name for a very beautiful variegated species of voluta, called by the French la speculation.

**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, Leveret**, 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 flashes 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 Centoria and Needle.

**Shell, Noah's 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 vielle ridee.

**Shell, Onion**, a species of oyster.

**Shell, Pipe.** See Entalium.

**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 pecken.

**Shell, St. Michael's**, a name given by authors to a species of pecken, 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 venerea, 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 porcelain, or concha venerea, supposed to represent the spots on a tiger's skin.

**Shell, Tor.** See Pollicipes.

**Shell, Tortoise.** See Tortoise.

**Shell, Trumpet.** See Trumpet.

**Shell, Turban.** See Turban.

**Shell, Turnip.** This is a species of sea-shell, by others called the radialis 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 radialis shell, allude to the great black round-rooted radialis, not to our common radialis.

**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 flinty covering, with which certain substances and animals are defended, and thence in the latter cafe called shell-fish. It is observed that the salt beds of flinty shells found at great depths in the earth, as well as those 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 flints, which have been converted into lime; and also to the kind of turpines scooped by sheep, which are mostly applied to the purpose of feeding the store-sheep. See Lime and Turpines.

Shell-Apple, in Ornithology, an English name for the loxia or crosbill, 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 tadorne.

Shell-Fish, a collective name for fishes naturally inclosed in shells. These animals are in general oviparous, very few instances having been found of such as are viviparous. Among the oviparous kinds, anatomists 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 cases their incurve is very numerous, and scarcely inferior to that of plants, or of the most fruitful of the infect clads. The eggs are very small, and are hung together in a fort of clutters 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 clutter is fastened to the rocks, shells, or other solid substances, and thus they are preferred from being driven on shore by the waves, and left where they cannot succeed.

Shell-Gall-Infest, an infect of the gall-infest clads, somewhat resembling those which are called the boat-fashioned ones, but differing in this, that 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 muscle-shell; as it is, in its whole form, not unlike one of the two shells in which the common sea-muscle is inclosed, but the pointed end of this infect is much more extended in length than the smaller end of this shell.

This species is extremely small, and may be easily mistaken for the minute case out of which some small infect has escaped; or in another flate, for the nelt in which some small infect had deposited its eggs; but if the assiduity of the microscope be called in, they will easily be discovered to be true gall-infests, 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 sides 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 fix legs; in this state they are known to be of the gall-infest clads, not by their likenes to their parent, but to the young gall-infests 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, until they are length of the same shape with those parent. Reaumur, Hist. Inf. tom. iv. p. 69, 70.

Shell-Marls, in Agriculture, a subfrance of the marly kind, which is of a flaky or shelly nature. Though Mr. Marshall has not seen this material made ufe 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 ufe as a manure. And he considers it as usually found in low moit situations, under what is termed bog-meadow, a fort of half-reclaimed moras; namely, tough, coarse fward, formed upon a depth of black moory earth, which rests on the marle; this being, in some instances, several feet in depth. In respect to appearance, the colour is nearly white. Its confidence, in the pit, is that of soft curd, roughly broken; with the perceptible remains of small shells interpersed among it; and generally with some part of earthy particles. It was found by analysis, that one hundred grains of a specimen taken in 1793, from the extraordinary pits on the elate of Aucbertyre, belonging to the late Sir William Murray, on the southern skirls of the highlands of Perthshire, yielded eighty-two grains of calcareous earth: the refuse being brown earthy matter, mostly, it is probable, animal mould, with a flight intersmixture of vegetable fibres. One hundred grains, taken from a pit in Strath Tay, within the central highlands, yielded seventy-four grains of chalk; the refuse being similar to the above. The search for this species of marle is so obvious and eafy, that nothing but unpardonable negleét can caifer a quantity of it to remain within an elate (situated in a country where it is known to abound) unknown to its manager. Wherever, in valleys and dips of surface, level water-formed lands (whether they are already fwarded over, or yet remain in a state of moras) are found, there exist the borer: not in one place only, but in various parts of it, that no hollow receptacle of marle may be missed by the farmer.

And with marles of the foilie kind 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 grass-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 grafs, and an opportunity of gathering off the flores 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 sea-shores, and ground to a fort of powder, so that they rememble sand. See Manuring.

There is also another kind, ufed as this, 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 fame name of Shell-Sand, though very improperly. All the kinds are of great ufe 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 most 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 stone among it, which is a very common cafe. See Sand, and Shelly Sand.

Shell-Toothed, in the Manges, 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 germe de feve, i.e. the eye of a bean, innumerable, that at twelve or fifteen he appears with the mark of a horse that is not yet fix'd; for in the nippers of other horses, the hollow place is filled, and the mark disappears towards the sixtith year, by reason of the wearing of the tooth. About the same age it is half worn out in the middle teeth, and towards the eighth year it disappears in the corner teeth; but after a shall-toothed horse has marked, he marks still equally in the nippers, the middle, and the corner teeth; which proceeds from this, that having harder teeth than other horses, his teeth do not wear, and so he does not lose the black spot.

Among the Polits, Hungarian, and Croatian horses, we find a great many of them hollow-toothed, and generally the mares are more apt to be so than the horses.

**SHELL**, in *Mechanics*. See *BOMBS* and *MORTARS*.

**SHELLS**, *Muzzles*, are hollow-shells, within which are included a letter, or other papers; the fuze-hole is stopped 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 heave or wheel is contained, and traverses about its axis.

**SHELL-ROOM**, in *Ship-Building*, a compartment in a bomb-vellet, fitted up with strong shelves, excavated so 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'.

**SELLA**, a walled town of Morocco, on the eastern side of Rabat, in N. lat. 34° 3'. This is faced ground, and contains many Moorish tombs, that are held in great veneration; and the town is a faced asylum, entered only by Mahometans. Sella was probably the Carthaginian metropolis on the coast of the ocean. Various Roman and ancient African coins were formerly 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 antiques themselves. The place is now in a state of decay; 4 miles E. of Salee.

**SHELLACK POINT**, a cape of the Isle of Man, forming the N. part of Ramfay bay.

**SHELL DRAKE RIVER**, a river of Canada, which runs into the river St. Lawrence. N. lat. 50° 20'. W. long. 64° 50'.

**SHELLBENGEN**, a mountain of Bavaria, occupied by the Swedes, and strongly fortified in the 30 years' war; 3 miles N.E. of Donawert.

**SHELLF*, the Celestial of antiquity, a river of Africa, and the most considerable in the kingdom of Algiers, which rises in the northern side of the Atlas, and runs into the Mediterranean, N. lat. 30° 12'. E. long. 0° 24'.

**SHELLFESS**, a cape at the E. end of the island of Shepey. N. lat. 51° 2'. E. long. 0° 50'.

**SHELLuhs**, a tribe of the inhabitants in the dominions of the emperor of Morocco; they occupy the Atlas mountains, and the various branches of them S. of Morocco; living generally in towns, and, for the most part, occupied in husbandry like the Berchebers, though differing from them in their language, dress, and manners. They fufbitt almost wholly on Aouia (barley meal made into gruel), and barley roasted or granulated, which they mix with cold water when traveling, and they call it "Zimata." They occasionally indulge in the use of "Cufcufoc," a nutritive farinaceous food, made of granulated flour, and afterwards boiled by steam, and mixed with butter, mutton, fowls, and vegetables. Many families among them are said to be descended from the Portuguese, who formerly poftessed all the ports on the coast, but who, after the discovery of America, gradually withdrew thither. East of Morocco, near Dimenen, 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 superflitously reported to be haunted, has escaped destruction. Their language is called Amazirk.

**SHELOPGUR**, a town of Hindoostan, in the Carnatic; 18 miles N.W. of Tricolore.

**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 weather. This is mostly accomplished by the use of trees, which should be chosen of the most proper shapes 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 seven from N. to S. It is fertile, and contains about 8000 acres; it was incorporated in 1783; and is said to contain 201 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 reared to any advantage without it. The business is performed in different manners, according to their nature and circumstances. See *PLANTATION*.

**SHELTERS*, Horizontal. See *Horizontal*.

**SHELTEE*, the name of a small, but strong kind of horse, found in the island of Zetland, commonly called Shetland. 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 fomented shelving manner, either on both sides from the middle part, or in the whole from 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 ruts being formed. And it is particularly applicable in making the side long roads on the declivities of hills, &c. See *Road*.

**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**,
SHE

SHEMEN, in Geography, a town of Curdiolan; 44 miles N.W. of Kerku.

SHEMIUM, a town of Persia, in the province of Khorasan; 10 miles N.W. of Herat.

SHENANDOAH, a county of Virginia, bounded N. by Frederick, and S. by Rockingham. It contains 13,045 inhabitants, of whom 1293 are slaves. Its chief town is Woodstock.

Shenandoah, or Shenandoa, a river of Virginia, which rises in Augusta county, and after running a N.E. course of about 200 miles, joins the Patowmack in about N. lat. 39° 4', just before the latter burts 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.

Shenandoah Valley, a valley which extends from Winchester in Virginia, to Carlisle and the Susqueannah in Pennsylvania, chiefly inhabited by Germans and Dutch.

SHENANGO, a town of Pennsylvania, in Crawford county, containing 727 inhabitants.

Shenaw, a town of Austria; 4 miles S. of Kirch Schlague.

Shencotty, a town of Hindooftan; 45 miles N.E. of Travancore.

SHENECTADY. See Shenectady.

Shenegan, a town of Hindooftan, in the Carnatic; 25 miles S.S.W. of Madura.

Shenkfeld, a town of Austria; 5 miles W. of Freyland.

Shen-see. See Chen Shih.

Shensen, in Rural Economy, a term applied, in some districts, as Devonshire, to dried cow and horse-dung, which is laid up and used as fuel for the winter season.

Shenshil, in Geography, a town of Egypt, on the right bank of the Nile; 2 miles N. of Achmim.

Shenstone, 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 belles lettres in English literature. Here it was that 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 cafe, and rural retirement, abandoning at once all intentions of active pursuits; hence his biographer judicious remarks, "that nothing is more unfavourable to the exertion of those energies which lead to a useful and honourable station in society, than the early possession of a fortune sufficient to gratify present wishes, and preclude the necessity of immediate entrance into any vigorous course of action." An acquaintance which Shenstone formed with Mr. Graves of Mickleton, in Gloucestershire, inspired him with an affection for that gentleman's sister; but the passion of love, which, in some minds, operates as a stimulus to enterprise, seems to him to have wasted 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 befell to his favourite place of the Leafowes, with that taste that conferred more to his celebrity than his comfort.

In 1737 he printed, but without his name, a small volume of juvenile poems, which obtained scarcely 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-mistrefs," 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 exercising his pen in effusions of verse and prose. The celebrity of this place led him into excursions which his fortune was unequal to, and he was perpetually under the pressure 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 taste and genius had created. Grey has described him in the following sentence, which may in some respects be rather a caricature likenet. "Poor man! he was always wishing 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 connections, 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 inserted in Doddley's collection of original pieces; and after his death, his "Works in Verse 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 splendid of diction, that characterize compositions of the 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 Candaor; 42 miles E. of Ghizini.

Shepey, Ile of, an island within the liberty of the fame, lathe 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 Tolemy, in his Geography, mentions two islands in this part of Britain by the
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the appellations Toliapis and Coums, he does not describe either of them so precisely as to identify it with Shepey. Hence this subject is a matter of dispute among our most eminent antiquaries; Camden and Batteley contending for Toliapis; and Lambard, Leland, and others, for Coums. In Saxon times it was called Sacapige, or the island of sheep, from the great numbers of that animal which were then pastured upon it, whence originated, by corruption, the name by which it is now distinguished. Baxter, in his Glossary, under the word Malata, remarks, "Verumquam Patria, or the Isle of Sheep, now named Shepey." This is corruptly called by the book of Ravennas, Malaca, by the Britons Verpes? but these observations are rather conjectural than well authenticated.

The Isle of Shepey, including the small adjoining islands of Elmley and Hartly, which lie at the south-east side of it, measure about 32 miles in circumference, being about 11 miles long and 5 broad. 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 flame friable marle, abounding in pyrites, and in some places rising perpendicularly to the height of 90 feet. They belong principally to the three manors of Minster, Shurland, and Warden, the owners of which let them to the copperas makers, who employ the poor inhabitants to collect the pyrites, or copperas 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 friated 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, ceilings 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 pyritical matter, they soon fall to pieces. Animal remains have likewise been found here of many different kinds: as the thigh-bones, tufks, 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 greatest part of this island is of an exceeding flinty clay soil, and consists chiefly of upland pastures and marsh lands. Towards the north side, however, in the parishes of Minster and Ealchurch, 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 Ealchurch and Minster there are a few springs, which, notwithstanding they rise near 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 badness of the water, few people of substance live in it, the inhabitants consisting in general of lookers, bailiffs, farmers, and servants. The garrison and dock of Sheerness and its environs, the reader will however of course except from this observation, where there are many gentlemen employed in the government service constantly resident. See Sheerness.

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 burthen. This water seems formerly to have been accounted 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 Sandwich is frequently visited by our ancient historians Landumus, or the Thames mouth, being the name given to it by the Saxons, and the town of Milton is said by them to stand on the south bank of the Thames. Leland in particular says, in his Itinerary, "that towse stands on an arm of the Tamye," and he speaks of the point against "Quinboro-rough entering into the mayne Tamye."

The usual passage to this island is by a ferry, called King's Ferry, for carriages, horses, cattle, and passengers. The ferry-boat is moved forward by a long cable, of 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 Isle of Shepey for the excelling purfuits 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 Saxon, widow of Ercemont, 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 isle, and which are termed coterets by the country people, are supposed to cover the remains of different Danilh chiefs, who were in battle during their piratical incursions. The years which have been particularly recorded as those wherein these marauders were most active here, are 832, 849, 851, and 854; in the year 1016, king Canute is said to have collected the scattered remains of his army in this isle, after his defeat in the vicinity of Otford, by Edmund Ironside. India's History and Antiquities of Kent, 8vo. 1798. Beauties of England and Wales, vol. iii. by E. W. Brayley and John Britton, 8vo. 1806.

SHEPERD, 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 for this 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 indolence, when contrasted with the more laborious servants of the farm, need rarely to have a minute's time hung 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; or 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 perseverence, and which have often paid the forfeit of their lives to these innate qualities, where the shepherd was a man of morose and furious disposition. It is said that on the continent they have schools wherein young shepherds are instructed in the necessary
cellary knowledge of their business, as well as the anatomy
and physiology of sheep, the food and treatment proper
for them in different seasons, and the nature of their diseases,
and the common operations respecting them, especially re-
garding the parturition of the ewes, &c. And in the Ge-
neral Treatise on Cattle, it is remarked, that the method
of encouragement, adopted in some districts, of allowing the
shepherd to possess a small flock, or as many ewes as his
means will allow, is probably one of the most powerful. It
gives him that freedom 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-
fighted; 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, infallibly give
the exact number and condition; or perceive at a glance, a
bird's nest in the tidiest quickset. Fond of animals and
attractive to them, the latter quality of which is well known
to inhore in some persons; poecilising a musical voice and
shrill whistle; hardy, patient, watchful; fatished with little
sheep, and temperate in drink. It is conceived that he ought
never to be sufferer, if he profests, to practice 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 least, the office of medical practice had better
devolve on the matter. And for his comfort in the fevere
weather, in some situations, the movable wooden houle on
wheels may be of use. Allo that he ought to be clad dur-
ing winter, with subintiial woollen next his skin, from his
feet upwards, as the bell defense against those rheumatic
ail to which he must be necessarily subject; and he should
always go provided with the instruments proper to his pro-
fession, ready for immediate occasions, namely, whips, knife,
flcet, fleam, false-box, &c. And in folding, as the shep-
heard will have the flock perpetually under his eye, the first
writer thinks, he will be capable of judging with certainty
and precision respecting the state of every individual, so 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 manifest injury to
their health; and if a sheep or lamb be seized with a dan-
grous and incurable malady, to kill and dres it immediately;
for it is one part of the business of a shepherd to be
so far skilled in the butcher's trade, as to be able to slaughter,
fc, 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 pre-
vious to their being driven into the fold, that they may retire
to reit with full bellies, by which the quantity of the dung
and urine will be considerably augmented. He will like-
wise be careful in reviewing the hurdles, and providing that
there be fixed in the ground, left by any accident they
should be thrown down during the night, and the flock by
there 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 tall in the morning, when
he turns them on their feed; he will, previous to diunififying
them from the fold, worry them gently round the same, in
order to caufe them to dung and itale plentifully, that the
manure may be left in the field, otherwise the greatest part
of the trundles will be drop on the road, or carried on to
the march, where lying thin, this dresing 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 fhew any appearance of being flung by the fly,
he will be prepared with a pair of sheers 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 brahamine;
but if slightly attacked, he will destroy the maggots by
frowning on them powder of white lead; and if any of the
flock should haply break with the fcab, a disorder to which
folding sheep are continually subject, and which seldom falls
to hver 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 repect to the neceflity of a dog, as an assistant to the
shepherd, Mr. Lawrence thinks, that it has of late very
rationally become a question among the most intelligent
sheep-masters: it may probably be thus settled,—there can be
no occasion for such aid, nor any neceflity for incurring
the danger of it, amidst convenient inclosures, or where
quiet breeds of sheep are kept, and where it is made an ob-
ject to render them tame and docile: and if upon extensive
wadies 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 kindness 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 flanning, will run to
them, in case of need, for protection; and he has often witniffed
the carffes and gambols of thefe and the lambs, with a deligt which he never experienced in the combats of
animals.

Shepherds of Egypt, Shepherd kings, or royal Shepherds,
in Ancient History, the denomination of a class of inhab-
inants of a part of Egypt, concerning whose origin, place
of abode, and migration, ancient and modern writers have
entertained different opinions. Some sketches of their his-
tory will be found under the articles AURIITRE, CUSH, DI-
ERSION OF MANKIND, AND EGYPT. The learned Bryant
has published, besides several notices that occur in his
"Analysis of Ancient Mythology," an elaborate "Dif-
taration" on this subject. Differing from others concerning
the situation of the land of Goshen, (see GOSHEN,) he con-
ceives 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, Περιγοή της Αίγυπτος. The province of Arabia, fays
this author, was one of the three most remarkable nomes,
the other two being those of Bubalitus and Helopolis.
These three nomes were contiguous to each other, and
towards the summit of Lower Egypt. The nome of Helio-
polis, according to his statement, was a Mediterranean
district; and consequently the two provinces, or that of
Phacusa (i.e. the Arabian nome), and that of Bubalitus,
that are always mentioned with the former, were so likewise.
Phacusa, mentioned by Strabo only as a village, was the
province at whose summit the Nile was first divided, where
stood the city of Cerecora. It was called the Arabian
nome for the reafon above-mentioned, and had for its metrop-
olis Phacusa, and the places situated upon its borders were
Babyon, Helopolis, and Heroum. From Synecillus we
learn, that Egypt had been in subjection to a three-fold race
of kings, who are termed the Aurite, the Menetræ, 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 these people bore the appellation of Hukfos, that is, royal shepherds; the first syllable, in the sacred dialect, signifying a king, and the latter, in the popular language, signifying a shepherd; and by a composition of these two was formed the word Hukfos. These people are said to have been Arabians. Josephus further informs us from Manetho, that the shepherds maintained themselves in Egypt 511 years. At that period 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 Ailpyria, and therefore returned to the country called afterwards Judea, and built Jerusalem. We learn also, from the same authority, that another class of people, sojourned 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, they employed them in the stone quarries 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 for a retreat the city of Abaris, where the former shepherds had resided, that now lay desolate. The people belonging to each of the two classes now mentioned were esteemed shepherds; the first shepherds were lords and conquerors; 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 they are, without doubt, the Aurite, who founded the city Auris or Abaris, which is no other than the city ΤΥόν, or Auran, signifying light and fire, of which element the Aurites must have been worshipers, as all the Arabians were. Their chief god was Auros (Διος), the god of fire. Accordingly the shepherds were called Aureus from the chief object of their worship, and their kings were styled priests of Aureus, or, according to the Greeks, priests of Vulcan. Hence it has been inferred that they came from Babylon, a country that lay due south 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 Aur, and Babylon: in memory of which they built two of the same name in Egypt. Wherever they resided, they introduced the Tzeba Schanaz, or Zabian worship, together with the worship of fire. Hence we are informed by Herodotus, that Vulcan was particularly honoured at Helionpolis 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 Cuahan or Cufcans, the fame that they gave to the province where they settled. (See Cusin.) These strangers, therefore, who settled in Egypt, were no other than the Cufcans; 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 belt land for pasture; in respect of which Gothen had not its equal. For it was part of the πέδων Αιγύπτου, the rich champaign 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 in 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 belt of the land;" and yet the LXX call it

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The text continues with detailed historical and geographical information about the migration of shepherds, their impact on the land, and their influence on the early settlements. It references sources like Manetho and Bryant's Observations and Inquiries to substantiate the claims made. The text is rich with historical context, providing insights into the early development of the region, influenced by the sacred and secular practices of the time.
in the materia medica, or for the acid inflammatory power which some (probably misled by its botanic affinity with mustard, and some other acid vegetables) have ascribed to it. Lewis's Mat. Med.

SHEPHERD'S STAFF, or SHEPHERD'S ROD. See Teazle.

SHEPHERDSTOWN, in Geography, a poll-town of America, in the state of Virginia, and county of Jefferson, on the S. side of Patowmack 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.

SHEPHERDVILLE, a poll-town in Bullet county, Kentucky; 640 miles from Washington.

SHEPECK, in Agriculture, the provincial name of a prong or fort of hay-fork, employed in some places.

SHEPPEY, in Geography. See Sheppey.

SHEPREV, 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 1538. He had a most surprizing memory, and was one of the most learned men in his time. He died in the year 1542. His works are "Summa et Synopsis Novi Test." &c.; "Hippolytus Ovidianae Phaedræ respondens," &c. Wood.

SHEPTONMALLEY, in Geography, a market-town in the hundred of Whitelocke 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-fleet 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 represented figures of our Saviour on the cross between the two malefactors; also those of several saints. Lintel of considerable value are appropriated for the repair of this frangible 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 aisle, and transept, 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 solid stone, and from the rudeness of their workmanship would seem to be of very great antiquity. In two of the windows are some remains of painted glass, displaying the mutilated effigies of knights Templars, said to represent 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 character of the persons 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 Curcelle; but soon afterwards passed into the possession 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 diligent minister, celebrated for his controversial writings against Woolston 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.S.A. 4to. vol. ii. Bath, 1791.

SHERARD, William, in Biography, a very learned and munificent botanist, on whom the titles of prince and Mecenas of botany have been, more juicly than usual, bestowed, was the son of George Sherwood, (for so it seems the name was written by the father,) of Bishby, in Leicestershire. He was born in 1645; educated first at Merchant Taylors' school, and then at St. John's college, Oxford, where he entered in 1667. He subsequently became a fellow of this college, and took the degree of Bachelor of Law, December 16, 1683. Being appointed travelling tutor, successively, to Charles, afterwards the second viscount Townshend, and to Wriothesley lord Howland, son of the murdered lord Ruffell, who in 1700 became the second duke of Bedford, Sherard made two succecssive tours through Holland, France, Italy, &c. returning from the last, as we presume, not much before the year 1700, when his last-mentioned pupil was twenty years old. Dr. Fulleney supposes him to have come back in 1693, led perhaps by the date of Ray's Sylva Sylvis Europarum, 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 Howland, so created on account of his union with the heiress of the Howland family, was married to her in May 1655, when he was little more than fourteen years of age. He was made a peer June 15, 1655; "after which," says Collins, "he travelled into France and Italy." Such youthful bridegrooms were, doubtless, 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 friend, his friend for Arthur Rawdon, of Moira, 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 Boerhave, Hermann, Tournefort, Vaillant, Micheli, &c. He is universally believed to have been the author of a 12mo. volume, entitled Schola Botanica, published at Amsterdam in 1689, and reprinted in 1691 and 1699. This is a systematic 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, Anglius, under which name the book occurs in Haller's Bibliotheca Botanica, v. 1, 643. But as no one ever heard of such a botanist as Wharton, and the preface in question displays the objects and acquisitions of one of the first rank, who could certainly not long remain in obscurity, the above initials are presumed to mean William Sherard, to whom alone indeed, with or without a signature, that preface 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 Hermann himself, who allowed him to peruse the manuscript rudiments of his Paradisus Batavus, to examine his herbarium, and to compose a Predominus of that work, which subjoined to the little volume now under our consideration. All this can apply to Sherard only, who became the editor of Hermann's book itself, and who in its preface, dated from Geneva in 1697, appears under his own name, and speaks of himself as having long enjoyed the friendship and the communications of that eminent man, whose judgment and talents he justly commemorates, and of whose various literary performances, as well as of his botanical principles, he gives an account. Dr. Pulteney conceives this preface to have been written during a third tour of its author to the continent; but we presume it to have then been with the young lord Howland, and consequent on his second tour only.

Sherard communicated to the Royal Society, in 1705, a paper relative to the making of Chine or Japan ferns, 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 Portsmouth, 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 Sedekio, near Smyrna, where he could with the more ease reign himself to the contemplation of plants, and where he began that great herbarium of which we shall speak hereafter. Haffelquill visited this spot, with the devotion of a pilgrim, in the spring of 1750. 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 preferred; and being well aware of the insufficiency of Bauhin's Pinax, 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 progres 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.I.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 decease he concluded, through the mediation of Sherard, the sale of his manuscripts and drawings of Paradisus Batavus, to Boerhaave, who published in 1727 the splendid Botanisca Parthenia. This work, though not free from imperfections in the distribution of its materials, would doubtless have been far less correct, but for the superintendence of Sherard, who published a preface with Boerhaave in revising the manuscript. Our great botanist had already rendered a more important service to his favourite science by bringing with him from Germany, in August 1721, the celebrated Dillenius (see that article). 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 again in 1724, or perhaps 1725. We know not precisely when or where it happened that he was, like Linnaeus in Norway, in danger of being shot for a wolf, or a thief, by some half-humiliated rustic, akin to the thief-takers and Oxfordshire justices, who feized upon another illustrious botanist, of our time, as a highwayman.

What principally attached Sherard to Dillenius, was the similarity of their talents respecting those intricate tribes of vegetables, now termed cryptogramic. To the former attention of both had been long directed, and hence originated the cultivation, which this line of botanical study has received, from that period, in England and Germany. This talent, 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 reared at his country seat at Eelham, a number of exotic plants, from every climate. Hither the more learned subject of our present article frequently repaired. 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 conspicuously as an author. He affiliated Catesby with information and with money, to bring out his Natural History of Carolina, though neither that work, nor the Hortus Eysteameus of Dillenius, appeared till some time after his decease, which happened on the 12th of August, 1728, 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 Evington church, near Leiceste, with his wife, whose maiden name was Lockwood, by whom he had no children.

The most obvious 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 Pinax, 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 scientitc 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 consists 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 left 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 *Campi Lyfiisi*. (See Rudbeck.) All these precious collections are still in good preservation, although the noble stone building, originally constructed to receive them, was sacrificed a few years since to public convenience, that the adjoining street might be widened.

The name of Sherard has been commemorated by Vailant, in some plants referred by Linnaeus to *Veratum*. Dillenius established a *Sherardia*, which has remained; see the next article. Pulteney's Sketches of Botany, Hailer's Letters, and Bibl. Bot. Aikin's Gen. Biog. S.


Eff. Ch. Corolla of one petal, funnel-shaped, superior. Seeds two, naked, each crowned with three teeth.

1. *S. aveneas*. Blue Sherardia, or Little Field Madder. Linn. Sp. Pl. 149. Willd. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 891. Curt. Lond. f. ac. 5. t. 13. Fl. Dan. t. 439. (Apertula flore carneo, acuto folio; Barbel. 4. t. 541.)—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; most slender at the base. Leaves spreading, mostly fix in each whorl, elliptical or obovate, pointed, entire, rough at the edges and keel. Flowers from four to fix or eight, in a little terminal umbel, enclosed in the uppermost whorl, which consists of more leaves than the rest. Calyx of two or three-crested acute leaves, afterwards enlarged, and forming a crest, or crown, to each leaf. Corolla purplish-blue, with a slender tube, much exceeding the calyx.

2. *S. murale*. Wall Sherardia. Linn. Sp. Pl. 149. Willd. n. 2. Sm. Fl. Gr. Sibth. v. 2. t. 13. (Galium murale; Allion. Pedem. v. 1. t. 77. f. 1. G. minimum, feminum oblongis; Buxb. Cent. f. 31. t. 50. f. 2.)—Stems diffuse. Leaves four in a whorl, or in pairs, spreading. Whorls two-flowered. Stalks of the fruit reflexed.—Native of old walls, and rocks, in Italy and the Levant. Found in Crete by Dr. Sibthorp. Annual, about the size of the former, decumbent, and rough, but the leaves are smaller, sometimes fix, sometimes two, usually four, in a whorl. Flowers axillar, opposite, minute, shorter than the leaves, stalked. Corolla yellow, with a short tube. Fruit reflexed, of two bipid, oblong seeds, starting from each other in the middle, meeting at top and bottom, their crown, or calyx, hardly discoverable.

3. *S. erecta*. Upright Sherardia. Sm. Fl. Gr. Sibth. v. 2. t. 14. g. 1. (Apertula muralis verticillata minima; Column. Elysi. t. 50. t. 500. A. verticillata Iuteola; Bauh. Pin. 334.)—Stems erect. Leaves four in a whorl, or in pairs, deflexed. Whorls many-flowered. Fruit nearly erect. Native of rocks and walls, in Italy and the Archipelago. Annual, erect, and more slender than the last, a slender high. The shorter deflexed leaves, numerous flowers, and erect fruit, distinguish this species clearly, though Linnaeus confounded its synonyms with *murale*. The crown of the flowers is equally obscure in both, and the habit of the plants answers better to that of the genuine *Valeriana*, though the fruitification differs. They but ill agree with *Sherardia*; yet their fruit will not allow them to be referred to *Galium*.

4. *S. fruticosa*. Shrubby Sherardia. Linn. Sp. Pl. 149. Willd. n. 3. Swartz, Ob. 46.—Leaves four in a whorl, linear-lanceolate, revolute. Stem shrubby.—Gathered by Olbeek in the island of Ascension. The stem is woody, branched, leafy, fragranging or prostrate, and the whole plant has the aspect of *Ernoda montana* (see *Ernoda*); but is distinct. Leaves an inch long, rather downy. Calyx of four only teeth. Corolla white, as long as the stem. Swartz strictly observes, that this species but ill accords with *Sherardia*, being intermediate, as it were, between *Diodia* and *Spermacoce*.

**Sherardia** is also a name given by Pontederia to the genus of plants, called by Linnaeus *gallenica*. **SHERARIB**, in Geography, a town of Africa, in Bergoo; 116 miles S.W. of Wara.

**SHERAVEND**, a town of Persia, in the province of Ghilan, on the Caspian sea; 20 miles S. of *Aftara*.

**SHERBET**, or *Sherritt*, a compound drink, first brought into England from Turkey and Persia, consisting of fair water, lemon-juice, sugar, amber, and other ingredients.

Another kind of it is made of violets, honey, juice of raisins, &c.

The word *fiorlet*, in the Persian language, signifies pleasant liquor.

**SHERBORNE**, or *Sherborne*, anciently called *Sarceburn*, in Geography, a market-town and parish in the hundred of that name, county of Dorset, England, is situated in the vale of Blakemore, near the borders of Somersetshire, at the distance of 16 miles W. from Sheffordbury, 18 N. by W. from Dorchester, and 117 W.S.W. from
from London. It is a town of very high antiquity, but its origin is not precisely ascertained. Baxter contends that it was the Arianus, or Aratus of Ravenna, deriving its name from "Arian Uife, Argenteus Fluxus Aquae," or "Fons Clarus." This opinion, however, is rendered extremely doubtful, by the total absence of all those appearances which almost invariably characterize the cities of British or Roman towns. It seems, therefore, more probable that it had its commencement in Saxon times, and germinated from a religious house, founded here soon after the conversion of the Saxons to Christianity. This monastery was richly endowed by several of the kings of Wessex, particularly by Cenwalch, and the great Alfred. After the Conquest, it was raised to the rank of an abbey, and the monks were exalted spiritual barons, and in consequence were frequently summoned to assist in the parliament or great council of the nation. At the dissolution, its revenues were rated, according to Speed and Dugdale, at 612l. 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. 704. The first bishop of this diocese was Aldhelm, nephew to 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-live in number, and conjointly preified a period of 366 years. The most celebrated among them was Aelfred Menevenlos, who wrote the life of Alfred the Great, and assisted him in his literary pursuits. In his time the see of Sherborne comprehended the counties of Dorset, Buck's, 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 Sergius III. Herman, the 26th 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 abbey. He succeeded, however, in effecting its removal some years afterwards, viz. in 1075, to Old Sarum, in consequence of the edict of the council at London, which directed that all bishops' fees should be transferred from obscure places to the more important town in each diocese.

See SALISBURY.

From the great eagers of Herman to quit Sherborne, it might reasonably be inferred that it was 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 Sweyn, during one of his vindictive excursions through this part of the kingdom. Besides, both Matthew of Well- minder 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 seat had continued there so long." In this situation it appears to have remained for several centuries; but in the time of Edward 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 now the silk and linen manufactures constitute the principal employment of the inhabitants.

Sherborne, though neither a borough by charter nor prefrerention, on one occasion sent members to parliament, in the reign of Edward III. At that time the alizies were regularly held here; but since the reign of his successor, that practice has only been occasional, as in cases of epidemic disorders, or otherwise. The general quarter sessions for the peace, however, are still held here once a year, on Tuesday after the close of Easter. The market-day here is Saturday, weekly; and there are fairs annually on Wednesday before Holy Thursday, 16th and 18th July, and the first Monday after 10th October.

The church of Sherborne, which is the only public building within the town of any importance, is a large and magnificent structure. It is built in the form of a cross, and entirely of free-stone. The original edifice was the work of bishop Aldhelm. But no part of that building probably now remains, as it has undergone frequent alterations, and in the time of king Henry VI. was almost wholly rebuilt. Hence, though displaying various styles of architecture, the greater part of it is in the pointed style of that age. The most material exceptions to this remark are the pillars supporting the tower, the south porch, and the chancel of our Lady, all of which are of early Norman origin, and the large lancet window at the eastern end of the chancel north of the chancel, which, with some smaller fragments in other parts, seem to be of the same date with Salisbury cathedral, viz. about the year 1220. All the later parts of the church are richly ornamented with tracerie work, vine leaves, and flowers. The piers between the windows on each side are supported by light flying buttresses stretching over the side aisles. The roof is of stone, and supported by numerous groins springing from the side aisles; and between the tracerie work is a number of shields bearing different arms, with rosettes, palmettes, and cut devices. This church was made parochial after the dissolution of the abbey, to which it previously belonged. It contains the ashes of many persons of distinction, and among others those of Ethelbold, king of Wessex, and his brother Ethelbert. The only modern monuments of note are those of John, earl of Bristol, who died in 1698, and of a son and daughter of William, lord Digby. On the latter are inscribed the following beautiful lines by Pope.

"Go, fair example of untainted youth, Of modest reason, and pacific trust; Composed in suffering, and in joy sedate, Good without noise, without pretension great. Go, just of word, in every thought sincere, Who knew no wish but what the world might hear. Of gentle manners, unaffected mind; Lover of peace, and friend of human-kind. Go, live, for heaven's eternal year is thine; Go, and exalt thy mortal to divine. And thou, too close attendant on his doom, Heiress maid, hast hastened to the silent tomb, Steer'd the fame course to the fame quiet shore; Not parted long, and now to part no more: Go, then, where only bliss sincere is known, Go, where to love and to enjoy is one. Yet take these tears, mortality's rebel, And, till we share your joys, forgive our grief. These little rites, a shame and veris, receive; 'Tis all a father, all a friend can give."
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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-house, the work-house, an almshouse, and a free grammar-school. The almshouse was formerly a religious hospital dedicated to St. Augustine, 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 uncommon kind, called the Green Girls' Society, which, from its excellent tendency, deserves to be more generally adopted. It was established in 1711. 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 1l. on her wedding-day; and 1l. on the birth of her first child. If unmarried till twenty-five, she is then entitled to the first 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 stated 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 Cattleton, about half a mile eastward from the town, stood the ancient castle of Sherborne. This fortress was built by Roger, third bishop of Salisbury, and occupied a rocky eminence on the north bank of the river Irk. 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 same bishop, which William of Malmesbury 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 fifteen 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 soldiers 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 See, and continued attached to it, during its successive removals, till the reign of King Henry VIII., when compelled bishop Piers to alienate it to the crown. Queen Elizabeth granted it to Sir Walter Raleigh, on whose unjust execution by King James I. it was feized and given to the favourite Carr, notwithstanding the interference 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 name, partly within the liberty of St. Peter of York, and partly in the upper division of the wapentake of Barkston Ash, West 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 Monday weekly, but is little frequented, and there is only one annual fair, on the 24th 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 plant called the Wine-few, which grows in the vicinity. Sherburn township, according to the parliamentary returns of 1811, contains 188 houses, and 958 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 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 post-town of America, in Chenango county, New York; containing 1282 inhabitants. — Also, a town in the state of Massachusetts, and island of Nantucket. The island contains 6897 inhabitants. (See NANTUCKET.) — Also, a town in Middlesex county, Massachusetts, containing 770 inhabitants; 18 miles S.W. of Boston. — Also, a town in Herkimer county, New York; containing, by the census in 1790, 483 inhabitants. — Also, a town of Rutland county, Vermont; containing 116 inhabitants.

SHEREBATOF, 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. Coxe, in speaking of this writer, says, several persons have published collections of the papers and other documents, but the honour of composing a complete history of Ruffia is probably reserved for prince Sherebatof; who, if we except Mr. Muller, has contributed
contributed more than any other person towards illustrating the Ruffian annals. This learned nobleman is editor of "A Journal of Peter the Great," in 2 vols. 4to., which he found in the archives, and published by order of the empress; of "The Ruffian History, by an ancient Annalist, from the Beginning of the Reign of Vladimir Monomak in 1114 to 1472?" "The Life of Peter the Great," in the Ruffian language, first published at Venice, which the prince reprinted in 1774, 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 perspicuity." Coxe's Travels, vol. iii.

SHERÉT, in Geography, a town of Asiatic Turkey, in the government of Trebifond; 30 miles S.W. of Trebifond.

SHEREDUR, or SHERZOUR, or SHEREZUR, a town of Curdistan, the capital of a government, and residence of a Turkish pasha; 150 miles N. of Bagdad. N. lat. 35° 46'. E. long. 44° 25'.

SHERIBON. See SHERZOUR.

SHERIDAN, or SHERIDAN, in Biography, was born probably about the year 1684, in the county of Cavan, where his parent 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 inadverence, 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 birthday, he preached from the text "Sufficient for the day is the evil thereof." The report of the fact was spread abroad: he was hurled 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 resigned it for the free-school of Cavan, where he might have lived well; but the air being moyal, and as he thought unhealthy, and being disgraced 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 instances perfectly adapted to that station. 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, indolence of body, and carelessness of fortune, produce; and though not over-strict in his own conduct, yet he took care of the morals of his scholars, whom he sent to the university remarkably well grounded in all kinds of classical learning, and not ill instructed in the local duties of life. He was eloquent, indigent, and cheerful.

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He knew books much better than men, but he knew the value of money least of all. In this situation, and with this disposition, Swift fastened upon him as upon a prey, with which he intended to regale himself, whenever his appetite should prompt him." Dr. Sheridan published a prose translation of Petrus, to which he added the best notes of former editors, together with some very judicious ones of his own. He also translated the Philoctetes of Sophocles.

SHERIDAN, THOMAS, son of the preceding, was born at Quíæ, in the county of Cavan, in Ireland; and he had for his godfather 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 so 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 recalled to Dublin, he was sent to the university, where he obtained an exhibition, and in 1733 took his degree of M.A. Having no interell 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 actresses. During eight years Mr. Sheridan polished 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 stronger idea of the utility of that art, he opened his plan 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 his fitness for the office of superintendent of such an institution, for which poll 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 Auguü, 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 Disquisition on the Causes of the Difficulties which
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 in-
genious woman, and was author of a novel, entitled "Sidney Biddulph," a moral romance, entitled "Nour-
jahad"; "The Diary," a comedy; and another, en-
titled "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 pro-
fessional merit as a matter, by the beauty and talents of his
family, and by his vocal composition, particularly his
Elegies. If this were a place to celebrate the beauty and
felicating manner 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 mollifious sweetness in the tone of her
voice, which infinitely penetrated the hearts of her hearers,
as much as her angelic looks delighted their eyes. Her
shakes were perfect, her intonation truth itself, and the agility of her
throst equal to any difficulty and rapidity that was pleasing.

But in Handel’s pathetic song, in Purcell’s “Mad Days,”
in the upper part of serious glees, or whatever vocal music
had impressed words to express, she was sure to make
them felt by every hearer possessed of intelligence and
femibility.

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 recita-
tive, is ever comparatively deficient in the best fingers of all
other countries; as nothing but a long residence, early in
life, in a foreign country, can acquire the correct pronuncia-
tion of its music, any more than of its language. It was
observed by Sacchini, who heard Miss Linley sing at Ox-
ford for the last time, that if she 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 Ma-
homet, 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 ap-
pearing before any judge but their own head; and if any of
the military orders are obliged to punish them for any mis-
demeanor, they shall take off their green turban, in respect
to their character; and the same is done even when they are
punished by their own magistrates.

The shérif, shériff, or sherif of Mecca, is the title of
the descendants of Mahomet by Hafian ibn Ali. Al-
though this branch of the potterity 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 Hadsjas. The family of Ali-
Bunemi, being one branch of the descendants of Hafian ibn
Ali, and consisting of about 500 individuals, enjoys the sole
right to the throne of Mecca. This family is likewise sub-
divided 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 wishing 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 revolu-
tions. The grand shérif is seldom able to maintain him-
self on the throne; and it still seldom happens, that his
reign is not disputed by the revolt of his nearest relations.
The dominions of the shérif comprehend the cities of
Mecca, Medina, Jambo, Taif, Sadi, Ghunfded, Hal, and
and thirteen other less considerable, all situated in Hadsjas.
As these dominions are neither extensive nor opulent, the
revenue of their sovereign cannot be considerable. He finds
a rich resourse, however, in the imposts levied on pilgrims,
and in the gratuities offered him by Musulman monarchs.
Every pilgrim pays a tax of from 10 to 100 crowns, in pro-
portion to his ability. The Grand Mogul remits annually
the imposts to the shérifs, by an alligament on the go-
vernment of Surat; but since the English have made them-
sefles 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 shérifs extends not to spiritual matters:
these are entirely managed by the heads of the clergy of
different sects, who are resident at Mecca. Rigid Musul-
man, such as the Turks, are not very favourable in their
sentiments of the shérifs, but suspect their orthodoxy,
and look upon them as tacitly attached to the tolerant sect of
the Zeidi. See Sheriff.

Sheriff, or Sheriff, an officer in each county of
England, of very great antiquity; his name being derived
from the two Saxon words fætis, province or shire; or rather
from færen, to divide, and greafa, grave, rose, or presf; the
shériff being denominated from the first division of the king-
dom into counties.

He is called in Latin vice-comes, as being the deputy of
the earl or comte, 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 shériff; who now performs all
the king’s business 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, commit-
ing custodiem comitatus to the shériff.

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 sheriffsalty is not of inher-
ance; for anciently in some counties the sheriffs were here-
ditary, as judge Blackstone apprehends they were in Scot-
land, till the statute 20 Geo. II. c. 43, and still continue in
the county of Wellmoreland to this day: the city of London
having also the inheritance of the sheriffsalty of Middlesex
vested in their body by charter. This election, says the
same author, was, in all probability, not absolutely vested
in the commoners, but required the royal approbation. For
in the Gothic constitution, the judges of their county-
courts (which office is executed by our shériff) were elected
by the people, but confirmed by the king; and the form of
their election was thus managed: the people, or incola ter-
rorii, chose twelve electors, and they nominated three per-
sons, ex quibus rex unum confirmabit. But with us in Eng-
land, these popular elections growing tumultuous, were
put an end to by the statute 9 Edw. II. fl. 2, which enact-
ed, that the sheriffs should from thenceforth be appointed
by the chancellor, treasurer, and the judges, as being persons
in whom the same trust 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,
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-Souls yearly (which day is now altered to the morrow of St. Martin, by the last act for abbreviating Michaelmas term), and then and there propose three persons to the king, who afterwards appoints 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 nominees 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 34 & 35 Hen. VIII. cap. 26. sect. 61. which expressly recognizes 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 Welshminton, so that the judges could not meet there in regalino animarum, 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 circumstances, 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. 4. 13 & 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 Welshminton.

By 2 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 requisition 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 Furner's Notes 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 hearing counsel several days.

By a by-law of the city of London, passed in a common council June 11th, 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 him the office of an alderman of the city, he shall be eligible to the said office of sheriffalty, notwithstanding the fore-mentioned 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 100l., for the payment of his provisors, and all other profits of the sheriffwiek; he must also take the oaths of allegiance and abjuration, and all, except the sheriffs of Wales and Chester, 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 dedimus potestatem.

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 so is 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 Ann. fl. 1. c. 8. all officers appointed by the preceding king may hold their offices for six 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 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 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 misdemeanors, 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 purifying felons, he may raise the posse comitatus.

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 impo

But neither may he act as an ordinary justice of the peace during the time of his office, for this would be equally inconsistent, he being in many respects the servant of the justices.

In his ministerial capacity, the sheriff is bound to execute all processes 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

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mult 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 to his county is frequently called in the writs. He must seize, to the king's use, all lands devoted to the crown by attainder or escheat; must levy all fines and forfeitures; must seize and keep all waifs, wrecks, esrattes, 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 50l. 3 Geo. I. c. 15.

The under-sheriff usually performs all the duties of office, few 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 practise as an attorney during the time he continues in such office, by 1 Hen. V. c. 4.

But these regulations are evaded, by practise in the names of 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 the counties in Wales, and the county palatine of Chester, shall take an oath for the due execution of their office. Blackl. Com. b. i.

Sheriff's Court. See County Court, and Mayor's Courts.

Sheriff's Town, or Turn. See Turn.

Sheriff, Appoal of. See Apposai.

Sheriffs, Offices on. See Issues.

Sheriff, in Commerce. See Xeriff.

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 Karata. N. lat. 14° 29'. W. long. 6° 25'.

SHERLING, or SHIRLING Lambs, in Rural Economy, the practice of cutting or fleecing 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 sherd 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 Surle, 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 fleec. 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 application to his studies, obtained a good 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 stood 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 controversy of the Antinomian doctrine, which brought upon him several antagonists, against whom he vindicated himself with judgment and zeal. In 1680 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 adherent of the doctrine of non-refusal, in a work entitled "The Case of Refusal to the supreme Powers flated and resolved 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:—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 novel principles he did not in the least waver, even after the accession of James II. had still 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 sizes and forms, and has been applauded by the most able critics.

Not long after the publication of this work, Dr. Sherlock's scruples with regard to government gave way; he took the oaths, and was reinstated in all his preferments. This step of course exposed 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 ratified 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 exposed 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. Tilloton, who was raised to the archbishopric of Canterbury.

This rise in the church exasperated still more those who were already indignant against him for his denial of his former principles, and Dr. South published in 1693, "Animadversions upon Dr. Sherlock's Book," &c. An eager controversy followed, in which the university of Oxford took part, by enforcing in a public decree the hypothesis of Dr. Sherlock, as maintained by a preacher at that place. The controversy being carried on with great acrimony, the king, at the
In 1704 Dr. Sherlock published "A Discourse on the Immortality of the Soul," in which he made an attack on Locke's opinion concerning innate ideas. He died in 1707, in the 67th year of his age. After his decease, his sermons, which had been printed during his life, were collected, and with others printed in two volumes, 8vo.

SHERLOCK, Thomas, a distinguished prelate, and one of the preceding, was born in London in 1678. He received his classical education at Eton, and from thence he removed to Catharine-hall, Cambridge, about the year 1693. In process of time he became a fellow of that society, entered into holy orders, and upon the resignation of his father in 1704, he succeeded to the office of master of the Temple. In the duties of this office he exerted himself with so much success, that few English divines have acquired so high a reputation for pulpit oratory, in the qualities of strength and solidity of reasoning, and forcible and manly eloquence.

He commenced doctor of divinity in 1707, and in 1714 was elected master of Catharine-hall. Being promoted to the deanship of Chichester in 1726, he soon after made his first appearance in print, as a champion of the establishment, in "A Vindication of the Corporation and Temporal Acts, in answer to the Bishop of Bangor's Reasons for the Repeal 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 substance of some sermons 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 Howley, 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 considered, 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 episcopal character, that upon the death of archbishop Potter, in 1747, he was offered to succeed him in the see of Canterbury, which he declined on account of ill health, but afterwards recovering, he accepted the see of London in 1749.

In 1753 he resigned the mastership 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.

SHERMII, or CHERAM, in Geography, a province of the kingdom of Morocco, which lies between the province of Hea and that of Morocco, and has been demifemerged from that of Hea. See SHIRMA.

SHERMAN, a town of America, in the state of Connecticut and county of Fairfield, containing 659 inhabitants; 6 miles SSW. of New London.

SHERON, a town of Egypt, on the right bank of the Nile; 8 miles N. of Abu Girghe.

SHERINGHAM, in Geography, a composer of songs in parts during the reign of Henry VIII. 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.

SHERSHOLL, in Geography, a town of Africa, in the kingdom of Algiers, generally supposed to be the city called Jol, and by the younger Juba named Caesarea, in compliment to Augustus. This town, when Dr. Shaw saw it, in the year 1730, was in great reputation for making felts, earthen vessels, and such iron tools as are wanted in the neighbourhood: but a few years afterwards (1738) it was entirely destroyed by an earthquake. The ruins upon which this town was situated, are not inferior in extent to those of Carthage; and we may likewise conceive no small opinion of its former magnificence, from the fine pillars, capitals, spacious cellars, and beautiful Mosaic pavements, that are every where remaining. They have a tradition, that the ancient city was destroyed, as the new one was lately, by an earthquake; and that the port, formerly very large and commodious, was destroyed by the arsenal and other adjacent buildings being thrown into it by the shock. The citadel, or artificial harbour, that had a communication with the western part of the port, is the best proof of this tradition: for when the sea is calm, and the water low, (as frequently happens after strong south or east winds,) all over the area of it to many miles pillars and pieces of great walls may be seen, that it cannot well be conceived how they should come there without such a concussion. The port is nearly of a circular form, of 200 yards in diameter; but the secured part of it, which, till of late was towards the citadel, 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'.

SHERVEND, a town of Persia, in the province of Irak; 32 miles N. of Confar.

SHERWOOD FOREST. See SHREWWOOD Forest.

SHERZOUR. See SHERZUR.

SHESEBOUN, a post-town of America, in Luzerne county, Pennsylvania; 80 miles N.N.W. of Philadelpia.

SHESHMO-BAND, a town of Persia, in the province of Segeltan; 60 miles W.S.W. of Ferah.

SHESMISHA, a town of Persia, in the province of Khorasan; 95 miles W. of Tabas-Kileki.

SHETABA, a town of Hindooestan, in the Carnatic; 40 miles N. of Tanjore.

SHETERU, a town of Hindooestan, in Coimbatore; 5 miles N.W. of Erood.

SHETLAND ISLANDS. See ZETLAND ISLANDS.

SHETLAND SHEEP, in Agriculture, a breed of fine-wooled sheep peculiar to the Shetland islands. See SHEEP.

SHETUCKET, 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 uniting with Quinabang river discharges itself into the Thames in the southern part of the township of Norwich.

SHEVADY, a town of Hindooestan; 8 miles W.N.W. of Pulunnare.

SHEVAGUNA, a town of Hindooestan, in Mysoon; 25 miles N.W. of Bangalore. N. lat. 13° 6'. E. long. 77° 13'.

SHEVAGURY, a town of Hindooestan, in Madura; 15 miles N.W. of Colpetta.

SHEVALORE, a town of Hindooestan, in Marawar; 8 miles N.W. of Trumian.

SHEVALPETTORE, a town of Hindooestan, in Marawar; 22 miles N.N.W. of Ramannadurum.—Also, a town of Hindooestan, in the province of Madura; 35 miles S.S.W. of Madura.

SHEVA-
SHEVAPORUM, a town of Hindooftan, in the country of the Nayrs; 15 miles E. of Tellicherry.
SHEVGUNGA, a town of Hindooftan, in Maravar; 20 miles S. of Tripattore.
SHEVITOON INDIANS, Indians of North America. N. lat. 47° 30'. W. long. 104° 45'.
SHEW-Box for Prints. See Camera.
SHEWAGE. See Scavage.
SHEW-BREAD, in the Jewish Economy. The Hebrew (Exod. xxi. 30.) גְּדַלֶּה, xiphos, xiphos, signifies literally "bread of faces, or of the faces." This denomination was given to the loaves of bread, which the priests 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 twice in number, reprenting the twelve tribes of Israel. They supplied the place of those which had been exposed 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 tenths presented by the Israelites to the priests, the latter took that which was necessary for making the shee-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.
SHIGATCHEE, in Geography. See Sigatchee.
SHIB, a town of Arabia, in the province of Hadjas; 84 miles S.E. of Calaaf al Molaih.
SHIANDAMAGLY, a town of Hindooftan, in the province of Timewelly; 10 miles S. of Tutacorin.
SHIANSHIA, a town of Egypt; 25 miles S. of Manfora.
SHIANT ISLANDS. See Shiant.
SHIBBOLETH, or Sibboleth, a Hebrew word which signified epica, or an ear of corn. It was used by way of distinguishing the Ephraimites from the men of Gilgal. For the latter having killed a great number of the former, set guards at all the paffes 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, then they bade him pronounce Shibboleth. But he pronouncing it Sibboleth, 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 ס, the schin and the sin, they exposed themselves to this mischief: hence the terms have been used to denote the trivial grounds on which contending parties, particularly in theological disputes, often differ, and are likely to contribute to ill of, and actually to perpetuate, one another.
SHIBBAK, in Geography, an extensive salt-plain of Algiers, overflown in winter, but dry in summer; 10 miles S. of Oran.
SHICARAN, a town of Asiatic Turkey, in the province of Diarbekir; 18 miles W.S.W. of Hazou.
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 Fiaun, which contains the ruins of a chapel dedicated to the saint of that name. This lake discharges its waters into the Western ocean at Caille Tioram, 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 thad the pertons 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 holds the arms of families, are de-
A fort of shields was worn by the Scots at the battle of Mungallborough, in the first year of Edward VI. Shields or bucklers seem to have been used in affrays and private quarrels, by persons in the civil line, as late as the reigns of Elizabeth and King James I. The common appellation for a quarrelstone or fighting fellow about that period was a wathbuckler, that is, a breaker or clasher of bucklers. Maurice, prince of Orange, was a great advocate for the shield, and even attempted to revive the use of it. His 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 anciently borne before great military officers, as insignia of their dignity: those carried before King Edward III. in France, are shewn in Wiltminter Abbey. The shield borne before the commandant of the forces on board the Spanish Armada, is preserved 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. Most 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 indented shield, or shield chanteree, 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 retie the lance up, so that it might be firm while it gave the thrust; but this form being least proper for the receiving armorial figures, the two former have been much more used in the heraldry of that nation.

Another form of shield derived its name roundel, or rondache, from its circular figure; it was made of boards, boards of light wood, fines or ropes, covered with leather, plates of metal, or thick full of nails, in concentric circles, or other figures. The shields and roundels of metal, particularly those richly embroidered or embossed, seem rather to have been 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 flight to refit the violence of a stroke either from a sword or battle-axe. Although most roundels are convex, we meet with many that are concave; but these have commonly an umbo. The handles are placed as in the shield and target. The roundel seems, in many instances, to resemble the Roman para. For another form of shield, see Pavais.

Besides this different form of the shield in heraldry, we find them also often distinguished by their different positions, some of them flanging erect, and others flanging various ways, and in different degrees; this the heralds express by the word pendant, hanging, they seeming to be hung up, not by the centre, but by the right or left corner. The French call these ces pendents, and the common antique triangular ones en ancien. The Italians call this i gl' antichi; 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 couche by some writers, though by the generality pendant.

It was very frequent in all parts of Europe, in arms 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, so it was esteemed the most honourable and noble situation; and all the pendant shields of the lords of the royal family of Scotland and England, and of our nobility, at that time, are thus hanging from the left corner. The hanging from 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 Italians 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, Petru Sancto, 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 polello, 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 no 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 disrepute he speaks of; but in Italy, besides the popes and dignified prelates, many of the first families of the laity have them.

The peculiar princes, in many other countries, also retain this form of the shield, as the most ancient, and truly expressive of the Roman cypcebs. Nifbet'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, filled 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 refrain from confirming the account given of his compositions in that work.

Shields, North, in Geography, a market-town and ferry-port in Carlisle ward, 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 179 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 trade-men, early in the reign of Edward I. They at the same time formed a harbour here for lading and unlading 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 inhibited by a decree of the itinerant 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 ferry-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 battal.-flores, quays, and fleets, 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 restoration, the rights claimed by the corporation of Newcastle were reëstablished; and North Shields was deprived of its markets and fair. 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 subsisted 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 300 tons burthen may discharge or take in cargoes with perfect safety. Another side is adorned with a noble rice 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 posses several chapels of ease, and meeting-houses for almost every class of dissenters. The other public structures and establishments here are a theatre, a gymnasium, 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 benefit 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 sail of ships; and in spring tides, vessels of 500 tons burthen can pass the bar without danger. The vessels belonging to this port, exclusive of small coasters, are stated in the "Historical View of Northumberland," to amount to 1000; but this number, we premise, 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 sailcloth making, brewing, baking, &c.; but there are likewise in North Shields a foundry for cast iron, an extensive tannery, one skinner, a tobacco manufactory, a glove manufactory, 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 disatisfied with the conduct of the ship-owners. In these instances they have generally acted upon a regular plan; forcing every tailor to remain on shore, 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 ferious consequences, as to render government interference necessary, when order was happily restored without bloodshed.

North Shields, according to the parliamentary returns of 1811, contains 804 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 parish of Jarrow, civil division of Chelmer ward, and county palatine of Durham, situated directly opposite to North Shields, at the distance of 21 miles N.N.E. from the city of Durham, and 275 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 possessed upwards of two hundred faltipans, but that branch of business has greatly declined, and others of higher importance are substituted in its stead, as ship-building, and the manufacture of glafs, 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 forms 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 destitute of many of the advantages possessed by the other. Here are, besides the established church, several dissenting meeting-houses; also several benevolent societies and charity-schools. The petty fettlements for the civil division of Chelmer ward are held in the town-house here, which is a respectable building, situated in the centre of the market-place. Most of the streets of this town, however, are narrow, and the houses very indifferently built. According to the parliamentary returns of 1811, it contains 525 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 685; but has since been frequently rebuilt. This religious house was dedicated to St. Paul, and appropriated to the reception of Benedictine monks.
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monks. 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, 4to. 1778. Beauties of England and Wales, vol. vi. by E. W. Brakley, and John Britton.

SHIFFMAL, a market-town in the parish of Shiffnal, hundred of Brimley, and county of Salop, England, is situated at the distance of 10 miles E. by S. from Shrewsbury, and 143 miles N.W. from London. The market-day is Monday weekly, and there are fairs on the 5th of August and the 22d of November. The petty fairs for Shiffnal division of the hundred are held here; but in other respects this town is a trifling place, the whole parish, which is extensive, and includes four townships, containing, according to the parliamentary returns of 1811, only 828 houses, and 4061 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 instead of B, and the little finger will then produce C on the first string; 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 the placing of 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 shiftcommanding 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 ready guide 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 solo parts for the violoncello are written in the treble clef.

SHIFT, in Ship-Building, a term applied to disposing the butts of the planks, &c. so that they may over-lieach 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 eighteen-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 tumultuous sea, or by an extraordinary inclination to one side, when under a great pressure of wind. This circumstance rarely happens, unless to those cargoes which are stowed in bulk, as corn, salt, and such materials.

SHIFT, as expressed of the wind, implies altered.

SHIFTER, a person appointed to shift the ship's cook, particularly in washing, fleecing, and shifting the sail 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-lieach each other, as to produce a good shift. (See Shift.) Replacing old stuff with new is also called shifting.

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SHIFTING a Tackle, in Sea Language, the act of removing the blocks of a tackle to a greater distance from each other, on the object to which they are applied, in order to give a greater scope or extent to their purchase. This operation is otherwise called fleeting.

SHIFTING the Helm, is altering its position from one side to the other, or from one side to midships.

SHIFTING the Voyer, or Maffinger, changing its position on the capstern, so as to heave in the cable from the starboard or larboard side.

SHIFTING of Plants, in Gardening, the busines of removing plants in pots, from smaller into larger ones, &c. to give them fresh earth or mould. It is necessary occasionally, in all plants in pots, to affitl them with larger ones, according as the advanced growth of the particular sorts renders it proper; and at the same time to supply an additional proportion of fresh earth about the root-fibres of the plants, to promote their growth; and sometimes, for the application of fresh compost, either in part or wholly, from the plants having remained long unremoved, and the old earth in the pots being much decayed, or on account of some defect of growth in the particular plants.

In regard to the necessity of shifting, it is, in some degree, according to the advancing growth of the different sorts of plants: some sorts of a strong free growth require shifting once every year or two; others, more moderate growers, or of more fettled growths, once in two or three years; and some large growing kinds, which are advanced to a considerable size, having been occasionally shifted, in their increasing growth, from smaller into larger pots of different proportions, and some from large pots into tubs of still larger dimensions, as large plants of the American aloe, orange, and lemon-tree kinds, &c. in that advanced state, sometimes only need occasional shifting once in three or several years, especially when the pots or tubs are capacious, containing a large supply of earth, and are occasionally refreshed with some new compost at top, and a little way down, round the sides about the extreme roots. And in some small slow-growing plants, as in many of the succulent tribe, shifting them in one to two or three years may be sufficient; other sorts want shifting annually into larger pots, according as they advance in a free growth, as the hardy and tender kinds of herbaceous and shrubby plants, &c. And some of the tender annual flower-plants, cultivated in pots, and forwarded in hot-beds, being planted first in small pots, want shifting, in their increasing growth, into larger sizes, once or twice the same season, as from April to the beginning of June, when being shifted finally into the requisite full-sized pots, they remain during their excellence. But though large-grown plants, either of the shrub or tree kind, as well as other plants of large growths, after being finally stationed in the full-sized large pots and tubs, succeed several years without shifting, they should in the interval have the top earth loosened, and down round the sides to some little depth, removing the loosened old soil, and filling up the pots, tubs, &c. with fresh earth, setting it close by a moderate watering.

The usual leason for occasional shifting such plants as require it, is principally the spring and autumn, as from March to May for the spring shifting; and from August to the end of September for the autumn; though in plants that can be removed with the full ball of earth about the roots, it may be occasionally performed almost at any time; however, for any general shifting the spring and autumn are the most successful seasons, as the plants then lose their fresh root; and many sorts preferably in the spring, by having the benefit of the same growing season, and that of sum-
mer. In performing the business, it is most 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 fort of work, where necessary to give larger pots, &c. it is proper to provide them of suitable size, in some regular gradation 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 those 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 preserved entire; and in either case, where there are very matted, 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 fraggling 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 forts require little or none of this fort 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 settle the earth close about the ball and roots, particularly in every part, in a proper manner. In those cases where the ball is particular, plants appears very compactly hard and binding, it may be proper to loosen it a little, by thrusting 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 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, thuggish, succulent, or herbaceous plants, when any appear of a sickly, 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 cases, 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 case some of the same pots may be still of an eligible size to report 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 cleared off all round, to admit of a larger portion of fresh earth in the pot at replanting; or in some, appearing of an infirm 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 same fresh mould, and finishing with a moderate watering to settle the whole clothe 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 most forts highly over the tops or heads of the plants, should be given, in order to wash off any foreign; then the pots of plants should be set in their respective plantations in the garden, &c.: the hardy kinds, if warm funny weather, may be placed in a shady border for two or three weeks, till they have struck fresh root in the new earth: the tender sorts should be disposed in their places among the green-house and flower-plants, or to have the benefit of shade 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 flower 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 replugged 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 flock or crops. It is also a term applied to the rotations of cropping lands: thus we have three, four, five, and six course shifts. See Course of Croppers.

SHIJASCHKOTAN, in Geography. See SYASKUTAN.

SHIITES, in the History of Mahometanism, were the opponents of the Kharjites; see that article. This name properly signifies sectaries or heretics, a general term, but is particularly used to denote those of Ali Ebn Ali Taleb; who maintain him to be lawful caliph and imam, and that the supreme authority, both in spirituals and temporals, of right belongs to his descendents, notwithstanding they may be deprived 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, fo that they may let 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 more, thence called Imamians, go fo far as to assert, that religion confuts solely in the knowledge of the true imam. The principal facts of the Shiites are five, which are subdivided into an almost incredible number; so that some understand Mohammed's prophecy of the seventy odd facts, 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 necessarily 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 engagement, and that herein there should be no dillematation. But in this last point some of the Zeydians, a sect so named from Zeyd, the son of Ali, surnamed Zeyn al Abedin, and great grandson of Ali, differed from the rest of the Shiites. As to other articles, wherein they agreed not, some of them came pretty near to the notions of the Mortzaizites, others to those of the Mohabbehites, and others to those of the Sonnites. Among the latter of these, Mahomed al Baker, another son of Zeyn al Abedin's, seems to claim a place: for his opinion as to the will of God was, that God willed something in us, and something from us; and that he willed from us he hath revealed to us; for which reason he thought it preposterous that we should employ our thoughts about those things which God willed in us, and neglect those which he willed from 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 tenet of the Khattabians, or disciples of one Abul Khattab, is too peculiar to be omitted. These maintained paradise to be no other than the pleasures of this world, and hell-fire to be the pains thereof, and that the world will never decay: which proposition being first laid down, it is no wonder they went farther, 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 exclusive 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 defying 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. Abdallâh Ebn Saba, (who had been a Jew, and had adhered to the true faith 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 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 they differaged in other things, they unanimously held a medemphecy in, and what they call al Hadil, or the defect of God on his creatures; meaning thereby that God is present in every place, and speaks with every tongue, and appears in some individual persons; and hence some of them affirmed their imams to be prophets, and at length gods. The Nofai-rians and the Ithkaniins taught that spiritual substanstes appear in groffer bodies; and that the angels and the devil have appeared in this manner. They also assert 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 endued with a particle of divinity; and with sovereign power, and that he was the person in whose

form God appeared, with whose hands he created all things, and with whose tongue he published his commands; and therefore they say he was in being before the creation of heaven and earth. In so impious a manner do they seem to wrest those things which are said in scripture of Christ, by applying them to Ali. These extravagant fancies of the Shiites, however, in making their imams partakers of the divine nature, and the impiety of some of those imams in laying claim thereto, are so far from being peculiar to this sect, that most of the other Mohammedan sects are tainted with the same madness; there being many found among them, and among the Sahifs especially, who pretend to be nearly related to heaven, and who boast of strange revelations before the credulous people. To this account of the Shiites of the first ages we shall subjoin a brief mention of the great fechim at this day subfiding between the Sonnites and the Shiites, or partisans of Ali, and maintained on either side with implacable hatred and furious zeal. Though the difference arose at first on a political occasion, it has, notwithstanding, been so well improved by additional circumstances, and the spirit of contradiction, that each party detests and anathematizes the other as abominable heretics, and farther from the truth than either the Chrristians or the Jews. The chief points wherein they differ are, 1. That the Shiites reject Abu Beer, Omar, and Othman, the three first caliphs as usurpers and intruders; whereas the Sonnites acknowledge and respect them as rightfull imams. 2. The Shiites prefer Ali to Mohammed, or, at least, esteem them both equal; but the Sonnites admit neither Ali, nor any of the prophet's, to be equal to Mohammed. 3. The Sonnites charge the Shiites with corrupting the Koran, and neglecting its precepts; and the Shiites return the same charge on the Sonnites. 4. The Sonnites receive the Sonna, 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 lesser moment, is principally owing the antipathy which has long reigned between the Turks, who are Sonnites, and the Perisians, who are of the sect of Ali. Sale's Koran, Introd.

SHILLACON, in Geography, a town of Egypt, on the E. side of the Nile; 8 miles N. of Cairo.

SHILL, in Agriculture, principally to separate the rind, pulp, or skin, as of oats, 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 To Head. N. lat. 54° 48'. W. long. 7° 14'.

SHILLELEAH, a town of Algiers, anciently Tarsaphilum; 10 miles S.W. of Burg Hamza.

SHILLER-STONE, or SHILLER-SPAR, in Mineralogy, the diallage metalloide of Hauy, 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 lustre, 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 felsite.

SHILLING, an English silver coin, equal to twelve pence, or the twentieth part of a pound.

Frohicus derives the Saxon football, whence our football, from a corruption of folqua; 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 folc, field, by reason of the excussion of arms upon it.

Bilhop Hooper derives it from the Arabic sahi, signifying
SHILLING.

flying a weight; but others, with greater probability, deduce it from the Latin *siliacus*, 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 siliacus did to the Roman and the Greek, being exactly the forty-eighth part of the Saxon pound; a difference which we owe to Mr. Lambard. *Explication Rerum et Verborum in Legg. Sax. voc. Libra.*

Others say, that the shilling was at first a German appellation, *safeling*; 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 estimate. Thus it continued to the Norman times, as one of the Conqueror's laws (Legg. Sax. p. 221.) sufficiently aforesays; and it seems to have been the common coin by which the English payments were adjusted. After the Conquest, the French solidus 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 groat, from the French *grose*, a large piece, was introduced by Edward III. in 1354, and continues, though not in common circulation, to this day. The half-groat, or two-pence, is of the same date and continuance. In Scotland, about the year 1553, were first coined teftoons, 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 those of England, were then worth four shillings, and the half-teftoon 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 teftoon, till the years 1503, 1504, or 1505; but in the twentieth year of king Henry VII. (A.D. 1505, 1506,) 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 contests this opinion, alleging, that some coins mentioned by Mr. Folkes, under Edward I. were probably Saxon shillings newly minted, and that archbishop Aelfric (Gram. Sax. p. 52., at the end of Somner's Saxon Diction.) expressly says, that the Saxons had three names for their money, viz. mancuses, shillings, and pences. 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 groats, 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 *fivelius* and *argentius.*

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 farthing; and when it was again revived as a coin, it flattened gradually as the pound farthing lefened, 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 ceased with Edward VI., but the silver half-pence continued the soe coins till Charles II. The silver penny was much used to the end of the regim of George I., and so far from being no where to be found, as Hume affirms (Hist. vol. i.), is superabundant of every reign since that period, not excepting even the present reign of George III.

In the year 1506, there was a peculiar fort of shilling struck in Ireland, of the value of nine-pence English, which palled in Ireland for twelve-pence. The motto on the revers of thefe, is, *Pohu Dcm Adjutorem 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 1508, five different pieces of money of this kind were struck in England for the service of the kingdom of Ireland.

These were shillings to be current in Ireland at twelve-pence each; half shillings to be current at fix-pence; and quarter shillings at three-pence.

Pennies and half-pennies were also struck of the same kind, and lent over for the payment of the army in Ireland. The money thus coined was of a very bale 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 these 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 *fabinet,* *felling,* *sothlin,* &c.; but these, not being 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 ecaulis, and half ditto, at fix and three farthings; ushuaped or bafe shillings reckoned at five and a half farthings, and called selhalls.

At Hamburg, accounts are kept in shillings, sixteen of which are equal to a mark, and each containing twelve pfennings; and sometimes in pounds, shillings and pence Flemish; the pound being equal to twenty shillings, and the shilling equal to twelve-pence or greater.

The English shilling is worth about twenty-three French sols; thofe of Holland and Germany about eleven sols and a half; thofe of Flanders about nine. The Dutch shillings are also called *fols de gros,* because equal to twelve gros.
The Danes have copper shillings, worth about one-fourth of a farthing sterling. See CORN.

SHILLUK, in Geography, a town of Africa, in the kingdom of Sennar, on the E. side of the river Balut-el-Abiad, 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 graits, which they pass 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 traffic as pass among them. These people, who allot importance from their command of the river, are represented as hospitable to those who come among them in a peaceable manner, and as never betraying those to whom they have once avowed friendship; 50 miles W. of Sennar.

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 commentaries; coined by the Jewish correctors of the bible into שִׁלֹהֵי, a word of no signification; whereas the LXX read שִׁלֹהָה, that is, שִׁלֹהָה, he, to whom it is; he, to whom it. viz. the sceptre, belongs; שִׁלֹהָ, he for whom it is reserved, as it is in the original belt edition 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 reserved, and to whom the people were to be gathered. Mr. Ainsworth and others render Shiloh the prosperer or safe-maker; others the peace-maker, from שלוח, 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. Hunt, professor of Arabic at Oxford. He understands the true etymology of the word Shiloh to remain in the Arabic שלוח, שִׁלֹּחַ, liberavit, subdixit ab anguilia et exitio. According to this etymology, Shiloh will be the deliverer from distress and 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 rod (י) is wanting between the rod and the hamed, he observes, that in the Samaritan copy of Genesis, xlix. 10, the word is written without the rod, as it is likewise in one of the most ancient Hebrew MSS. which Dr. Kennicott has consulted on this text. Some moderns have pretended, in order to evade the prophetic force of this 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 Cuneus (De Repub. Legisl. lib. 5, p. 280, c. 10.) and others; who have shown, that the text only regards the continuance of the Jewish state; and that Judah, as separated from Israel, should remain a kingdom till the coming of the Messiah. On the other hand, Abravanel and others suppose, that the sceptre is not yet departed from Israel; and Menahem ben Hradetz alleges, that it is still in the hands of the tribe of Judah. The ancients undeniably understood this text of the Messiah. The Chaldean Paraphrast says, "He that hath dominion shall not be taken away from Judah, nor a scrip from his children's children, until the time when Christ shall come, whose the dominion is; and he shall the people (or nations) obey." And the Jerusalem Targum says, "Kings shall not cease from the house of Judah, nor doctors that teach the law from his children's children, until the time that Christ do come, whole kingdom is; and all the kings of the earth shall be subject unto him;" so that both the Targums confine the sense to this; that the peoples (i.e. both Jews and Gentiles) should gather unto and obey Christ; or, in other words, that the person here spoken of should be the prince that should reign over all; יִפְתַּחְתָּה נֵצֶר, as the LXX lay in this place; and that this should happen before Judah should cease to be a kingdom: which is verified by fact. Ben Mordecai's Letters, Letter iv.

SHILON, or Silo, in Ancient Geography, a famous city of Ephraim (Josh. xviii. xix. xx.), 12 miles distant from Shechem or Sichem, according to Eusebius, or 10 miles according to Jerome, and situated, according to both, in Acrabatene. In Jerome'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. xviii. 1, 2, 3.) Here the tabernacle of the Lord was set up, when the people were settled in the country. (Josh. xix. 51.) 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. 2888, 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, Paulanias (l. vi. c. 24.) took occasion to say, that Silenus, the companion of Bacchus, was buried in Palellene. 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 breaking down and reducing the more stiff and heavy fields 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 plate, which for the work it is adapted for, as that of cutting up weeds on two-bow or four-furrow Ellix ridges, or of cleaning 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 flat work, and is said to be well recomposed by other farmers with success in the same district. And an useful tool of this fort 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 rise on the sides of the ridges, without disturbing too much earth, and the centre share sunk to scrape the bottom of the furrow. The centre one may also be worked alone, between narrow rows. In forging the shares of all kinds, 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 seldom 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 Firth, 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. 1794.

**SHINAAS**, a small town of Persia, in the province of Larifian. This and bothana lie between Lings and Cape Boftana; but though they are small towns, they afford some refreshment. Lings, the chief town of the piratical tribe of Joamnis on the Persian shore, is situated close to the sea, in N. lat. 26° 33', about eight leagues from Khish. It has a securc 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 Moggo, 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 Persia**, between the provinces of Adirbeizen or Azerbijan and Ghilan.

**SHINGARIN**, a town of Africa, in the country of Sahara, where falt is found; 9 miles N. of Walet.

**SHINGEAT**, a town of Africa, in the country of Bergoo; 90 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 sub stance found and collected on the sea-beach, or shore, which is used for several purpooses, as ballasting 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 Sussex, 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 Shoal**, in Geography, a shoal in the English Channel, near the coast of Hampshire. N. lat. 50° 38'. W. long. 1° 26'.

**SHINGLES. See Shambles.**

**Shingles, or Shingles**, in Building, small pieces of wood, or quartered oaken 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 steeple's, instead of tiles or slates.

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 sure, 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 singular, or singularum, signifying a belt. It is the herpes zoster of medical writers, the Greek word, ἱτωρς, having the same signification. It is sometimes called simply zona, or zoster. For the description and treatment of this curious and harmful, though sometimes painful, affection, see Herpes Zoster. See also Bateman's Practical Synopsis of Cutaneous Diseases, p. 226.

**SHINGLING, in the Iron-Works**, in many parts of England, is the operation of hammering the bow, 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 Louiziana on the west, which, though little known, are supposed to terminate in N. lat. 45° 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 fomes," 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 Yemeni, a town of Egypt, in the right bank of the Nile; 8 miles S.E. of Meshulet Kebir.**

**SHIONKAN, a town of Pegu; 8 miles N. of Sirian.**

**SHIP, a general name for all large vessels navigated with sails. Among people unacquainted with marine dis- tinctions, 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, top mast, and top gallant mast, with the usual rigging and appendages thereto belonging.**

The heur 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 Da- dus, and pretend that the wings he invented to save himself withal from the labyrinth of Crete, were nothing but sails, which he first 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 on Noah to have been the first ship-builder.

The most celebrated ships of antiquity are, that of Pto- lemy Philopator, 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 rows, four thousand sailors, and three thousand soldiers. That which the same prince made to sail 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 structure of which Mochion, as we are told by Snellius, wrote a whole volume. There was wood enough employed in it to make fifty galleys. It had all the variety of apart-
SHIP.

ments of a palace: banqueting-rooms, galleries, gardens, fish-ponds, stables, mills, baths, a temple of Venus, &c. It was surrounded with an iron rampart, and eight towers, with walls and bulwarks, furnished with machines of war, particularly one, which threw a stone of three hundred pounds, or a dart twelve cubits long, the space of half a mile; with many other particulars related by Athenaeus. Deipnosophil. lib. v. p. 204, &c. ed. Caufab. Lugd. 1657.

A ship is undoubtedly the noblest machine that ever was invented, and consists of so many various parts, that to form some idea of its importance and qualities will require the attention of the gentleman and the artif.

All ships at first were of the same form, whatever uses they were destined to; 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; as also 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 been 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 every respect; 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 Ship-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 expeditions of great distance; since these vessels are usually excellent for keeping and fulfilling the sea.

Fifth-rate ships are frigates of from forty-four guns to thirty-two guns upon one deck, and even to fifty guns in America, (being restricted formerly to vessels of war with one deck); and though too weak to suffer the shock of a line-of-battle, they are very useful to accompany fleets, to lead the convoys of merchant-ships, to protect colonial commerce, to cruise in different stations, or to be sent with necessary intelligence and orders.

The forty-four gun frigate being the most powerful, and most valuable of this class, has induced us to give a plate of one, so constructed as to have all the qualities which can possibly be united in one ship; for having but one deck, her breadth and height are so proportionable to her length, that she may be brought down in the water to that depth which is allowed to be the belit falling trim for ships in general. Ships of fifty and thirty-eight guns have four lieutenants. See RATE.

The sixth-rate includes all the smaller class of vessels in the navy, except the yacht, fire-ship, and bomb-vessel; they are classed as fifth-rates, to increase the pay; the former 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 included in this class; but those with the thirty-two gun ship, in the former class, are so inferior to the forty-four and thirty-six gun frigate, as not to deserve notice nor continuance by a great maritime power. Ships of twenty guns, and all vessels upon the establishment of the five of war, have two lieutenants. See RATE.

The large sloops 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 fakers; their upper works being light, all unnecessary top-hamper avoided, having a flat 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 midship, immediately before the fore-mall, a sixty-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 flern-chasers, a carronade of the same power, upon an inclined plane abaft. The wonderful accession of force derived from these alterations, and the great advantages to be derived from them in chace, in clearing an enemy's coasts, &c. are too obvious to need comment.

Ships in the royal navy are commanded by captain or to 22 guns; sloops by master and commander.

The following Table furnishes a correct full 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Rate.</td>
<td>2nd Rate.</td>
<td>3rd Rate.</td>
<td>4th Rate.</td>
</tr>
<tr>
<td>Length from the</td>
<td>205 0</td>
<td>185 0</td>
<td>187 0</td>
<td>180 0</td>
</tr>
<tr>
<td>fore-side of the</td>
<td>171 10/3</td>
<td>152 6/3</td>
<td>154 10/3</td>
<td>148 0</td>
</tr>
<tr>
<td>rudder post to the</td>
<td>-</td>
<td>55 7</td>
<td>50 10/3</td>
<td>48 8</td>
</tr>
<tr>
<td>after-side of the</td>
<td>24 0</td>
<td>21 6</td>
<td>21 7</td>
<td>19 9</td>
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<tr>
<td>rudder of the flem,</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>on the gun or lower deck</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>or between the perpendiculums in merchant-ships</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Length of the keel</td>
<td>171 10/3</td>
<td>152 6/3</td>
<td>154 10/3</td>
<td>148 0</td>
</tr>
<tr>
<td>for tonnage</td>
<td>-</td>
<td>55 7</td>
<td>50 10/3</td>
<td>48 8</td>
</tr>
<tr>
<td>Extreme breadth</td>
<td>24 0</td>
<td>21 6</td>
<td>21 7</td>
<td>19 9</td>
</tr>
<tr>
<td>Depth in hold</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Burthen in tons,</td>
<td>2547 5/2</td>
<td>2110 5/2</td>
<td>2125 5/2</td>
<td>1864 5/4</td>
</tr>
<tr>
<td>builder's tonnage</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No. lbs.</td>
<td>30 32</td>
<td>28 32</td>
<td>30 32</td>
<td>28 32</td>
</tr>
<tr>
<td>Gun-deck</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Middle-deck</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Upper-deck</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Quarter-deck</td>
<td>-</td>
<td>12 12</td>
<td>12 9</td>
<td>14 9</td>
</tr>
<tr>
<td>Forecastle</td>
<td>-</td>
<td>4 12</td>
<td>2 9 4</td>
<td>9 4 9</td>
</tr>
<tr>
<td>Totals</td>
<td>110 102 80</td>
<td>74 54 44 42</td>
<td>40 24 18</td>
<td>36</td>
</tr>
</tbody>
</table>

**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 confided by the artist as more than adequate to the beauty of her form; and her qualities as an excellent faster and good sea-boat, from experiment, stand 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 their superb embellishments and stately 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 **Firing Ship**.

The **bomb-boat** is particularly constructed for throwing shells from a mortar. They are built very strong, and firmly ridden; 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 rabbeded and solidly bolted all together. The mortar-bed, or carriage which carries the mortar, travels 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 pin-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, fixed in a range, tenoned at the head and heel into large carlings fore and aft the bed, along the middle and sides, which are scored on the riders below, and into the beams above the pillars, flanging double in the middle of the bed athwart-flaps.

A strong compartment, called the **shell-room**, is built round the outside of the pillars. See **Shell Room**. See also **Bomb-Boats** and **Ketch**.

**Ship, Armed.** See **Arms**.

**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 dully, by sending her guard-boats around them every night; she is also to receive seamen who are impressed 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
purpoze her decks should be high, and her ports 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 disperse that which is offensive or corrupted.

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 scarcely definable 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 constructors, 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 XII.) has been actually built, and found upon trial to answer every purpose expected from her.

Some ships of a very fine model, being less burthensome 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 700 tons.

SHIP OF WAR, Private. See Privaters.

SHIP, Store, a vessel employed to carry artillery or naval stores, for the use of a fleet, fortress, or garrison.

SHIP, Transport. See Transport Ship.

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 fresh and frequent supply of it, becomes unhealthy, and unfit for the use of life. This is more sensibly so, if any irritating water be pent up with it. But it grows still worse, if such an air as this is made use of in respiration; that is, becomes moister, and hotter, and phlogificated, by panting and repulsing through the lungs.

These bad effects, in different degrees, according to the different manner in which air is inclosed, are observed in many cafes, particularly in deep wells and caverns of the earth, in prisons or cloistered houses, where people are shut up with heat and stiftness; but most of all in large ships, in which, with the fench 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 Anti-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 rosin. The tallow and rosin are melted together, and the brimstone is stirred into them; one hundred and forty pounds of brimstone will serve for a vessel of one hundred and forty tons. See PAIL.

To prevent ships, whose bottoms are worm-eaten, from leaking, this method has been proposed. Caulk well the inside planks or timbers, then fill the vacant spaces between the timber; and the out and inside planks, with boiling pitch or rosin, to high as the main gun-deck. The pitch being put in very hot, will run into the smallest cranny, and make the ship as tight as a bottle. There will be no room left for vermin, as rats, &c.; and the pitch will serve for other uses when taken out, therefore the expence will be but small. Phil. Trans. No. 476. p. 372.

For the laws relating to ships, &c. see Atlas of English Navigation. See also FREIGHT, MARINERS, and NAVY.

SHIP, bulk, burden, captain, clerk, company, corporal, flag, grounding, master, mine, regally, rigging, run, sailing, squadron, stays, weather, in reference to a ship, see the respective articles.

For further particulars respecting ships, the reader is referred to the article SHIP-BUILDING.

SHIP, To, 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 any thing in its place, as to ship the oars; to ship the swivel guns, i.e. to fix them in their sockets, &c.

SHIP OF PLEASURE, among the Ancients. See Thalassus.

SHIP, in the Salt Works, is a large cistern, out of which the salt-pan* are supplied for boiling.

This cistern is built close to the salters, 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 CLOY, in Geography, a cove of Queen Charlotte's Sound, 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 innermost of three coves, that are situated within the island of Motuara, which bears south of it. Ship Cove may be entered either between Motuara and a long island called by the natives Hamoto, or between Motuara and the western shore. In the fall 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. 41° 10'. E. long. 175° 6'.

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 graps, and has a tolerable well of salt water. N. lat. 30° 5'; W. long. 88° 49'.—Also, a small island of Upper Canada, in Lake Erie.

SHIP PONT, a cape on the coast of North Carolina. N. lat. 35° 59'. W. long. 76° 30'.

SHIP-BUILDING, or Naval Architecture, is the art of constructing and rigging, 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 enveloped in profound 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 conduct to remedy all the present defects, to render the theory more perfect, and enable the English architects to become as eminently skilful in the scientific, as they now confessedly are in the practical branches of ship-building.

In order to smooth the way in a science thought so incomprehensible, our readers must be made familiar with the several draughts and plans requisite to construct and raise so 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 sheer-draught, Plate I. of Ship-building, which comprehends the sheer-plan, the body-plan, and the half-breadth plan.

The sheer-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 main; 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 sheer-plan, is a transverse section of the ship at the midship-frame, or broadside place perpendicular to the keel. The several breadths, and the particular form of every frame-timber, 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 sheer-plan, and parallel thereto, or as it is frequently called, the horizontal plan, contains the several half-breadths at every frame-timber, at the different heights of the water-lines, main-breadth, top-side, 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 sheer-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-gun 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-gun 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 distance 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 distance 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 transom; these considered make the length on the gun-deck 180 feet.

Draw therefore, as in sheer-plan, Plate I., a straight line, which represents the upper edge of the keel, and in naval ships the upper edge of the rabat (East India ships and merchant-ships in general have the rabat in the middle of the keel), leaving under this line sufficient space for the main and false keels, scale, 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 22½ inches abaft it, square up the after-perpendicular, which is 180 feet, by one-eighth of an inch to a foot, or the length on the gun-deck, from the aft-side of the rabat of the stem to the fore-side of the rabat at the stern-post. Below the upper edge of the keel, and parallel thereto, set down two feet for the main and false keel, and under it draw the scale of equal parts, one-eighth of an inch to a foot, and from this scale set off all the following dimensions. Observe, 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 aft-side of the stern-post, at the height of the wing-transea, to the fore-side of the stem, at the same height.

The stem, 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 best form for dividing the fluid; therefore, fix its centre so that the aft-side of the rabat (which is in the middle of the stem, towards the upper part) may intersect the foremost-perpendicular at the height of the gun-deck: thus, let a ft from the foremost-perpendicular, as in Plate I., upon an horizontal line, 24 feet above the upper edge of the keel, 2 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 arc 18 inches before it, from the same centre; then will the moulding, or fore and after-sides of the stem, be represented: sweep likewise the rabat, as in Plate I.; then let up 36 feet for the height of the head of the stem, and at that height let 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 stem will be shown: continue upwards another parallel thereto, and the aft-side or whole stem 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, let up from the upper edge of the keel-line 26 ft. 10 in., which is the upper side of the wing-transea at the after-perpendicular, and upon that line let ft from the perpendicular 1 ft. 10 in., and upon the upper edge of the keel, 6½ inches before the after-perpendicular; then a line drawn through these points will represent the aft-side of the stern-post; another line, drawn at fourteen inches before the aft-side of the stern-post, at the wing-transea, 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 four inches before it (or at the thicknes of the bottom plank) is the fore-side of the rabbet, which will interfere the after-perpendicular at the gun-deck. Thus far the stern-post at present.

Having fixed on the length of the gun-deck, the next principal dimension to be considered is the main-breadth, and this, in ships of war in general, is about three-elevens of the said length for their moulded breadth, and in merchant-ships about three-twelfths of their length; excepting cutters and smaller vessels. The moulded breadth given in Plate 1. of the 74-gun ship, is 48 feet.

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 resistence in passing 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 sails 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 flotation will admit of being narrower on the floor, particularly at the fore and after parts; that by being broader it can carry more sail, and more readily rise upon the waves than a narrow one. The breadth, and its situation, when determined on, require much skill in narrowing therefrom, as we approach the keel, particularly forward and aft, to give that form to the body under water that shall best answer in dividing the fluid, enable her to carry the lower 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 defcent, 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 falls, without sufficient bearing in the fore-body, the bow would be pressed down into the hollow of every sea; and if the greatest area 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-trIanfom must not be placed too low, nor the fahan-figures too full below the load-water line; and the narrowing of the floor, or half-breadth of the rising, not continued too full towards aft, but that the water-lines, as they approach the stern-post, may taper handomely into the same, so that every succeeding water-line, as they approach nearer the keel, may have their curvature 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 clearance of the ship's run, so that the fluid shall have an unimpeded passage to it, whereby its inclination shall have the greatest effent from the water.

That a ship may carry her guns well above the water, a long floor timber will be neccesary, and not much rising; the midship-frame should be very full, upper futtocks nearly straight, upper works very light, and kept as low as possible, and the wing-trianfom not placed too high.

To make a ship carry her guns well above water, carry much flail, be a fast failer, and likewise ficer well, are four such rare qualities, as are hardly to be united in the fame vessel, 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 confider that a full ship will carry more fail than a sharp one, we may perceive the pliability of fo constructing the body, as to poifefs these qualities, and they may be fo united, that each of them may be diftinguished in some degree of eminence, for it is not poifible that all of them can be united in one body to a degree of perfection; we muft, therefore, while we retain a portion of each, give the superiority to that which is moft convenient with the purposes for which the vessel is peculiarly designed.

Hence it is plain, that judiciously placing the midship-bend is of the utmost conquence in the construction of ships' bodies; and its being placed nearer forward, will, consequently, make the fore-body more full, and will beft 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 prefent apparently more absolute force against the refifling 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 refifance, caused by the lateral preffure of the water, will be lefled, which muft certainly be of more fervice to the velocity, than what is loft 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 fcer 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 fail, the water is forced up at the bow above the horizontal, and the bow likewise prefled down, which amounts to nearly the fame, with refpect to her helm, as if the ship was trimmed by the head; again, ships that carry their helm amidships in light winds, require it 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 flood the test of experiment, it was placed at 60 feet abait the foremost-perpendicular, consequently this is the broadefl part of the ship, called the midships, or dead-flat, known by this character ☞, and where all the heights in midships are fet up. From ☞ the flations of all the timbers may be fet off; but it will only be neccesary to figure up a perpendicular at the joint of every frame-timber, their distance being double that of the room and fpace, which in Plate 1. is two feet nine inches.

The dead-flat in Plate 1. is a fingle timber, and the perpendicular, marked ☞, the middle of it: therefore, for the joints of the annexed frames set off before ☞, two feet nine inches for the joint of (A), and two feet nine inches abait ☞ for the joint of (1), figure 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, to X, in the fore-body, and the fame distance abait (1) for the joints of frame.
frame (3), 2, 4, 6, to 30 in the after-body, as shewn in Plate I. Now @, (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 afford in the construction of the body, but a line defining the greatest breadth in the ship, all fore and aft, and should next be determined upon. Its height at @ 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 sails; 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 resistance, be enabled to carry the greater fail; therefore forward at the rabett of the stem its height is 29 feet, and abaft at the counter-timber 29 feet 6 inches; and all the heights between should form a fair curve, like the ticked line in the sheer-draught, Plate I.

It may be remarked, that flat-floored ships do not require their height of breadth to be raised so high forward and aft, for by their construction they are fuller under fail, and carry their weight of cargo low down.

The body below the lower height of breadth may now be formed, as the frames or bosses, when put together, and the joint placed to the fore-mentioned perpendiculars, the sides of every port 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 so to form the body, that none of the desired qualities shall be omitted, giving, at the same time, preference to that which is most required. In ships of war, capacity, flatness, 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 sheer-plan, as in Plate I., 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 palling 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 figure down from the sheer-plan all the perpendiculars or joints of the frame-timbers, to the middle line of the half-breadth plan, and likewise the forefoot 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 @, 24 feet; at F, 23 feet 11½ inches; at H, 23 feet 11 inches; at K, 23 feet 10 inches; at M, 23 feet 5½ inches; at Q, 23 feet; at S, 22 feet 2 inches; at E, 20 feet 4 inches; at J, 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 sheer-plan, where it intersects the aft-side of the rabbet 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-siding of the item from the middle line and parallel thereunto, which is ten inches; then, with compasses, take the thickness of the bottom plank, which is four inches, and describe the rabbet of the item by the triangle shown in the half-breadth plan; from thence a fair curve line drawn through the half-breadths for off, forms the half-breadth line to @. In the same manner set off the half-breadths abaft @, 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, whole 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 sheer-plan, Plate I.

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; and, that above the water, need come under consideration, it is therefore necessary to describe in what manner the several forms of ships' 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 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 rabett 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 sheer-plan is a curve line intersecting the dead-rising at the midships; and in flat-floored, or burthen-some 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 series, 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-floors of ships, where velocity is preferred, by lengthening the radius of the floor-sweep forward and aft, is preferable to the rising-line, as used in constructing merchant-ships for burden, where the radius 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 of the ship is facilitated, because in any ship constructed by the same length of radius, 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 affilience, 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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Neither the rising-line in the sheer-plan, nor the half-breadth of the rising, would continue to be the curves as first constructed, if the form of the body first 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-sweeps, or half-breadth of the rising; for the move parallel it is kept with the middle line, the lefs 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 formed in the sheer-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 sheer-plan, and narrow its half-breadth; and where it may be required to make the ship fuller, lower the rising-line in the sheer-plan, and increase its half-breadth; which sufficiently proves that the rising-line is as variable as the different forms of ships' bodies may require. See for fulness of the plate of the East India ship, the plate 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 of fulness of body to assist them in taking the ground. The further forward and aft the body is allifted by the rising-line, 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 impropriety; 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 42-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, no 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 sheer-plan lift any more than the lower height of breadth; which, according to the form of some midship-bends, would make a very ill-contructed 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 in 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 sheer-plan, as in Plate I., and square up a perpendicular for the side-line of the fore-body, observing to keep it clear of the form; from that perpendicular set off 48 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 I., at the lower heights of breadth, by transferring their heights from the sheer-plan at the several frame-timbers: those before the dead-flat, set 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 body-plan, upon its corresponding height of breadth; 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 radii 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 sheer-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 an 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 parallels 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 sheer-plan as in the body-plan, is because it would interfere with the curve-lines above. Now by inspecting Plate I. it will be readily seen, that by raising the heights of those centres in the sheer-plan, consequently 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 floor-rising would become quicker, and the ship have less bearing, and vice versa, more firm and burthensome: thus must the rising and narrowing of the centres be adjusted till the body of the vessel has the capacity required for whatever service it 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 I., by setting off from the middle line at 43, 16 feet; at H, 15 feet 9 inches; at D, 15 feet 5 inches; at F, 15 feet 1 inch; at N, 15 feet 7 inches; at K, 14 feet; at M, 13 feet 3 inches; at O, 11 feet 11 inches; at Q, 10 feet 4 inches; at R, 8 feet 6 inches; at U, 6 feet 1 inch; and at X, 2 feet 5 inches. Then in the after-body let off at B, 15 feet 11 inches; at 4, 15 feet 10½ 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 3 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 must be drawn in the body-plan thus; set up the middle line from the base 12 feet 2 inches, and on the base, from each side of the middle line, 11 feet 9 inches, and draw the diagonal point lines, as shown in Plate I. In draughts, diagonal lines are distinguished by red ink. Then in the body-plan draw the half-fiding of the stem in the fore-body, and the half-fiding of the stern-post in the after-body; for the latter set up 26 feet above the base, and at that height set off from the middle line 10 inches in the half-fiding of the post at the head, and 9 inches in the fore-body, the half-fiding of the stem at that height; and on the base line 7½ inches from each side the middle line, the half-fiding of post and stem at the heel; then draw straight lines to each spot set off, and the half-fiding of the stern-post and stem will be represented in the body-plan. Now to complete this diagonal line on the half-breadth plan, its height or intersection at the post and stem must be taken in the body-plan, and transferred respectively to the fore-side of the rabbet of the stem, and aft-side of the rabbet of the post in the sheer-plan, and from thence let them be squared down to the middle line of the half-breadth plan; then take with compasses the half thickness of the post and stem in the body-plan, in the direction of the said diagonal line, and set them off respectively from the middle line in the half-breadth plan, on the lines laid squared down; and from the intersection as a centre, sweep an arc towards the midship, with compasses opened to the thicknesses of the rabbet taken diagonally; then a fair curve drawn through all the spots; as above set off, touching the back of the arcs, will form the diagonal line at the floor-heads, as shown in the half-breadth plan, Plate I.

Now may the timbers, as far as the floor-sweeps are useful, be completed in the body-plan below the lower height of breadth, beginning at dead-flat; thus, take the half-breadth of the floor diagonal at 0 in the half-breadth plan, and set it down the diagonal from the middle line in the body-plan; then take the half-breadth of the floor-sweeps in like manner, and set it off from the middle line in the body-plan on the horizontal line before drawn at its height, and from the intersection extend the compasses to the half-breadth of the floor diagonal, and sweep an arc upwards from the dead-flat, which is six inches at 0; then with the reconciling-sweep, which is of a long radius compared with the others, unite the lower-breadth 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 straight line, and the middle-timber will be formed below the lower breadth. In the same manner may be formed the frame-timbers B, D, F, H, and K, in the fore-body, and 2, 4, 6, 8, 10, to 24 in the after-body, by setting off the half-breadth of each frame’s diagonal as at 0, their corresponding heights of breadths, main half-breadths, and centres of each sweep, as before directed, and by reconciling the lower-breadth sweeps and floor-sweeps 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 abaft.

Hence it may be readily conceived, that bodies full or sharp, either for burthen or velocity, may be constructed by altering the radii of the different sweeps; and unclefs bodies of ships could be constructed from some 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 abaft, proceed to prove it by horizontal lines, and finish the remaining part forward and aft. These lines are generally called water-lines, as the ship’s bottom at the surface of the water, supposing the keel kept parallel there-to, would be of the same figure as those lines represented in the half-breadth plan, with the addition of the thickness of the bottom planks in that direction. The upper one is called the load-water-line, or line of floatation, when the vessel is supposed at 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 upper edge of the keel or rabbet. Although a ship may draw more water abaft than forward for her ball falling trim, yet to keep the several water-lines horizontal, or parallel with the upper edge of the keel, is the most useful in construction; and the water-lines, as represented in the half-breadth plan, form curves, limiting the various half-breadths of the ship at the heights of their corresponding lines in the body-plan. They are generally drawn with green ink, but in Plate I., with corresponding dotted lines, and are represented by straight lines in the sheer-plan; and if parallel with the keel they will be horizontal lines in the body-plan, but if the vessel is to be constructed to draw much more water athwart 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 sheer-plan, they will form curves at those heights in the body-plan, and the more they vary from an horizontal line, the less accurate will be the limits of their half-breadths be described in the half-breadth plan.

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 sheer-plan. The water-lines may now be drawn in the half-breadth plan from the body-plan, as far as the timbers are thereof formed; thus, continue the water-lines aft from the sheer-plan across the body-plan, then take off with compasses, or a flip of paper and pencil, their various half-breadths from the middle line, to the places where the several timbers intersect each water-line, and let them off on their corresponding timbers from the middle line in the half-breadth plan; then to each water-line square down where they intersect the fore-part of the rabbet at the stem, and aft-part of the rabbet at the stern-post in the sheer-plan to the middle line of the half-breadth-plan; then take the half-fiding of the stem and stern-post at each water-line from the middle line in the body-plan, and set them respectively on the lines laid squared down from the middle line in the half-breadth plan; from thence, as the centre, with compasses opened to the thicknesses of the bottom planks, 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-breadth plan, 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-breadth of each timber, where they intersect the water-lines from the middle line in the half-breadth plan, and setting them off on their corresponding water-lines from the middle line in the body-plan, curves passing through those spots will shape the timber; but to end them into the rabbet, or complete the leeling, the keel
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must be drawn in the body-plan; thus, set off nine inches on the base line from each side of the middle line, being the half-sideling of the keel, and also 18 inches below the base line, which squared will represent the thwartership fection of the keel in midship: then, with compasses opened to the thickneses of the bottom plank, fix one leg where the keel intersects the base line, which is the upper side of the rabbit, and sweep an arc within the keel to intercept the side, and from that intersection sweep another arc upwards; then a triangle drawn within these arcs, represents the rabbit of the keel in midship, and all the timbers along the midship, until the rabbit opens, end where the rabbit intersects the base line; but when the rabbit opens by the timbers rising forward and aft, they will end over the back of the sweep to the inner edge of the rabbit. The timbers near the after-end of the keel must be ended agreeably to the tapering of the keel, which tapers in the sideing from frame 24 to 15 inches at the after-end: this must be set off from the middle line in the half-breadth plan, and the half-sideling 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-sideling of the keel the thickneses of the bottom plank, and that ends the timber. But as the frames in the fore-body before the heel upon the item, their heights must be taken in the sheer-plan, where they intercept the lower part of the rabbit, and those heights set up in the body-plan upon the half-thickneses of the item; then with compasses opened to the thickneses of the bottom plank, fix one leg in the heights laid set off, and sweep a circle within the sideing, and the heel passes over the back of the circle, and the rabbit completed by a square applied to the line of the timber, so as to intercept the height set up, as shewn in the plan for the fore-body, Plate 1.

Now, as a further proof of the correctnes 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 beam-ing line, thus; represent the half-thickneses 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-thickneses of the dead wood, and set them up from the upper edge of the rabbit 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 rabbit on the stern-post, and this curve will represent the beam-ing line in the sheer-plan, and limits the heels of the after-timbers, as far as they cut off or stay against the dead-wood.

The heels of the timbers being found to agree with the beam-ing line, from the fairness of its curve (observe, the term fair, so often used in the delineation of the several plans of a ship, signifies that the variety of curved lines therein used have no inequalities in them, but are even as a circle struck 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 discoverable), 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-thickneses of the dead-wood; that is, the outer buttock-line at 15 feet 10 inches, and the intermediate four at 3 feet 2 inches afother.

Then take the heights at the first buttock-line, or that next the poll, at the intersecion of each timber from the base line in the after-body, and set them up from the upper edge of the rabbit on the corresponding timbers in the sheer-plan; and to end the buttock-lines, the upper side of the wing-transom and margin-line must be drawn in the several plans; thus, set up 26 feet 10 inches 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 set off 16 feet 6 inches, the half-breadth of the wing-transom, and at that place set down, below the upper side of the wing-transom, six inches, and sweep the arc, whole 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 I; 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, sweep in the round aft or aft-side of the wing-transom; thus, square down from the sheer-plan the fore-side of the rabbit 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, set 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 from the half-breadth plan; and from thence draw a line to the upper side of the wing-transom at the rabbit of the poll, and the upper side of the wing-transom will be shewn, 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 half drawn, and unite them at the fore part of the wing-transom by a line parallel to the rabbit of the poll. The margin-line must next be shewn 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 rabbit of the poll, in the depth of the margin at the aft-side of the wing-transom. The margin-line being drawn in every plan of Plate I, 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 set them off from the same from the middle line in the half-breadth plan, drawing lines parallel thereto from the aft-side 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 intersecion 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 endings, and the after part of the ship will be represented in the sheer-plan, as cut by those perpendicular sections, as in Plate I.

Now if the buttock-lines make fair curves, the after-timbers will be proved correct, and likewise the water-lines abaft 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 as to the correctnes of the buttock, or that part of the body close abait, 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 bearding-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-breadth of the proof-timbers where they intersect the water-lines in the half-breadth plan, and transfer them to their respective water-lines in the body-plan; but though the proof-timbers cross the stern-post, their heels may be set off, as before directed for the after-timbers; then if the Ipots do set off produce fair curves, as the tacked 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 ending will be determined by squaring up their interjections with the main-breadth line, from the half-breadth 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 purposes: the bias should rather lead to increase than diminish in capacity. In ships for commerce, an exact estimation of their capacity is more frequently required to regulate the port duties, and the contracts between merchant owners and builders, than to insure their stability, a fixed line of flotation, and falt failing, as the charge may be regulated by their ability to support it, and their load-water-line may be considerably 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 equilibrium, 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 defined end.

As the vessel occupies in the water, by its immersed part, the cavity formed by the body under the upper water-line, let us compare this case 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 thence we see, that these efforts of the water balance the weight of the mass of water which we have just sublated in the place of the vessel. Therefore, since these same 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, whose 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. avoirdupois 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 mass 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 mass 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 mass 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 gravity.

Now the state of the equilibrium of any vessel will be determined from these two principles: first, 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 secondly, that the centre of gravity of the vessel, and the centre of gravity of the water, fall in the same vertical line, which is the vertical axis of the vessel. With respect to the centre of gravity, it is evident that it must always fall below the load-water-line; and if the immersed part should prefer, in defecding, every where the same surface, or that it had either a prismatic or cylindrical figure, then the centre of gravity 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 gravity 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 reversed, then the centre of gravity 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 fadling should be distributed throughout the body of the vessel. Thus in *Plate I.* of ships of war in general, where the gun constitutes 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 guage 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.

placed on the draught. However operative and difficult the calculations necessary to ascertain the capacity, stability, &c. of ships may be, it must be allowed that it will require the utmost care in the execution, to find the exact dimensions of the several sections of the ship from the draught, (especially as every dimension in the ship is forty-eight times bigger than their similar ones on the draught, supposing it to be drawn by a quarter of an inch scale to a foot,) as an error of a quarter of an inch in the draught, which is only the forty-eighth part of a real inch in the ship, will occasion an error of 110,592 cubic quarters of an inch in the ship, provided the error be in all the three dimensions, viz. length, breadth, and depth. Great precision, indeed, must be used to measure to a quarter of an inch in Plate I., seeing it is only drawn, for convenience, to an eighth of an inch scale. But as these calculations cannot be made with too great an exactness, the body had better be expanded on the mould- loft floor to the full size, and then the various dimensions may be taken very accurately.

The estimated weight of a 74-gun ship, as fitted for sea, with six months' provisions on board, is given in the following table.

An Estimate of the Weight of the 74-Gun Ship, Plate I., as fitted for Sea, with Six Months' Provisions, Guns, &c.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oak timber, at 57.8125 lbs. to the cubical foot</td>
<td>47859</td>
<td>1236</td>
<td>208</td>
</tr>
<tr>
<td>Elm timber, at 37.5 to the cubical foot</td>
<td>462</td>
<td>7</td>
<td>1645</td>
</tr>
<tr>
<td>Fir timber, at 34.25 to the cubical foot</td>
<td>4397</td>
<td>67</td>
<td>517</td>
</tr>
<tr>
<td>Copper bolts, rudder, braces, &amp;c. &amp;c.</td>
<td>20</td>
<td>1748</td>
<td></td>
</tr>
<tr>
<td>Iron knees, bolts, nails, &amp;c. &amp;c.</td>
<td>28</td>
<td>2070</td>
<td></td>
</tr>
<tr>
<td>Lead-work</td>
<td>2</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>Pitch, tar, oakum, paint, &amp;c. &amp;c.</td>
<td>13</td>
<td>2</td>
<td>330</td>
</tr>
<tr>
<td>Fire-hearth in galleys, &amp;c. &amp;c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper sheathing of ( \frac{32 \text{ Ounces, } 1000 \text{ weight } 85}{134} )</td>
<td>12</td>
<td>728</td>
<td></td>
</tr>
<tr>
<td>( \frac{28 \text{ Ounces}}{134} )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{18 \text{ Ounces}}{83} )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheathing-nails</td>
<td>( \frac{21}{32} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1390</td>
</tr>
</tbody>
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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Complete set of masts, yards, booms, &amp;c. with the spare gear</td>
<td>70</td>
<td>1820</td>
<td></td>
</tr>
<tr>
<td>Rigging</td>
<td>30</td>
<td>1120</td>
<td></td>
</tr>
<tr>
<td>Falls with spare</td>
<td>13</td>
<td>1828</td>
<td></td>
</tr>
<tr>
<td>Cables, hawser, &amp;c.</td>
<td>32</td>
<td>1120</td>
<td></td>
</tr>
<tr>
<td>Anchors, with their flocks, &amp;c.</td>
<td>17</td>
<td>584</td>
<td></td>
</tr>
<tr>
<td>Blocks, pumps, and boats</td>
<td>27</td>
<td>560</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>192</td>
</tr>
</tbody>
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<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Guns, with their carriages</td>
<td>155</td>
<td>1557</td>
<td></td>
</tr>
<tr>
<td>Powder and balls, powder-barrels, &amp;c.</td>
<td>48</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Implements for the guns, powder, &amp;c.</td>
<td>7</td>
<td>2034</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>211</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter, gunner, and boatswain's stores</td>
<td>21</td>
<td>560</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>600 men, including the officers and their effects</td>
<td>95</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Ballast, iron and shingle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>395</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisions for six months for 600 men, water, cakes, &amp;c. &amp;c.</td>
<td>600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>The hull</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The furniture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guns and ammunition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Officers' stores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men and ballast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provisions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2810</td>
</tr>
</tbody>
</table>

Vol. XXXII.
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 must 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 the ship 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 so various, the following rule, by approximation, may be near enough for practice.

Take the half-breath of every other frame, and double them, from 26 to O, in the half-breath plan upon the upper water-line; then find the sum of these, 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-breath of every timber, and proceed as before, and multiply by 2 feet 9 inches; find also the area of the stem, knee, and gripe, before the foremast-timber, also the area of the stem-pole 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 (the 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 bottoms below the upper water-line.

The reason of the above rule will be obvious, by referring to the article STEREOLOGY; 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 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 I.

**SHIP-BUILDING.**

<table>
<thead>
<tr>
<th>Area of the Upper Water-Line.</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frame 26 is 43 ft. 8 in. the half of which is</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>frame 22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 18</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame (1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame B</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame F</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame K</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame O is 46 ft. 2 in. the half of which is</td>
<td>9</td>
<td>-</td>
</tr>
</tbody>
</table>

× by the distance between the frames = - 11 0

<table>
<thead>
<tr>
<th>Area between 26 and O</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frame 26 is 43 ft. 8 in. the half of which is</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>timber 27</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>timber 29</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 31</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 33</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 34</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame 36</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>timber 37 is 5 ft. 2 in. the half of which is</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

× by the distance between the timbers = - 379 6

<table>
<thead>
<tr>
<th>Area of the pole and rudder</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frame 26</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area above 26</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frame O is 46 ft. 2 in. the half of which is</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>timber P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame Q</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>timber R</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame S</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>timber T</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame U</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame W</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>frame X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>timber Y</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>half the stem</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

× by the distance between the timbers = - 316 8

<table>
<thead>
<tr>
<th>Area of the knee</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frame before O</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Area above 26</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Area between 26 and O</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
| Area of upper water-line | -   | -   | 7210 10
### Area of the Fourth Water-Line

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>22</td>
<td>43</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>44</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>45</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>49</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>49</td>
<td>8</td>
</tr>
<tr>
<td>(1)</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>F</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>K</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>O</td>
<td>43</td>
<td>0</td>
</tr>
</tbody>
</table>

Area between 26 and O: 5513 ft.

× by the distance between the frames: 5013 ft.

### Area of the Third Water-Line

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>(1)</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>F</td>
<td>43</td>
<td>6</td>
</tr>
<tr>
<td>K</td>
<td>41</td>
<td>8</td>
</tr>
<tr>
<td>O</td>
<td>37</td>
<td>8</td>
</tr>
</tbody>
</table>

Area between 26 and O: 5072 ft.

× by the distance between the frames: 4612 ft.

### Area between the frames

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>39</td>
<td>2</td>
</tr>
<tr>
<td>28</td>
<td>37</td>
<td>10</td>
</tr>
<tr>
<td>29</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>30</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>33</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>34</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>35</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>36</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

Area of the post and rudder: 794 ft.

Area abaft 26: 804 ft.

× by the distance between the timbers: 729 ft.

### Area of the stern and knee

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>21</td>
<td>6</td>
</tr>
<tr>
<td>P</td>
<td>41</td>
<td>8</td>
</tr>
<tr>
<td>Q</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>R</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>S</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>T</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>U</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>W</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Y</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Area of the stern and knee: 729 ft.

× by the distance between the timbers: 265 ft.

### Area of the third water-line

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>P</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>Q</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>R</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>S</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>T</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>U</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>W</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Y</td>
<td>1</td>
<td>11</td>
</tr>
</tbody>
</table>

Area of the stern and knee: 198 ft.

× by the distance between the timbers: 545 ft.

### Area of the stern and knee

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>733</td>
<td>10</td>
</tr>
<tr>
<td>P</td>
<td>804</td>
<td>7</td>
</tr>
<tr>
<td>Q</td>
<td>551</td>
<td>9</td>
</tr>
<tr>
<td>R</td>
<td>705</td>
<td>3</td>
</tr>
</tbody>
</table>

Area of the fourth water-line: 7052 ft.

### Area of the fourth water-line

Area: 7052 ft.
### Area of the Second Water-Line

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>28</td>
<td>8</td>
</tr>
</tbody>
</table>

× by the distance between the frames = 404 7
Area between 26 and O = 4450 5

### Area of the First or Lower Water-Line

<table>
<thead>
<tr>
<th>Frame</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

× by the distance between the frames = 314 8
Area between 26 and O = 3461 4

### Area of the Rudder and Post

Area abaft 26 = 331 8\(\frac{1}{2}\)

### Area of the Stem and Knee

Area before O = 337 8
Area abaft 26 = 331 8\(\frac{1}{2}\)
Area between 26 and O = 4450 5
Area of the second water-line = 5119 9\(\frac{1}{2}\)
**SHIP-BUILDING.**

<table>
<thead>
<tr>
<th>Area of the Upper Side of the Keel.</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length on the upper side or plane of the keel from the aft-side of the rudder</td>
<td>177</td>
<td>2</td>
</tr>
<tr>
<td>Multiplied by its thicknesses</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Area of the upper side of the keel</td>
<td>-</td>
<td>265</td>
</tr>
</tbody>
</table>

**Displacement of the Bottom.**

| Half the area of the upper water-line | Ft. 11 |
| Whole area of the fourth water-line | 7052 | 3 |
| Whole area of the third water-line | 6183 | 5 |
| Whole area of the second water-line | 5119 | 9 |
| Whole area of the lower water-line | 3764 | 8 |
| Half the area of the upper side of keel | 132 | 10 |

$x$ by distance between the water-lines 26114.0729 3.6

| Area of the keel 265 ft. 9 in. $x$ by $\frac{1}{2}$ the depth, false keel included | 94010.6624 |
| Cubic feet displaced | 94542.162 |
| $x$ by pounds in a cubic foot of salt-water | 64.375 |

$6086151$ lbs.

Method of finding the Centre of Displacement or Support.

The centre of gravity of a ship, supposed homogeneous, and in a state of equilibrium, is in a perpendicular section, passing through the keel, and dividing the ship into two equal and similar parts, at a certain distance from the stern and altitude above the keel.

To ascertain the centre of displacement, or centre of gravity, of the immersed part of a ship's bottom, in a state of equilibrium, begin by determining the centre of gravity of the upper horizontal section, or water-line; and as the two sides are equal and similar, the middle line may be considered as the axis of the equilibrium, in which the centre of gravity of that surface is to be found; and as the surface of the upper water-line, and so of the others, has been already divided into equal parts, and the breadths taken at several timbers or ordinates to find the displacement, we have only to observe that the spaces between those timbers are here considered as so many parallelograms, the centres of gravity of which parallelograms will form a system distributed on the middle line.

Then to find the centre of gravity of the system, in respect to the aft-side of the rudder, which is assumed 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 distance 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 momenta, or first ordinate; 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 quote the distance of the centre of gravity of the whole surface from the axis of the momenta.

Lastly, the areas of the several planes or surfaces, 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.
To find the centre of gravity of the plane abaft 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th>Ordinate</th>
<th>Diff. from 37</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>36</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>35</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>33</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>37</td>
<td>5</td>
</tr>
<tr>
<td>31</td>
<td>38</td>
<td>6</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>29</td>
<td>41</td>
<td>8</td>
</tr>
<tr>
<td>28</td>
<td>42</td>
<td>9</td>
</tr>
<tr>
<td>27</td>
<td>43</td>
<td>10</td>
</tr>
</tbody>
</table>

Half of 26 is 21 10

Sum 379 6

Multiply by 2 9 diff. between ord. 2 9

Area 1043 7½

Divide by the sum of the ordinates 379 6 6557 12½

Centre of gravity 17 3½

Distance of the ordinate 37 from the after-side of the rudder 6 9

Centre of gravity from after-side of the rudder 24 0¼

Distance of the centre of gravity of the section of the rudder and stern-post from the after-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>Ordinate</th>
<th>Diff. from 26</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>45</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>47</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>(1)</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>F</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>K</td>
<td>48</td>
<td>0</td>
</tr>
</tbody>
</table>

Half of 0 is 23 1

Sum 526 9

Multiply by 11 0 diff. between ord. 11 0

Area 5794 3

Divide by the sum of the ordinates 526 9 32120 0

Centre of gravity 61 5¼

Distance of the ordinate 26 from the after-side of the rudder 37 0

Centre of gravity from after-side of the rudder 98 5½

To find the centre of gravity of the plane before O, from 0, its first ordinate.

<table>
<thead>
<tr>
<th>Ordinate</th>
<th>Diff. from 0</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>P</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>R</td>
<td>43</td>
<td>2</td>
</tr>
<tr>
<td>S</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>T</td>
<td>36</td>
<td>0</td>
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<tr>
<td>U</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>W</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>X</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>Y</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

Half of Stem 0 10

Sum 316 8

Multiply by 2 9 diff. between ord. 2 9

Area 870 10

Divide by the sum of the ordinates 316 8 3367 7½

Centre of gravity 10 7½

Distance of the ordinate 0 from the after-side of the rudder 158 0

Centre of gravity from after-side of the rudder 168 7½

Centre of gravity of knee before the item is 1 0

Distance of the centre of gravity of the section of the knee, before the after-side of the rudder, is 186 6

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Plane</th>
<th>Ft.</th>
<th>Products</th>
</tr>
</thead>
</table>
| Of the after-plane 1043 7½ 1043 7½ Mult. by 24 0½ its momentum 25067 9
| Of the midship-plane 5794 3 5794 3 Mult. by 98 5¼ its momentum 570612 6½
| Of the fore-plane 870 10 870 10 Mult. by 168 7½ its momentum 146844 3½
| Of rudder and poll 10 1½ 10 1½ Mult. by 3 5 its momentum 34 7½
| Of the knee 3 0 3 0 Mult. by 186 6 its momentum 559 6

7721 10 Whole areas. Sum of momenta 743318 7½

Now 743318 ft. 7½ in. divided by 7721 ft. 10 in. gives 96 ft. 2½ in., the distance of the centre of gravity of the whole section of the upper horizontal water-line from the after-side of the rudder.
SHIP-BUILDING.

**Operation for the Plane of the Fourth 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>
</tr>
</thead>
<tbody>
<tr>
<td>Half of 37 ordinate is</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Whole of 36</td>
<td>3 7 Mult. by 1</td>
<td>= 3 7</td>
</tr>
<tr>
<td>35</td>
<td>1 3 1</td>
<td>= 26 2</td>
</tr>
<tr>
<td>34</td>
<td>- 19 8</td>
<td>= 39 0</td>
</tr>
<tr>
<td>33</td>
<td>- 24 4</td>
<td>= 97 4</td>
</tr>
<tr>
<td>32</td>
<td>- 28 4</td>
<td>= 144 8</td>
</tr>
<tr>
<td>31</td>
<td>- 31 4</td>
<td>= 188 0</td>
</tr>
<tr>
<td>30</td>
<td>- 34 0</td>
<td>= 238 0</td>
</tr>
<tr>
<td>29</td>
<td>- 36 4</td>
<td>= 290 8</td>
</tr>
<tr>
<td>28</td>
<td>- 37 10</td>
<td>= 340 6</td>
</tr>
<tr>
<td>27</td>
<td>- 39 2</td>
<td>= 391 8</td>
</tr>
<tr>
<td>Half of 26</td>
<td>20 2</td>
<td>= 221 0</td>
</tr>
<tr>
<td>Sum</td>
<td>288 11</td>
<td>Sum</td>
</tr>
<tr>
<td>Multiply by</td>
<td>2 9 diff. between ord.</td>
<td>= 2 9</td>
</tr>
<tr>
<td>Area</td>
<td>794 6 3 3 3</td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates \( \frac{288}{11} \) 5495 7 2 3 3

Centre of gravity 
Distance of the ordinate 37 from the aft-side \{ of the rudder 
Centre of gravity from aft-side of the rudder 
Distance of the centre of gravity of the keel of the rudder and stern-poll from the aft-side of the rudder is 

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>
</tr>
</thead>
<tbody>
<tr>
<td>Half of 26 ordinate is</td>
<td>20 2</td>
<td></td>
</tr>
<tr>
<td>Whole of 22</td>
<td>43 3 Mult. by 1</td>
<td>= 43 3</td>
</tr>
<tr>
<td>18</td>
<td>- 44 8 3 3</td>
<td>= 89 5</td>
</tr>
<tr>
<td>14</td>
<td>- 45 9 2 3</td>
<td>= 137 4 3 3</td>
</tr>
<tr>
<td>10</td>
<td>- 46 8</td>
<td>= 186 8</td>
</tr>
<tr>
<td>6</td>
<td>- 46 8 5</td>
<td>= 233 4</td>
</tr>
<tr>
<td>2</td>
<td>- 46 8 6</td>
<td>= 280 0</td>
</tr>
<tr>
<td>(1)</td>
<td>- 46 8 7</td>
<td>= 326 8</td>
</tr>
<tr>
<td>B</td>
<td>- 46 8 8</td>
<td>= 373 4</td>
</tr>
<tr>
<td>F</td>
<td>- 46 8 9</td>
<td>= 420 0</td>
</tr>
<tr>
<td>K</td>
<td>- 45 10</td>
<td>= 458 4</td>
</tr>
<tr>
<td>Half of O</td>
<td>- 21 6</td>
<td>= 236 6</td>
</tr>
<tr>
<td>Sum</td>
<td>501 3</td>
<td>Sum</td>
</tr>
<tr>
<td>Multiply by</td>
<td>11 0 diff. between ord.</td>
<td>= 11 0</td>
</tr>
<tr>
<td>Area</td>
<td>5513 9</td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates \( \frac{501}{3} \) 30633 7 2 3 3

Centre of gravity 
Distance of the ordinate 26 from the aft-side \{ of the rudder 
Centre of gravity from aft-side of the rudder 

Areas of the several planes, and their moments.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of the midship-plane 5513 9</td>
<td>5513 9 Mult. by 98 1 8 its momentum = 541003 7 2</td>
</tr>
<tr>
<td>Area of the after-plane 794 6 2</td>
<td>794 6 2 Mult. by 25 9 4 its momentum = 20475 3 4</td>
</tr>
<tr>
<td>Area of the fore-plane 729 10 3</td>
<td>729 10 3 Mult. by 167 8 5 its momentum = 122409 10</td>
</tr>
<tr>
<td>Area of rudder and poll 10 1 2</td>
<td>10 1 2 Mult. by 3 5 its momentum = 34 7 4</td>
</tr>
<tr>
<td>Area of the keel and knee 4 0</td>
<td>4 0 Mult. by 184 1 its momentum = 736 4</td>
</tr>
<tr>
<td>7052 3 3 Whole areas. Sum of momenta 684659 9 4</td>
<td></td>
</tr>
</tbody>
</table>

Now 684659 ft. 9 4 in. divided by 7052 ft. 3 3 in. gives 97 ft. 1 in., the distance of the centre of gravity of the whole section of the fourth horizontal water-line from the aft-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 abaft 26, from 37, its first ordinate.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Whole of</td>
<td>36</td>
<td>3</td>
<td>6 Mult. by 1 =</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>35</td>
<td>6</td>
<td>2 =</td>
<td>12</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>9</td>
<td>1 =</td>
<td>27</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>12</td>
<td>5 =</td>
<td>69</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>17</td>
<td>4 =</td>
<td>76</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>21</td>
<td>3 =</td>
<td>87</td>
<td>6</td>
<td></td>
</tr>
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<td>30</td>
<td>26</td>
<td>6 =</td>
<td>156</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>27</td>
<td>7 =</td>
<td>198</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>30</td>
<td>1 =</td>
<td>320</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>32</td>
<td>0 =</td>
<td>320</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Half of</td>
<td>26</td>
<td>17</td>
<td>0 =</td>
<td>187</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td>201</td>
<td>6</td>
<td>Sum</td>
<td>1476</td>
<td>6</td>
</tr>
<tr>
<td>Multiply by</td>
<td>2</td>
<td>9 diff. between ord.</td>
<td>18</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>554</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates | 198 | 3 | 1725 | 10 |

Centre of gravity | 8 | 8 |
Distance of the ordinate O from the aft-side of the rudder | 158 | 0 |
Centre of gravity from aft-side of the rudder | 166 | 8 |
Distance of the centre of gravity of the section of the rudder and item-post from the aft-side of the rudder | 183 | 3 |

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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of</td>
<td>22</td>
<td>39</td>
<td>1 Mult. by 1 =</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>41</td>
<td>0 =</td>
<td>82</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>42</td>
<td>5 =</td>
<td>172</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>43</td>
<td>2 =</td>
<td>172</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>43</td>
<td>8 =</td>
<td>218</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Half of</td>
<td>O</td>
<td>18</td>
<td>8 =</td>
<td>98</td>
<td>3</td>
</tr>
<tr>
<td>Sum</td>
<td>461</td>
<td>2</td>
<td>Sum</td>
<td>2569</td>
<td>10</td>
</tr>
<tr>
<td>Multiply by</td>
<td>11</td>
<td>0 diff. between ord.</td>
<td>11</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>5072</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates | 461 | 2 | 2826 | 8 |

Centre of gravity | 61 | 3 |
Distance of the ordinate 26 from the aft-side of the rudder | 37 | 0 |
Centre of gravity from aft-side of the rudder | 98 | 3 |

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Ft. In.</th>
<th>Area of the after-plane 554</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>554</td>
<td>1</td>
<td>2</td>
<td>Mult. by 26</td>
</tr>
<tr>
<td>10</td>
<td>its momentum</td>
<td>14903</td>
<td>7</td>
</tr>
<tr>
<td>Area of midship-plane</td>
<td>5072</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>5072</td>
<td>10</td>
<td>Mult. by 98</td>
<td>3</td>
</tr>
<tr>
<td>its momentum</td>
<td>498616</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Area of fore-plane</td>
<td>545</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>545</td>
<td>1</td>
<td>2</td>
<td>Mult. by 166</td>
</tr>
<tr>
<td>its momentum</td>
<td>90881</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Area of rudder and post</td>
<td>10</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>2</td>
<td>Mult. by 3</td>
</tr>
<tr>
<td>its momentum</td>
<td>34</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Area of item and knee</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Mult. by 183</td>
<td></td>
</tr>
<tr>
<td>its momentum</td>
<td>213</td>
<td>9</td>
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</tr>
<tr>
<td>6183</td>
<td>5</td>
<td>2</td>
<td>Whole areas. Sum of momenta</td>
</tr>
</tbody>
</table>

Now 604620 ft. 6 | 1/2 | in. divided by 6183 ft. 5 | 1/2 | in. gives 97 ft. 3 | 1/2 | 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 for the Plane of the Second Horizontal Water-Line.

**To find the centre of gravity of the plane abait 26, from 37, its first ordinate.**

<table>
<thead>
<tr>
<th></th>
<th>Ft.</th>
<th>Distant from 37</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of 37 ordinate is</td>
<td>0 9</td>
<td>0 9</td>
<td>0 9</td>
</tr>
<tr>
<td>Whole of 36 - -</td>
<td>2 2 Mult. by</td>
<td>1 = 2 2</td>
<td>2 2</td>
</tr>
<tr>
<td>35 - -</td>
<td>3 0</td>
<td>3 0</td>
<td>0 3</td>
</tr>
<tr>
<td>34 - -</td>
<td>4 3</td>
<td>4 3</td>
<td>12 9</td>
</tr>
<tr>
<td>33 - -</td>
<td>6 1</td>
<td>6 1</td>
<td>36 6</td>
</tr>
<tr>
<td>32 - -</td>
<td>8 1</td>
<td>8 1</td>
<td>64 8</td>
</tr>
<tr>
<td>31 - -</td>
<td>10 3</td>
<td>10 3</td>
<td>103 103</td>
</tr>
<tr>
<td>30 - -</td>
<td>13 4</td>
<td>13 4</td>
<td>182 182</td>
</tr>
<tr>
<td>29 - -</td>
<td>15 10</td>
<td>15 10</td>
<td>150 150</td>
</tr>
<tr>
<td>28 - -</td>
<td>19 0</td>
<td>19 0</td>
<td>180 180</td>
</tr>
<tr>
<td>27 - -</td>
<td>22 0</td>
<td>22 0</td>
<td>220 220</td>
</tr>
<tr>
<td>Half of 26 - -</td>
<td>12 5</td>
<td>12 5</td>
<td>150 150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sum</th>
<th>117 2</th>
<th>Sum</th>
<th>894 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply by</td>
<td></td>
<td>2 9 diff. between ord.</td>
<td>2 9</td>
</tr>
</tbody>
</table>

| Area | 322 2 2 |

| Divide by the sum of the ordinates | 117 2 | 2140 6 2 |

| Centre of gravity | - - | 21 0 |

| Distance of the ordinate 37 from the aft-side | - - | 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 stern-post from the aft-side of the rudder | - - | 3 5 |

**To find the centre of gravity of the plane before O, from 26, its first ordinates.**

<table>
<thead>
<tr>
<th></th>
<th>Ft.</th>
<th>Distant from 26</th>
<th>Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of 26 ordinate is</td>
<td>12 5</td>
<td>12 5</td>
<td>12 5</td>
</tr>
<tr>
<td>Whole of 22 - -</td>
<td>32 2 Mult. by</td>
<td>1 = 32 2</td>
<td>32 2</td>
</tr>
<tr>
<td>18 - -</td>
<td>36 0</td>
<td>36 0</td>
<td>0 36</td>
</tr>
<tr>
<td>14 - -</td>
<td>37 10</td>
<td>37 10</td>
<td>370 370</td>
</tr>
<tr>
<td>10 - -</td>
<td>39 2</td>
<td>39 2</td>
<td>78 78</td>
</tr>
<tr>
<td>6 - -</td>
<td>39 6</td>
<td>39 6</td>
<td>234 234</td>
</tr>
<tr>
<td>2 - -</td>
<td>39 6</td>
<td>39 6</td>
<td>234 234</td>
</tr>
<tr>
<td>(1) - -</td>
<td>39 6</td>
<td>39 6</td>
<td>234 234</td>
</tr>
<tr>
<td>B - -</td>
<td>39 4</td>
<td>39 4</td>
<td>156 156</td>
</tr>
<tr>
<td>F - -</td>
<td>38 10</td>
<td>38 10</td>
<td>380 380</td>
</tr>
<tr>
<td>K - -</td>
<td>36 0</td>
<td>36 0</td>
<td>360 360</td>
</tr>
<tr>
<td>Half of O - -</td>
<td>14 4</td>
<td>14 4</td>
<td>14 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sum</th>
<th>404 7</th>
<th>Sum</th>
<th>2267 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply by</td>
<td></td>
<td>11 0 diff. between ord.</td>
<td>11 0</td>
</tr>
</tbody>
</table>

| Area | 4450 5 |

| Divide by the sum of the ordinates | 404 7 | 44938 10 |

| Centre of gravity | - - | 61 7 2 |

| Distance of the ordinate 26 from the aft-side | - - | 37 0 |

| Centre of gravity from aft-side of the rudder | 98 7 2 |

---

### Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th>Ft.</th>
<th>Area of the after-plane 322 2 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>322 2 2 Mult. by</td>
<td>27 9 its momentum = 8941 3 4</td>
</tr>
<tr>
<td>Area of the midship-plane 4450 5</td>
<td></td>
</tr>
<tr>
<td>4450 5 Mult. by</td>
<td>98 7 2 its momentum = 438969 7 2</td>
</tr>
<tr>
<td>Area of fore-plane 331 10</td>
<td></td>
</tr>
<tr>
<td>331 10 Mult. by</td>
<td>165 3 2 its momentum = 54842 4 1</td>
</tr>
<tr>
<td>Area of rudder and poll 9 6</td>
<td></td>
</tr>
<tr>
<td>9 6 Mult. by</td>
<td>3 5 its momentum = 32 5 2</td>
</tr>
<tr>
<td>Area of the stem and knee 5 10</td>
<td></td>
</tr>
<tr>
<td>5 10 Mult. by</td>
<td>179 6 its momentum = 1047 1</td>
</tr>
</tbody>
</table>

| 5119 9 2 | Whole areas. Sum of momenta | 503831 9 2 |

---

Now 503831 9 2 in. divided by 5119 9 2 in. gives 98 ft. 4 1 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.

---

**Vol. XXXII.**
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>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 36</td>
<td>7</td>
<td>26</td>
<td>1 = 1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>6</td>
<td>2 = 3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>2</td>
<td>3 = 6</td>
<td>7 1/2</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>1</td>
<td>4 = 10</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>2</td>
<td>5 = 17</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>4</td>
<td>6 = 24</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>4</td>
<td>7 = 33</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>5</td>
<td>8 = 47</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>7</td>
<td>9 = 63</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>9</td>
<td>10 = 81</td>
<td>8</td>
</tr>
<tr>
<td>Half of 26</td>
<td>0</td>
<td>5</td>
<td>11 = 55</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td>47 4/8</td>
<td>Sum 344 11/8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiply by</td>
<td>2 9 di.</td>
<td>between ord.</td>
<td>2 9</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>130 3/8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 47 4/8 948 7/6

Centre of gravity - 20 0
Distances of the ordinate 37 from the vessel - 6 9
Centre of gravity from vessel - 26 9 1/2
Distances of the centre of gravity of the section of the rudder and stern-post from the vessel 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></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of 22</td>
<td>6</td>
<td>20</td>
<td>1 = 20</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>6</td>
<td>2 = 53</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>4</td>
<td>3 = 91</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>2</td>
<td>4 = 128</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>1</td>
<td>5 = 166</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>1</td>
<td>6 = 202</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>1</td>
<td>7 = 235</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>1</td>
<td>8 = 262</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>1</td>
<td>9 = 288</td>
<td>0</td>
</tr>
<tr>
<td>Half of O</td>
<td>8</td>
<td>6</td>
<td>10 = 265</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td>314 8</td>
<td>Sum 1806 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiply by</td>
<td>11 o di.</td>
<td>between ord.</td>
<td>11 o</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>3461 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 314 8 19866 0

Centre of gravity - 63 1/4
Distances of the ordinate 26 from the vessel - 37 0
Centre of gravity from vessel - 100 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>Whole of P</td>
<td>6</td>
<td>14</td>
<td>1 = 14</td>
<td>8</td>
</tr>
<tr>
<td>Q</td>
<td>12</td>
<td>3</td>
<td>2 = 24</td>
<td>6</td>
</tr>
<tr>
<td>R</td>
<td>9</td>
<td>8</td>
<td>3 = 29</td>
<td>0</td>
</tr>
<tr>
<td>S</td>
<td>7</td>
<td>4</td>
<td>4 = 28</td>
<td>0</td>
</tr>
<tr>
<td>T</td>
<td>4</td>
<td>4</td>
<td>5 = 21</td>
<td>8</td>
</tr>
<tr>
<td>Half of U</td>
<td>0</td>
<td>11</td>
<td>6 = 5</td>
<td>6</td>
</tr>
<tr>
<td>Sum</td>
<td>57 4</td>
<td>Sum 123 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiply by</td>
<td>2 9 di.</td>
<td>between ord.</td>
<td>2 9</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>157 8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide by the sum of the ordinates - 57 4 339 2

Centre of gravity - 5 11
Distances of the ordinate O from the vessel - 158 0
Centre of gravity from vessel - 163 1 1/2
Distances of the centre of gravity of the section of the stem and knee from the vessel - 176 0

Areas of the several planes, and their momenta.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>130 3/8</td>
<td>3487 8/8</td>
</tr>
<tr>
<td>3461 4</td>
<td>3465 6/6</td>
</tr>
<tr>
<td>157 8</td>
<td>2584 2/1</td>
</tr>
<tr>
<td>9 0</td>
<td>33 0</td>
</tr>
<tr>
<td>6 5/2</td>
<td>1137 2 1/2</td>
</tr>
<tr>
<td>3764 8 1/8</td>
<td>Whole areas. Sum of momenta 377065 10 3/8</td>
</tr>
</tbody>
</table>

Now 377065 ft. 10 3/8 in. divided by 3764 ft. 8 1/8 in. gives 100 ft. 1 1/2 in., the distance of the centre of gravity of the whole section of the first or lower horizontal water-line from the vessel 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 177 2
Multiplied by its thickness 1 6
Area of the plane 265 9
Distance of its centre of gravity from the aft-side of the rudder, being equal to half its length 88 7
Now 265 feet 9 inches, multiplied by 88 feet 7 inches, is equal to the momentum 23540 feet 1 6 inch.
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 momenta as the ordinates of a curve, whose distances 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 momenta of all the horizontal planes.

Area of the Planes.

<table>
<thead>
<tr>
<th>Plane</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of the upper</td>
<td>3860 11</td>
<td>371559 3 6</td>
</tr>
<tr>
<td>All the fourth</td>
<td>7052 3 2</td>
<td>684659 9 3</td>
</tr>
<tr>
<td>Third</td>
<td>6183 5 8</td>
<td>604606 6 0</td>
</tr>
<tr>
<td>Second</td>
<td>5119 9 2</td>
<td>503331 9 2</td>
</tr>
<tr>
<td>First</td>
<td>3704 8 6</td>
<td>377065 10 3</td>
</tr>
<tr>
<td>Half the keel</td>
<td>132 10 5</td>
<td>11770 0 2</td>
</tr>
<tr>
<td>Sum</td>
<td>26114 0 5</td>
<td>2553337 4 4</td>
</tr>
</tbody>
</table>

Now 2553337 feet 4 1 inches, divided by 26114 feet 2 3 of an inch, gives 97 feet 9 2 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 momenta; 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.

Area of the Planes.

<table>
<thead>
<tr>
<th>Plane</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half of the keel</td>
<td>132 10 5</td>
<td>132 10 5</td>
</tr>
<tr>
<td>All the lower</td>
<td>3764 8 1</td>
<td>3764 8 1</td>
</tr>
<tr>
<td>Second</td>
<td>5119 9 2</td>
<td>5119 9 2</td>
</tr>
<tr>
<td>Third</td>
<td>6183 5 8</td>
<td>6183 5 8</td>
</tr>
<tr>
<td>Fourth</td>
<td>7052 3 2</td>
<td>7052 3 2</td>
</tr>
<tr>
<td>Fifth</td>
<td>8860 11</td>
<td>8860 11</td>
</tr>
<tr>
<td>Sum</td>
<td>26114 0 5</td>
<td>26114 0 5</td>
</tr>
</tbody>
</table>

Now 26114 feet 0 5 inches, divided by 8860 feet 0 1 6 of an inch, gives 3 feet 2 3 of an inch; which, multiplied by 3.6 feet, the distance between the horizontal sections, gives 11 feet 4 6 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 9 3 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 afterbody. It may now be ascertained whether the ship will be in her natural position when floating at the upper horizontal line, or constructed to fail 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 abaft 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\(\frac{1}{2}\) in. abait Frame 2.

<table>
<thead>
<tr>
<th>Water-lines.</th>
<th>Water-lines and Keel.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper.</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 1</td>
</tr>
<tr>
<td></td>
<td>241 5</td>
</tr>
<tr>
<td></td>
<td>11 0</td>
</tr>
<tr>
<td></td>
<td>12655</td>
</tr>
<tr>
<td></td>
<td>870 10</td>
</tr>
<tr>
<td>Areas before O</td>
<td>3 0</td>
</tr>
<tr>
<td>Areas</td>
<td>3529 5</td>
</tr>
</tbody>
</table>

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. afore Frame 6.

<table>
<thead>
<tr>
<th>Water-lines.</th>
<th>Water-lines and Keel.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper.</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 7</td>
</tr>
<tr>
<td>22</td>
<td>45 11</td>
</tr>
<tr>
<td>Half of 26</td>
<td>21 10</td>
</tr>
<tr>
<td></td>
<td>236 8</td>
</tr>
<tr>
<td></td>
<td>11 0</td>
</tr>
<tr>
<td></td>
<td>2603 4</td>
</tr>
<tr>
<td>Areas abaft</td>
<td>10 10</td>
</tr>
<tr>
<td></td>
<td>3657 1</td>
</tr>
</tbody>
</table>

Solidity of keel abaft centre 293 |
Solid feet displaced abaft the centre of support 46777.2177 |
Solid feet displaced before the centre of support 47760.5401 |
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 983.324 feet, its contents being 983.324 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 491.6612 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 rising forward to a sea, and also to enable her to scud.

In regard to the failing 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 as much as the effort of the wind on the sails and masts in forcing the ship through the water has a conflagrant tendency to deprefs the bow, so must ship be trimmed by the stern, as that will be found most advantageous both to their failing and creering.

Many think it inconsistent to construct a ship to fail on an even keel, and yet to place the midship-bend or greatest breadth very forward. A ship so intended to fail, ought, as they conceive, when launched, to have an equal bearing fore and aft, in order that, before the ballast is lowered, the may be on an even keel; and they think that the ballast, if not placed equally fore and aft, must inevitably lrain the crew 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 faster on an even keel, and receive little or no damage if carefully rowed.

Some ships are too clean abaat, 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 tumeble, till the next sea, with redoubled force, strike the buttock as the stern is falling, and to 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 may 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 abaat, 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 aft-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 pressure 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 best on an even keel, although many of them were designed by the constructor to fail by the stern. Ending the result rather in favour of an even keel, the 74, Plate 1., was so constructed, as most likely to answer every purpose.

By that means the water-lines were drawn parallel to the keel, 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 ribband-lines, or any other fection, 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 ribband-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 ribband-lines; for many ships are contrived by ribband-lines only, which seem to produce fair curves, yet forward, and aft especially, they make a very unfair body, which is detrimental to velocity.

Small vessels, as cutters, &c. drawn much more water aft than forward, and their bows are more full in proportion to the after-part; nor would it answer fo well were their line of floatation nearly parallel with the keel, but spreading as it does aloof, especially towards their bow, the bow meets the fluid in a more planing direction, and experiences far less resistance; and the depression of the stern, with the impulfe of the after-mast 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 these vessels is generally very clean or tapering, which necessarily contributes to make the vessel weatherly, and caufes 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 fail; but when a ship is very deep in the water, it will greatly increase the resistence, 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, she will therefore fail faster. The resistence, however, must be calculated, not absolutely, but relatively, and in proportion to the fail she spreads.

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 six 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 so exactly to 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 1. load-water-line, when fitted for sea, was 20 feet forward and 21 feet abaft; therefore it only remains to be certain whether the whole displacement of the bottom under the load-water-line agrees with the ellimated 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 folowing operation.
SHIP-BUILDING.

Area of the Load-Water-Line.

<table>
<thead>
<tr>
<th>Half of the item</th>
<th>Ft.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole of ordinate</td>
<td>36</td>
<td>4\frac{1}{2}</td>
</tr>
<tr>
<td>Half of ordinate</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Area of the knee</td>
<td>319</td>
<td>9</td>
</tr>
<tr>
<td>Area of the load-water-line is</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mean area</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Multiplied by mean depth</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gives solid feet</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Which multiplied by pounds in a cubic foot of salt-water</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gives</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of pounds displaced below upper horizontal line</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Divide by pounds in a ton</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total displacement of the ship under the load-water-line</td>
<td>2829 tons 175 lbs.</td>
<td></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 falling trim, but the displacement also agrees with the ellipsoid weight of the whole ship when fit for sea, which was 2810 tons 745 lbs., or exceeds it by 18 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 admeneuments; 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 so essential to the safety of navigation as to cause that which a ship is totally disqualified 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 immerged 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 endeavour 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 endeavours 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 immerged part, which forces them towards the surface; so also in any immerged 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 presses upwards, by the fluid with a force equal to its weight, or presses 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 immerged, it of course varies with every inclination of a ship; and whilst the centre of gravity goes farther, 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 gravity.
cavity 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 acting force or power ceases which occasioned the vessel to heel.

The line of support is the vertical or perpendicular line supposing the vessel 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 must pass 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 refretted, as the power and weight operate to that effect; and if the moments 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, there is 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 shifting centre, depends upon the position of the centre of gravity, for it is that point where a vertical line drawn from the centre of gravity intersects 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 press it vertically, or directly downwards towards the centre of the earth.

The lower the centre of gravity is placed, the farther it is 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 desired, 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, passing athwartships 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 in motion may be supposed to turn. In rolling, the ship may be supposed to oscillate on the longitudinal axis; in pitching, on the transverse axis; and in working, &c., to turn on her vertical axis.

From constantly observing that the performance of ships at sea depends materially on their stability, both naval architects and navigators must, at all times, be deligous of discovering in what particular circumstances of construction this property conflicts, and according to what laws the stability is affected by any varieties that may be given to their forms, dimensions, and disposition of contents; which are determined, partly according to the skill and judgment of the constructor, and partly, in some vessels, as we shall show, by adjustments after the vessel is afloat.

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 crank, and, of consequence, the lighter the upper works the stiffer the ship.

Contractors may vary the form of a ship chiefly in three dimensions, that is, in the length, breadth, or depth: let us examine how far enlarging of ships, in any of these particulars, will contribute toward making them more stable or, in other words, gain stability; for although the wind may, in one sense, be laid 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 is, therefore, 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, were enlarged, the centre of gravity and the meta-centre will continue the same height, and her stability 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, consequentlily sail faster, it must not be carried to an extreme; because if so constructed, a ship would neither tack nor veer to quickly; neither would the launch 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 breadth; for, supposing the bottom homogeneous, then, if the increase of weight, and of consequent stability, will be double the increase of the breadth, and atly, 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 will
will be increased in proportion to the cube of the breadth; for example, without altering the other dimensions, let the breadths be doubled, we thereby double the weight, which, by acting upon the arm of a lever, double the length will be quadrupled, so 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 fitness than one that is narrow and deep; but the failing of the ship may be much retarded, as the certainly would be leewardly under little fail, 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 enlarging either the length or breadth, all the stability that can be gained will be in the stowage. To increase the depth or draught of water would lower the centre of gravity, and increase the weight; this would operate against velocity, because the resistance is as the quantity of water to be removed; or nearly as the area of the thwartship section of the immeasurable part of the body at the midship-bend. It would at the same time render the immeasurable 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 fall faster than others, which, in order to carry the fame quantity of fail, require to be ballasted with a much greater weight; for the latter, so 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 stowage, 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 stowage.

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 stowage 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 stability, 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 straitly, 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 hove 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 eflays 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 stowage 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 re-loaded 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 flotation; by this means 132 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, decrasing to four inches length and depthways."

M. de Romme very judiciously observes, that the defect of instability was not so much owing to a want of extreme breadth, as several other 74-gun ships had had the fame, or even less, but in diminishing the breadth at the plane of flotation too quickly forward and aft, which at once lessened the capacity and position of the line of support.

A French 36-pounder weight, with carriage, &c. 4½ French tons, and their increased length caușes their centres of gravity, when run out, to be removed 4½ feet; so that the moment produced by running out the lower-deck guns of a French 74, the opposite side housed, is more than doubled the moment for an English 74, in the same circumstances.

It is certain this change of place in the centre of gravity, which lowered it nearly five inches, must have contributed to increase the stability, and have occasioned nearly a difference of three inches in the greatest inclination; but as the experiment where the men are stationed at quarters is liable to such irregularity, an error of this magnitude is to be accounted for from the men running to the side, to mark more strongly the defect of a bad ship.

Secondly, the stability of many ships, however perfect in the construction, may be materially injured by an improper trim, or an injudicious mode of stowage; for was the centre of gravity raised too high by the weightier part of the cargo being placed uppermost, the ship would not only be rendered incapable of carrying a sufficient quantity of fail, but in danger of being overfet; and was the cargo lead, or any other such weighty body, and placed too low in the hold, the centre of gravity would consequently be so lowered as to endanger the ship's rolling away her masts. When a ship is so loaded, as that her centre of gravity is carried too far forward, the ship will pitch and labour heavily; and when too far off, the will occasionally be exposed to the dangerous circumstances of a pooping sea, &c.

As it is of the utmost importance to the well-being of a ship to ascertain its stability, the greatest attention must be given, in the construction, to the finding of the exact distance, between the meta-centre and centre of gravity, that every ship requires, according to her form; the maximum of which is, that the ship shall not, by the length of lever, either become too stiff, or be subject to sudden motion or rolling; nor, on the contrary, from the lever's being too short, the vessel is unable to carry fail. Therefore, in the construction, to ascertain the height of the meta-centre above the centre of gravity of the immeasurable part of the bottom, the half section of the load-water-line must be taken as was divided to find the displacement. Then the sum of the cubes of the half sections, or ordinates, is to be multiplied by the distance between them, and by the product
SHIP-BUILDING.

product are to be divided by the immered part of the bottom of the ship. It is hence evident, that while the section at the water-line is the same, and the volume of the immered 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.

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<tr>
<td>27</td>
<td>21.62</td>
<td>10084.09</td>
<td>28</td>
<td>21.25</td>
<td>9595.70</td>
</tr>
<tr>
<td>31</td>
<td>19.75</td>
<td>7793.73</td>
<td>32</td>
<td>19.09</td>
<td>6956.93</td>
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<tr>
<td>35</td>
<td>15.03</td>
<td>3395.57</td>
<td>36</td>
<td>11.68</td>
<td>1595.38</td>
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<tr>
<td>0.704</td>
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$x$ by distance between the ordinates $\frac{2.75}{168942.64}$

$\times$ by distance between the ordinates $\frac{11.0}{52630.02}$

$\times$ by distance between the ordinates $\frac{2.75}{144732.55}$

Sum $186195.35$

Sum $1858369.04$

Sum of the products $2189296.94$

Cubic feet of salt-water displaced by the bottom $98436.07$ $145931.29$ ($14$ ft. $9\frac{1}{2}$ in.)

The above operation gives $14$ feet $9\frac{1}{2}$ inches, the height of the meta-centre above the centre of gravity of the immered 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 stability of the following ships of war, by heeling them with their lower-deck guns out on one side, and housed on the other; and afterwards with their men at quarters, the guns remaining as above.

| Formidable, | Barfleur, | Brunswick, | Bedford, | Bombay Cattle, |
| 99 guns. | 98 guns. | 74 guns. | 74 guns. | 74 guns. |
| Fr. | Fr. | Fr. | Fr. | Fr. | Fr. |
| 22 | 23 | 20 | 21 | 21 | 21 |
| 3 | 3 | 4 | 3 | 0 | 0 |
| 5 | 6 | 4 | 6 | 2 | 5 |
| 0 | 3 | 0 | 3 | Not mentioned | 0 |
| 2 | 12 | 1 | 10 | 11 | 1 |
As the inclinations of the Brunswick and Bedford are omitted in the first experiment, we shall only compare the relative liability of the other three ships, which are quite sufficient to explain every thing 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 1.

The estimated weight or displacement of Formidable 3150 Tons.

or Barfleur 3360 Tons.

the Bombay Castle 2700 Tons.

The difference of the draught of water of the Formidable and Barfleur, 14 1/2 inches, gives at least 210 tons difference in the weight. Both ships have similar dimensions nearly, and are supported on an even keel.

These three ships have the fame number and weight of guns on the lower gun-deck; therefore the moment of the guns, whether quite exact or not, does not signify, as any error will not have a partial influence. We suppose each gun and carriage together to weigh three tons, and allow three feet removal when the gun is run out; and as there are 14 guns run out in each ship, the equal moments for them are 3 x 14, or 126 tons at three feet; the weight on one side the balance is 42 tons, at three feet distance from the support, and on the other, in the Formidable, 3150 tons, at 48 hundredths of an inch (less than half an inch), which will be found to balance 42 tons at three feet:—for the Barfleur 3360 tons, at 45 hundredths of an inch, which will balance 42 tons at three feet; for the Bombay Castle 2700 tons, at 56 hundredths of an inch, which will balance 42 tons at three feet.

Having found the distance each centre of gravity is separated from the line of support, which is in these small inclinations the fame as the line of the angle; the colline, or distance of the centre of gravity from the meta-centre, is easily known, and will be found to be, for the

Formidable’s centre of gravity Barfleur’s Bombay Castle’s
below the meta-centre 3 5½ 3 9½ 4 5½

When the Formidable and Barfleur were farther inclined by the men at quarters, the Barfleur continued to have one-seventh more liability than the Formidable; which proves that the Formidable’s centre of gravity was above the line of floatation; for otherwise, if her imbedded body was better calculated to separate the line of support from the centre of gravity than the Barfleur’s, she would have inclined less proportionably, if the centre of gravity had not acted against her liability: 100 tons of iron ballast at the keelson would have only increased her draught of water six inches, and have given her more liability than the Barfleur, leaving her the advantage of six inches more height for her ports, and nearly 34 feet square less resitance at her mid-ship-bend. Thus it is demonstrable, that those ships should have no more shingle ballast than is necessary for the ground tier, and should have above 200 tons of iron; nor would there be any danger of their being labourfome, as their centre of gravity would be at the line of floatation or load-water-line. The same regulation should prevail with the first-rates.

The Bombay Castle is certainly stiff enough, yet no doubt her lower deck might have been placed six inches higher without any detriment whatever to the ship, and her ports would of consequence have been at a reasonable height from the water.

In Plate 1, we find, by the preceding calculations, that the centre of gravity of the imbedded part of the bottom was above the under side of

<table>
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<th>Fr.</th>
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<tr>
<td>The keel</td>
<td>11 0½</td>
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<tr>
<td>The meta-centre above the said centre of gravity</td>
<td>14 9½</td>
</tr>
<tr>
<td>And the centre of gravity is four inches above the load-water-line at the centre of cavity</td>
<td>20 10½</td>
</tr>
<tr>
<td>which makes it</td>
<td>-</td>
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</table>

Centre of gravity below the meta-centre 5 0

Which we find exceeds the Bombay Castle’s; and the ports in Plate 1 are five feet eight inches above the water.

By the above experiment we observe, that the guns being run out on one side and hauled on the other, inclined the ship to a certain point, and at the same time there was an exact equilibrium between the momentum 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 likewise 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 liability; 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 be in that very point we propose.

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 fensible horizon of the sea may be used, or, what is much better, a plumb-line fastened to the head of the mast, taking its distance from the heel of the mast, both when the ship is upright, and likewise when the heels. The plumb-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 plumb-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 1., 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 Castle of 74 guns and 2700 tons, in estimating
estimating the weight or displacement, it was found, that 56
hundredths of an inch balanced 42 tons at three feet; and
it will be found by the following operation, that 53.445
hundredths of an inch in Plate I. will balance 42 tons at
three feet, Plate I., displacement 2829.4 tons 175 lbs. =
2829.078 x 53.445 = 1512000 ÷ 1200 = 126.

We now find that the distance of the centre of gravity is
removed from the line of support 53.445 hundredths of an
inch. After this, it will be easy to discover how far the
centre of gravity is from the meta-centre, since there will
be the same proportion betwixt the distance of the plumb-
line from the heel of the mast, and the height of the mast,
that there is betwixt the distance of the centre of gravity
from the line of support. Thus, the length of the mast is
113 feet which multiplied by 53.445 = 5985.8 ÷ 1200 =
4 ft. 113 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 feast in the water, when best
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 diffi-
culty, as preceding displacement, &c.

It is of importance, because it is by this that the mer-
chant or freighter 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,
because 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
fain 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 contractor
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 paying in less breadth
and great depth, which make against stability, and conse-
quentially 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-
reme, are exceedingly injurious to the construction of
vessels.

The General Rules observed 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 another perpendicular from the aft-side of
the main-poil, at the height of the wing-tranfmom. In mer-
chant-ships, the foremost perpendicular is let fall from the
fore-side of the item, at the height of the wing-tranfmom.
From the length between these perpendiculars, deduct three-
thirds of the extreme breadth, (that is the thickness of the
bottom plank on each side added to the moulded-breadth),
and likewise as many 2½ inches as the wing-tranfmom is above
the upper edge of the keel, and the remainder is reckoned
the length of the keel for tonnage.

Then multiply the length of the keel for tonnage by
the extreme breadth, and that product by half the extreme
breadth; then dividing by 94, the quotient will be the
burthen, in what may be denominated builder's tonnage.

Calculation of the burthen in tons of the 74-gun ship.
Plate I., according to the common rule.

| Length from the fore-side of the item, at | 182 | Ft. |
| the height of the upper deck, to the |       | In. |
| aft-side of the main-poil, at the height |       |     |
| of the upper side of the wing-tranfmom |       |     |

| Three-fifths of the extreme | 29 2½ |
| breadth |       |
| The height of the wing- | 5 6½ |
| tranfmom is 26 ft. 10 in., |       |
| which produces for every |       |
| 2½ inches |       |

| 34 9½ | 34 9½ |
|       |       |
| Length of the keel for tonnage | 148 0 |
| Multiplied by the extreme breadth | 48 8 |
| Multiplied by half the extreme breadth | 7203 8 |
| Divided by 94 | 24 4 |
| Burthen in tons, according to the | 175248 0 |
| common rule |       |

Estimate, shewing the real burthen of the 74-gun ship,
Plate I.

| The weight of the ship at the launching | 1377 2198 |
| dragnet of water |       |
| The weight of the furniture, including | 204 1040 |
| the sheathing |       |
| The weight of the ship at her light | 1582 998 |
| water-mark |       |
| The weight of the ship at the load water- | 2829 175 |
| mark |       |
| From which deduct the weight at the | 1582 998 |
| light water-mark |       |
| Real burthen | 1246 1417 |
| Burthen in tons, according to the com- | 1864 762 |
| mon rule |       |
| Difference | 617 1585 |

By the above it may be readily seen, that the 74-gun
ship (Plate I.) will not carry the number of tons the is
rated for, by 617 tons 1585 lbs.; and hence the im-
propriety of such a rule being made general, as it will always
be found greatly to increase the tonnage of sharp-built
vessels; 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 those vessels,
as well as to ships of war.

Calculation
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-tranfsom, to the aft-side of the
main-poll, at the said height of wing-
tranfsom, is

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<th>Feet.</th>
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Three-fifths of the extreme
breath is

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<td>22.6998</td>
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The height of the wing-
tranfsom is 24 feet, which
produces for every 2½
inches

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<th>Feet.</th>
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<td>27.6998</td>
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Length of the keel for tonnage

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<tr>
<th>Feet.</th>
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<td>131.3</td>
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Multiplied by the extreme breadth

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<td>37.8333</td>
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Multiplied by half the extreme breadth

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<th>Feet.</th>
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<tbody>
<tr>
<td>4967.5122</td>
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Divided by 94

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<th>Feet.</th>
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<tr>
<td>18.9166</td>
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Burthen in tons, according to the com-
mon rule

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<tr>
<th>Feet.</th>
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<td>93968.</td>
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Estimote, fhewing the real burthen of the East India
ship, Plate XII.

<table>
<thead>
<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tr>
<td>748</td>
<td>1071</td>
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The weight of the ship at the launching

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<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tr>
<td>62</td>
<td>1782</td>
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The weight of the furniture, including
the fhathing

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<thead>
<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tr>
<td>811</td>
<td>613</td>
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</table>

The weight of the ship at her light
water-mark

<table>
<thead>
<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tr>
<td>2029</td>
<td>597</td>
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The weight of the ship at her load-water-
mark

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<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tbody>
<tr>
<td>811</td>
<td>613</td>
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From which deduct her weight at the
light-water-mark

<table>
<thead>
<tr>
<th>Tons.</th>
<th>lbs.</th>
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<tr>
<td>1217</td>
<td>2224</td>
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Real burthen

<table>
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<th>Tons.</th>
<th>lbs.</th>
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<td>999.477</td>
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Burthen in tons, according to the com-
mon rule, as above

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<thead>
<tr>
<th>Tons.</th>
<th>lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>218</td>
<td>747</td>
</tr>
</tbody>
</table>

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 confequence of her body
being formed to full; and the greater the contrail between
full and sharp bodies, the greater will be the error in the
tonnage call by this rule; which fhews the imprefriority of
the erroneous method perfcribed for calning a ship's
tonnage.

Hence it is obvious, that no dependence can be placed
on the common rules for acertaining the true ton-
nage of veffels. Indeed we neither have, nor expect to
have, any rule that shall be quite exact; because the ton-
nage depends not only upon the cubical dimensions of the
ship's bottom, but also on the weight and leaunting of her
whole frame. For instance, a ship built at Archangel of
fir, will carry considerably more than another of the fame
plan in every repect, built at the Havannah of live oak;
nor is there a greater difference in some fhips, when
the weight of every thing which properly makes a part of
the ship, as to the falling; &c. &c. is considered. We must,
therefore, be contented with the rule that approximates nearer
to the truth; and this is the following, propounded by the
late Mr. Parkyns, of Chatham-yard.

Rule 1. For sharp fhips, particularly those of the royal
navy.

1st. Take the length on the gun-deck, from the rabbet
of the stem to the rabbet of the flern-poll, or between the
perpendiculars. Then take 4/5ths 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
2/3d of this sum, and call it the depth for tonnage.

3dly. Set up this depth from the limber-flake; and, at that
height, take a breadth also from out to out fide of the plank
at dead-flat; and another breadth between that and the
limber-flake; and together the extreme breadth and the
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 produc of 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 accu-
rcy 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>1309</td>
<td>1141</td>
<td>965</td>
</tr>
<tr>
<td>Adamant</td>
<td>50</td>
<td>1044</td>
<td>870</td>
<td>866</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 fhips of burthen, or commercial fhips in
general.

1st. Take the length of the lower deck, from the rabbet
of the stem to the rabbet of the flern-poll. Then take 4/5ths
of this length, and call it the keel for tonnage.

2dly. To the extreme breadth add the length of the
lower deck. Then take 2/3d of this sum, and call it the
depth for tonnage.

3dly. Set up this depth from the limber-flake; and, at
that height, take a breadth also from out to out fide 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 produc of 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, fhew that this
rule does not deviate much from the truth.

Granby,
SHIP-BUILDING.

<table>
<thead>
<tr>
<th>Ship</th>
<th>Tonnage by the King's or common Rule</th>
<th>Tonnage by Mr. Parkyn's Rule</th>
<th>Tonnage actually received on board.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granby, East India</td>
<td>786</td>
<td>1179</td>
<td>1179</td>
</tr>
<tr>
<td>Northington, do.</td>
<td>676</td>
<td>1053</td>
<td>1064</td>
</tr>
<tr>
<td>Union, a collier</td>
<td>193</td>
<td>266</td>
<td>289</td>
</tr>
<tr>
<td>Friends Goodwill, do.</td>
<td>182</td>
<td>254</td>
<td>277</td>
</tr>
</tbody>
</table>

The general rule for calculating the loading 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-figm, 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 propelid.

In order to construct this 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 ship (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 so marked in Plate XIV.; and another to represent feet and inches, as that below it. The larger thefe scales, the more exact will be the performance.

<table>
<thead>
<tr>
<th>Water-Lines, &amp;c.</th>
<th>Height.</th>
<th>Water displaced in</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</td>
<td>7254.88</td>
</tr>
<tr>
<td>Between the first and second water-lines</td>
<td>5.6 = D</td>
<td>7786.38</td>
</tr>
<tr>
<td>Between the second and third water-lines</td>
<td>3.6</td>
<td>15902.156</td>
</tr>
<tr>
<td>Between the third and fourth water-lines</td>
<td>9.2 = E</td>
<td>23778.537</td>
</tr>
<tr>
<td>Between the fourth and fifth water-lines</td>
<td>3.6</td>
<td>20345.850</td>
</tr>
<tr>
<td>Between the fifth and sixth water-lines</td>
<td>12.8 = F</td>
<td>44124.387</td>
</tr>
<tr>
<td>Between the sixth and seventh water-lines</td>
<td>3.6</td>
<td>23824.350</td>
</tr>
<tr>
<td>Between the seventh and eighth water-lines</td>
<td>16.4 = G</td>
<td>67948.737</td>
</tr>
<tr>
<td>Between the eighth and ninth water-lines</td>
<td>3.6</td>
<td>26593.425</td>
</tr>
<tr>
<td>Between the ninth and tenth water-lines</td>
<td>20.0 = H</td>
<td>94542.162</td>
</tr>
</tbody>
</table>

Now let 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, let off, from the perpendicular A H, 15 tons 615 lbs., taken from the scale of tons, equal to C C. Upon the line D, or lower water-line, let off 223 tons, 1728 lbs. equal to D d. Upon the line E, or second water-line, let off 683 tons 823 lbs. equal to E e. In like manner, let off the other tonnages upon their correpsonding water-lines: then through the points C c, D d, E e, F f, G g, H 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 flake. 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 I i. 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 ship, at her launching draught of water, was 1377 tons 2108 lbs., which exceeds the above by 172 tons 1162 lbs.; but that
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may be easily accounted for, by the weight of anchors, cables, men, ballast, &c. as additional weight in the ship at that time. Take 1577 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 base; whence square up the perpendicular K L, to intersect the curve of displacement. That depth we find by the scale of feet to be 13 feet 4 inches, 2 difference of 11 inches, accounted for as above.

Now to prove the real burthen of the ship by this scale of displacement, we have found, by the estimate, 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 burthen, as before thrown 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 abaft.

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 burthen 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 63, from thence drop the perpendicular O a. Take the distance 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 her 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 reversed 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, suppose 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 a straight line, drawn from the middle line of the item to that of the stern-pole. 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 homogenee, they will then be of equal weight. A plane passing through these three lines, whatever part of the middle line the hook be in, will likewise pass through the middle line of the keel, stem, and pole; therefore, if the model stands this proof, it will be as true to work from as the nicest calculations.

The model, having flood 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 item and pole 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 left 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 pole and item; 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, item, and pole, 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
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face of the water is exactly at the light water-line; and let it be suspended until the water drains off, and then weighed. Now, since the weights of similar bodies are in a triplicate ratio, or as the cubes of their homologous 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 36 inches,) or 110592, which will give the weight of the ship. If the multiplier be ounces, the product will be ounces; if pounds, it will be pounds: and it is to be reduced to tons accordingly.

Example.—Suppose the weight of a model of the 74 (Plate I.) 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 3341560 lbs. = 1582 tons 880 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 Efforts of the Water to bend the Vessel.

Here we can do no better than quote Wattom's translation of Euler upon the Théorie, &c. des Vaillieux; 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 immerged 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 sufficing 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 it's middle will obey the forces C c and D d, whilst its extremities will be actually drawn downwards by the forces A a and B b.

The vessel is generally found in such a situation; and since similar efforts continually act, whilst the vessel is immerger in the water, it happens but too often that the knee experiences the bad effect of a strain. It is, therefore, very important to inquire into the true cause of the accident.

For this purpose, let us conceive the vessel divided into two 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 immerged part, Q, 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 immerged part corresponding. In the same manner, let y be the centre of gravity of the whole stern part, and w that of its immediate portion.

Now it is plain that the head will be acted upon by the two forces g m and o n, of which the first will press it down, and the latter push it up. In the same manner, the stern will be pressed down by the force y u, and pushed up by the force w y v; but these four forces will maintain themselves in equilibrium, as well as the total forces reunited in the points G and O, which are equivalent to them; but whilst neither the forces before nor those abait fall in the same direction, the vessel will evidently fulfill efforts tending to bend the keel upwards (called hogging) if the two points o, w, are nearer the middle than the two other forces g m and y u. A contrary effect would happen if the points o and w were more distant from the middle than from the points g and y v, called sagging.

But the first of these 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 thence we fee, 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 immerger a greater hollow towards the head and stern, such an effect would no longer be feared; but the declination 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 disalter.

Having now investigated the centre of gravity of the displacement, meta-centre, and centre 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 sheerc-draught.

To complete the Construction of the Sheerc-draught, Plate I.

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 sheerc-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 foremoast-perpendicular set 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 seeps are drawn by thin veneers of pear-tree wood, called sweep-woods, drawn from a long radius on purpose, or by a drawing-bow.) Now set 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 described at the middle line in the sheerc-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, along the
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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 upper 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 rabbit 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:

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 point, the upper part of the stern-timber will be shewn at the middle line, by which the rake of the stern will be described.

As the stern rounds two ways, both up and aft, (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, by 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 at 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 tacked 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 figure 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 item 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, to 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, 13 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 the side, and that will be the rake of the side 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 represented.

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 2, and above that 2 1/2 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, to that the half-breadth in midships at the height of the gun-deck may be set off on each side of the line. 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 last line to the round-up in the middle is what the beam rounds at that place: thus may the round-up be taken at as many timbers as may be found necessary, and set below the side of the deck, at its respective timber in the sheer-plan; then a curved line passing through those spots, will represent the deck at the side but observe, that the decks are to have a sufficient round about, 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 letting up its height in the sheer-plan above in midships, and abaft: thus, at timber X forwards, 37 feet 8 inches; at midships, 35 feet 4 inches; and at the stern-timber abaft, 41 feet 6 inches; then, by drawing a curve through those 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 thickness 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 plank to the upper side of the lower fills, 2 feet 8 inches deep, and 3 feet 5 inches fore and aft, or from the fore to the after fills, which may now be squared up between the lines last drawn; placing the fore-side of the foremost port 1 foot 5 inches abaft timber X, and 3 feet 1 inch only off athwartship line; the aft-side of the after-port to be 14 inches abaft timber 32, and the fore-side 3 feet 5 inches fore it, or in the clear; and the remaining 13 to be 7 feet 7 inches slunder. In the same manner draw in the upper deck ports, which
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which are from the planks to the port-half 1 foot 11 inches, 2 feet 8 inches deep, and fore and aft 3 feet; and are to be placed equally between and over the gun-deck ports, as circumstances will admit, as shewn in the fore-forecastle, Plate 1. The ports on the quarter-deck, round-housetop, and forecastle, must be placed hereafter where there is a vacancy between the dead-eyes to admit of them, observing 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-housetop being drawn, draw a line parallel to the top timber-line, and another line three inches above it, which is the thickness of the planks upper; corresponding with the fore part of the round-housetop, so as to make both planks water and set the same, so will the extreme height of the top-sides be obtained abaft: the plank-shelf, which completes 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 ganway or fore part of the quarter-deck.

The drift-rail may now be drawn, the side of which is two feet ten inches above the top timber-line, and parallel thereto from the hinge of the plank-shelf at the main-mast to the quarter-galleria. The drift-rail is four and a half inches deep, and drawn parallel to the under side last drawn, and hances as the plank-shelf abreast the main-mast, and stops with a scroll upon the foresheet at the ganway. The sheet-rail may next be drawn: it is six inches deep, and parallel to the top timber-line from the cat-head to the quarter-galleria. The plank-shelf and sheet-rail at the fore part of the ship delineate the height of the top-side there below: the under side of the plank-shelf 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 forecastle, but in other respects the same as those at the quarter-deck.

It is the practice in the navy of late years, to have square drifts 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, flem, head, rails, &c.

Proceed to represent the main wales by setting up their lower edge, at the rabbit of the flem or fore part, above the upper edge of the keel 22 feet 6 inches, in midship or dead-flat 18 feet 8 inches, and at timber 34, 23 feet, and draw the curve as in sheet-rail, 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, let up as before, at the rabbit of the flem 30 feet 2 inches, in midship 27 feet 3 inches, and at timber 34, 31 feet 6 inches. Set up their breadth 3 feet, and draw curves as in sheet-rail, Plate 1.

The wait-rail may now be 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 from 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 main-mast 21 feet 4 inches abaft the aft-side of the flem, or half its diameter before the one-third of the length on the gun-deck: the centre of the main-mast 101 feet 4 inches abaft the aft-side of the flem, or half its diameter before the five-ninths of the length of the gun-deck; and the centre of the mizen-mast 27 feet before the rabbit of the flem-mast, or half its diameter before the one-seventh of the length of the gun-deck. The centre being fixed, the fore-mast rakes 49 or inclines from a perpendicular with the keel one-eighth of an inch in every yard of its length; the main-mast rakes 49 one inch in every yard in the length; and the mizen-mast one inch and a half in every yard of its length, as drawn in the fore-forecastle, Plate 1.

Now draw the channels, placing their upper edges next the side in a line with the upper edge of the sheet-rail; or, which is much better, since the rails on the side are discontinued, rather lower down, clear of the beam. The fore channel to be 36 feet long, and so placed as to take the anchor-lining and bill-board for flowing the anchor at its end, thus: get the length of the anchor to the bill, or extent of the arm, and allow for the cat-block; then with that distance sweep upwards from the channel to the channel, from the outer end of the cat-head nearly, and the curve that the bill of the anchor is supposed to make, will give the middle of the line: the aft-side from the channel may be perpendicular, and the fore part follow the curve made by the anchor. The bill-board may then be carried upwards from the upper side of the channel to the top of the side. The anchor-lining commences at the upper side of the boltler, which rests on the channel-wale, and is long enough at the fore part for a man to land upon.

The main channel is 29 feet 6 inches long, placed in the same range as the fore channel, and its fore-end before the centre of the main about six inches.

The mizen channel is 16 feet 4 inches long, placed like the former, but is more convenient when placed, as it now is, above the quarter-deck ports.

The dead-eyes may now be drawn, observing to place them in such a manner that the chains may be sufficiently clear of the ports. All the preventer-plates must be so placed on the channel-wales, and of such a length, that the centre of the chain-bolt may come about six inches below the upper edge, and the preventer-bolt about four inches above the lower edge of the channel-wales. The dead-eyes in the main and fore channels are sixteen inches in diameter, and eleven in number in the fore and twelve in the main, though lately another is added in each. In the mizen are seven, of eleven inches diameter; the centre of the foremost dead-eye is placed at or just abaft the centre of the mast, and the centres of the others are spaced so as to clear each other about three inches, which will admit of four dead-eyes between each port. It must also be observed to give each of the chain and preventer-plates a proper rake; that is, to let them range in the direction of the shrouds, which may be done in the following manner: draw a pencil line upwards at the centre of each mast, upon which set off its length to the lower part of the head; then, by drawing straight lines from that height, through the centre of each dead-eye, the direction of each chain will be obtained by the direction of its corresponding line. The dead-eyes for the backstays are to be similar to the former, that it need only be observed, that for the raking of them, the height of the top-mast to its head must be added to the lower half, and that they are fixed at the after-end of the channel, or on foot, if need be, above the channels, as in sheet-rail, Plate 1.

The quarter-deck and forecastle ports can now be determined, as they must be placed clear of the shrouds, and equally alined, or nearly so, as circumstances will admit: thus, there are three on each side on the forecastle, made by
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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 thonce-painter. On the quarter-deck are seven ports of a side, and four on the round-houle, placed as clear as possible of the shrouds, as shewn in sheer-plan, Plate I.

The cheek-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-malt, and drawn from the top of the side down to the upper edge of the channel-wale.

The leps on the side may next be drawn: they must be placed at the fore part of the main drift or gangway, about three feet in length, six inches aluder in the clear, and five inches deep; the upper lep to be eleven inches from the top of the side, continuing the others to the upper edge of the wale.

To complete the sheer-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 beak-head 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 beak-head, and the perpendicular continued up to the rail above the forecaftle, represents the fore part of the beak-head, and will likewise determine the foremost end of the forecaftle. Since Plate I. has been engraved, the beak-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 beakhead 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 5 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 bowprit must be drawn, thus: set off 4 feet 6 inches at the side of the item, above the upper deck, for its middle line, and five or forty that line 5 inches or 5½ inches above an horizontal in every foot forward; then set off 1 foot ½ inches above and below this middle line, and draw lines parallel thereto, and the bowprit will be represented in the sheer-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 bowprit, which should pass the under side of the foremost upper beam, and lep 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 checks are next to be drawn: set up the height of the lower cheek, which is 25 feet at its under side, above the rabbet of the keel, and draw the after-end to the heeak, and the fore part with a handiome flight, so 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 heeak, and the fore part with more flight than the lower cheek, so as to make a handiome 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 upper side of the upper rail, and draw the bag of it, or the part immediately before the item, nearly horizontal, or to the sheek of the flat of the beak-head, it agreeing to that height. The fore-end should curve upwards, so as to appear parallel with the upper cheek, or nearly so; and to form the after-end, draw a curve from the bag to break in fair with the beak-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, set 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 sheek, 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 beakhead 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 forecaftle, 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 cheek, and runs in a handiome serpentine 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 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 bowprit, as before observed.

The head-timbers may now be drawn, placing the item-timber its thickness, which is 7 inches, before the item, and to hand 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 hand parallel to the item-timber, or rake half its thickness at leaft, 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 Reeping 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 there 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 fet off from the above spaces, which moulding depth is ½ 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, so 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 say on the plank of the forecaftle at the side; the upper side may be drawn parallel to the under side at 1 foot ½ inches, its depth: the knee or supportor under the cat-head forms a fair curve to the after-end of the upper middle rail, as in sheer-draught, Plate I. The knee or supportor under the cat-head lately hangs perpendicularly, or nearly so, and the rail ends against the side.

The knee of the head may now 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 knee, with an agreeable serpen-
tine line to its breadth from the item, which should not ex-
tend two feet on a square at the load-water-line; then, by
continuing the same line downwards, narrowing more and
more till it approaches the grips, and drawing it more dif-
tant from the item, to about four feet in the broadest place,
let the lower part break in fair with the under side of
the falle keel, where it terminates with the fore foot or fore
part of the keel, which will be next described. The gam-
moning-holes come between the head-timbers, and the bob-
stay-holes at the fore part of the knee, and the hawse-holes
between the cheeks are to be 2 feet 6 inches up from the
deck, and 1 foot 3 inches in diameter, as shewn in the sheer-plan, Plate I. See Hawse-holes, hereafter described.

From the line representing the upper edge of the keel,
slet down 1 foot 6 inches, its depth, and draw a line parallel
to its upper edge the whole length, which is 1 foot 2 inches
before timber S, to the aft-side of the stern-poll, and the
lower edge of the keel will be repreffented; but to com-
plete 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 it to the aft-side
of the item from its curve. The boxing, or lower part of the
item, may now be drawn: set aft from the line last 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
scarc, which will meet the fore-side of the item and
complete it.

The falle 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 gripe.

The sheer-draught being thus far completed forward, the
stern and quarters may be finished; and first draw a line
which shall represent the aft-side of the quarter-piece, agree-
able to the round-forward of the stern, which is 13 inches
before the fide stern-timber, on a square, and nearly parallel
thereto, continuing this line from the plank-flr to the lower
gallery rim, the upper side of which is, at the line last
drawn, 6 feet 5 inches above an horizontal line, at the upper
side of the wing-ram on the middle. (Observe, all the
heights of the stern will be set up above this line, for the
manner of obtaining which, with particular relative to
the stern, 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, its depth. The
height of the upper side of the rail at the middle floor is 11 feet
9 inches at the quarter-piece, which must also be drawn for-
ward parallel to the sheer to 16 feet 8 inches, its length; its
depth, which is 9'2 inches, drawn in as the middle rim. The
fore part of the quarter-piece may next be drawn, as the
heal of it steps on the after end of the middle floor, by
drawing a line parallel to the aft-side of 14 inches, its rinding.
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 19 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-
flr, with another rail below it at 9 inches in the clear; the
upper rail may be about 3½ inches, and the other 4 inches.

The upper rail of the finishing is 2 feet 8 inches short of
the upper floor-rail, and finishes at the fore part, as in the
sheer-draught, Plate I. 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 rim
above it, the fore part is completed by a curve. The length
or 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 stern-timber. Now the lights and
munions, which are three in each gallery, may be equally
paced; the lights in the lower gallery to be 2 feet 9 inches
in the clear on a square, and the munions about 11 inches
each; the lights in the upper gallery 2 feet 4 inches in the
clear on a square, and the munions about 9½ 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 side of the quarter-piece, from whence
they are to be continued their length parallel to the sheer,
and that will be the height of thofe rails, as viewed on a
level. The height of the lower counter-rail, at the side
above, is 3 feet 4 inches, and from thence continued parallel
to the rim-rail above: to its length, which is 13 feet, set
down 10½ inches, its depth, and draw it parallel to the
upper side.

The lower finishing 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 9½ inches deep, and rabblets
on the ends of the flat of the quarter-deck. The breadth
rail is 9½ inches deep, and its upper side is 2 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 midship stern-timber. But to complete the balcony,
quarter-piece, and taffrail, as shown in the sheer-plan, the
reader is again referred to laying-off the stern, and Plate X.

The birthing of the lower counter may be represented by
drawing a curve 4 inches parallel abait the side of the
counter-timbers, from the keel to the tuck-rail, which
covers the margin on the wing-ram, and projects its
thickness 9½ inches. Draw likewise the birthing of the
upper counter, which is 23 inches thick, and parallel to
the stern-timbers. Above the upper counter-rail draw in the
thickness of the middle munion, which is 5 inches, and par-
allel to the middle stern-timber, and continued upwards to
the arch-board over the lights, which is about 4½ inches
deep.

The rudder may now be represented in the sheer-plan, ob-
serving, 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 side of the stern-poll, which repre-
sents the fore-side of the rudder, from whence its breadth
or side is set off; and as this should not be more nor less
than sufficient to direct the course of the ship, the com-
mon practice is to make the breadth at the heel, or lower
deck, one-eighth of the main breadth, which will be six feet
for ships having a clean run above, but for merchant-ships,
these constructed chiefly for burthen, it may be one-
eighth. The height of the lower lance 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.
helel, back included; set forward from thence 10 inches, or reduce the breadth to 3 feet 5 inches. The upper hance may be at one-third the height of the lower hance, and the breadth of the rudder should be five-sevenths of the breadth at the lower hance, or 3 feet 1 inch; there reduce the breadth 5 inches, which makes it 2 feet 8 inches, from whence a straight line may be continued to the head, which is 2 feet 4 inches fore and aft, or larger, if the piece will admit of it: each hance should be reduced with mouldings, as in heer-draught, Plate I., and 3½ inches drawn parallel to the after-side, to represent the thickness of the back. The heel of the rudder, at the fore part, should be 9 inches short of the under side of the fallen keel, and 11 inches at the after-part, the foil included, which is 6 inches deep.

The pintoles and braces may be now represented, placing the upper brace about four inches above the wing-tranom, that the straps may clap round the standard on the gun-deck. The second brace should be placed so as to fasten on the middle of the gun-deck tranom. The lower brace may be placed 15 inches above the upper side of the keel, and the intermediate ones, four in number, to be equally placed between the two latter, making seven in all. The length of the braces may be governed by a straight line drawn from the third brace, which should be 4 feet 6 inches from the rabbet of the post to the lower one, which is to be fix feet.

The length of all the straps of the pintoles, which come up on the rudder immediately above the braces (except the thickness of the bar or fancies), may extend within four inches of the after-side; the pintoles are 3½ inches in diameter, and all 14 inches long, except the lower one, which is 2 inches longer. The straps of the braces and pintoles are five inches broad.

The length and breadth of the rudder being represented in the sheer-plan, Plate I., it is evident the breaks or hances are merely to reduce the breadth as it rises towards the head, the greatest breadth being only required below the water, where it feels the motion of the ship.

The fluid, in passing to the rudder, exactly follows the outlines of the bottom; and supposing the rudder to make an angle of 45 degrees with the keel, it may be readily seen, by the water-lines abaft in the half-breadth plan, that the immediate shock it receives from the water increases as it approaches to the load-water-line, where they become nearly at right angles with the side of the rudder in that position, and this holds good, whatever angle the rudder makes with the keel; hence some are of opinion, that the rudder should be made broader near the line of flotation, and narrower towards the keel; but the present method of making the rudder with increasing breadth downwards, is only in proportion to the obliquity of impulse the water acts against it near the keel. It must be observed, that the above force strikes the rudder obliquely, and only strikes it with that part of its motion which, according to the line of incidence, forces it in a contrary direction, with a momentum which not only depends on the velocity of the ship’s course, by which this current of water is produced, but also upon the extent of the line of incidence. This force is by conseqence composed of the square of the velocity with which the ship advances, and the square of the line of incidence, which will necessarily be greater or smaller according to circumstances; so that if the vessel increases her velocity three or four times faster, the absolute shock of the water upon the rudder will be nine or sixteen times stronger, under the same incidence; and if the incidence is increased, it will yet be augmented in a greater proportion, because the square of the line of incidence is more enlarged.

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 present a greater surface 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 force, 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 post, mull be trimmed on each side, to the middle of its thickness, (which is the same thickness as the after-side of the stern-poll, or rather less, as it not need project the poll when the helm is hard over,) to the greatest angle the rudder is proposed to make with the keel; however, the common method is to set 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 pintoles, 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 rudder, 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 boarding, is wholly taken from the fore part of the rudder, the main piece is very much wounded by letting on the upper pintoles; but this of late years has been greatly remedied, by taking half the boarding from the after-side of the stern-poll at the head, and from one to two inches on the heel; of course the rudder is bearded to much the less. This, also, will greatly affist the conversion of the stern-poll.

The boarding on the rudder is represented by the shading on the fore part of the rudder, and the boarding on the poll by the ticked line in sheer-plan, Plate I.

The rudder, which is represented in the sheer-draught, Plate I., and is as at present used in the navy, having its axis of rotation in the centre of its pintoles, which are parallel to the after-side of the stern-poll, causes a space, considerably greater than its 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 those 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 four inches below the hole in the counter, cylindrical, and giving that part, at the same time, a cast forward above the upper brace, so that the axis of rotation may by 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-coat entirely done away. But as it was foreseen, that if the rudder was by any accident unhitched, this alteration might endanger the tearing 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 withstanding 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-post with a round-headed rudder, as in Plate I. But then the head is better formed, as it has a large bolt driven down through the centre, that traverses in a thick brass plate confined in a strong oak 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 cast so much forward, as was before observed, which requires a sudden bend between the upper brace and the counter; but to avoid this bend cutting away the main post too much at the head, a false post, sufficiently thick, is tabled or caulked to the aft-fide of the main post, as in Plate XII.

The body and half-breadth plans may now be completed, as it remains to add the supematent part, or top-fide.

Transfer the heights of the top timber-line from the sheer-plan, Plate I, to the body-plan, and draw an horizontal, at each height, across each respective body. Now the breadth of the ship at this height determines the tumbling-home of the top-fide, which should not be too much, as formerly, as it creates an unnecessary consumption of crooked or compas-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 fides, as it gives more room upon deck, a greater spread to the throuds, additional security to the masts, makes the ship lighter, a much better sea-boat, and in every respect safer, stronger, and better. On the contrary, it may be argued, that by the top-fide tumbling-home, particularly in ships of war, all the weight of guns, &c. lying above the load-water-line, may thereby be brought nearer to the middle line, when of course the ship he less strained 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 strain the ship, whatever distance they may be removed from the middle line. Again, the top-fide narrowing or tumbling-home, as it approaches the top of the fide, particularly in ships having two or three gun-decks, the smoke of the lower guns in action less annoys those on the decks above.

In Plate I. the top-timber breadth in midship is four feet less than the main breadth, consequently the top-fide tumbles home two feet on each fide, and may be so continued in the half-breadth plan parallel to the main breadth, from frame 22 abaft to H forward; then from the middle line at K to the fide 2 feet 11 inches; at M, 21 feet 8 inches; at O, 21 feet 6 inches; at Q, 21 feet; at S, 20 feet 4 inches; at U, 19 feet; and at the beak-head, 17 feet: at 24, in the after body, 20 feet 7 inches; at 26, 20 feet; at 28, 19 feet 6 inches; at 30, 18 feet 9 inches; at 32, 18 feet; at 34, 17 feet 2 inches; at 36, 16 feet; then to end it abaft, square down to the half-breadth plan the intersection of the top timber-line at the fide counter-timber in the sheer-plan, and set up, as before, 12 feet. Then a fair curve-line drawn through these spots, represents the top-timber half-breadth.

Transfer the top-timber half-breadths from the halfbreadth plan to their corresponding horizontal lines at the top-timber-line from the middle line in the body-plan. Now the timbers may be formed above the lower height of breadth in the body-plan, thus; transfer the upper height of breadth-line from the sheer-plan to the body-plan, drawing thereat horizontal lines; then square up the timbers already drawn to intersect the upper height of breadth respectively; open the compasses to 15 feet, the length of the upper-breadth sweeps, and fix one foot on each line lat drawn; then from the lines, as squared up, describe an arc of a circle upwards at each timber; then draw at the curve to the hollow of the top fide, touching the back of the upperbreadth sweep, and the breadth at the top timber-line, thus; the timber at the top-fide is formed in midships, to which let a mould be made from the upper height of breadth upwards, continuing the same hollow of topfide one feet above the top-timber-line at which, by mould all the timbers of the top-fide, except two or three quite aft and forward, may be drawn, and both bodies completed to the top of the fide, 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 fide, curve outwards, or the contrary way to those abaft 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 fide, which produces a sudden angle or knuckle at the top timber-line, from whence they are called knuckle-timbers.

From the sheer-plan transfer the heights of the top fide to their respective timbers in the body-plan, and draw a curve line through those heights, and the top of the fide will be represented in the body-plan. Then, to prove that the heads of the timbers make a fair longitudinal curve, transfer their half-breadths at the height of the top fide in the body-plan to their respective timbers in the half-breadth plan; that is, from frame D forward, and from 10 abaft; if they produce fair curves, the top of the fide is correct.

Now the side stern-timber may be drawn in the body-plan, thus: transfer the height of the wing-tranfom, lower counter, upper counter-knuckle, top timber-line, and top fide, 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-tranfom and lower counter-knuckle, and one equally between the upper counter-knuckle and the top timber-line. Transfer the half-breadths of the fix after-frames, where they are intersected by the above horizontal lines, to their corre-
corresponding timbers in the half-breadth plan, and draw curves through the above half-breaths, some distance abaat the after-frame; then square down where the several heights intersect the side stern-timber in the sheer-plan, to the half-breadth plan on the 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 stern-timber will be represented.

The main half-breadth and top-timber half-breath lines may now be ended abaft in the half-breadth plan: thus, square down from the sheer-plan, where they intersect the side stern-timber, to their corresponding lines in the half-breadth plan; also, where they intersect the middle stern-timber in the sheer-plan, square them down to the middle line in the half-breadth plan; then, with a radius in the said middle line, sweep an arc of a circle to intersect the spots last squared down, which will represent the round-ast of the stern at the main half-breadth and top timber-lines in that direction.

In a similar manner may be drawn the round-up 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 stern-timber in the sheer-plan, to the middle line in the body-plan; their height at the side being let 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-up 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 aflate 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 shift to the fcarfs 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 main fore and aft, is represented by the ticked line at the following heights: viz., at 14; and from frame D to 8, 1 foot 10 inches; at F, 1 foot 10½ inches; at H, 2 feet 1½ inches; at K, 2 feet 2 inches; at M, 2 feet 5½ inches; at O, 2 feet 1½ inches; at S, 4 feet 6 inches; at U, 6 feet 6 inches; at 10, 1 foot 5 inches; at 12, 1 foot 11 inches; at 14, 2 feet; at 16, 2 feet 1 inch; 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 inches; at 30, 4 feet 11 inches; at 32, 7 feet 7 inches; at 34, 10 feet 1¼ inches, above the upper side of the keel: then a curve line drawn through those heights, will shew the cutting-down.

The depth of the keelson is also represented by a line eighteen inches above, and parallel to the cutting-down, into which forward is scarfed the stem, 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 keelson is completed by the sternon-knee, which scars into the keelson, and runs up the fore side of the transom to the under side of the carving under the gun-deck beams, as shewn in the sheer-plan, Plate I. Sometimes a knee is introduced in the dead-wood, as shewn in the sheer-plan, which fays against the inner post, which is fifteen inches moulded at the heel, and one foot at the head at the under 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. The cant-timbers have their planes inclined forward from the keel in the fore-body, and the contrary way, or ast, 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-breadth 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-breadth 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 one line. It immediately follows, that the surface will find an perpendicular to the upper edge of the keel, similar to a door swinging on its hinges; and, if we draw the moulding 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 line (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 find an perpendicular direction; we may also, supposing it to be hung, fixing it or cant it either forward or ast, 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 camber of the bow and buttock-timbers would be so great, that the consumption, in some places, in order to get the timbers clear of faire, would be greater by one half than that in the timbers when canted. And, exceedingly, 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 fastenings of the planks, &c., but the timbers are also better able to bear those fastenings.

We may now proceed to cants to the timbers of the forebody, so that they may lind as square to the curvature of the bow as possible; which will not only lessen the bevelling, but will very much straighten the moulding of the timbers; by which means they will be much stronger, not so liable to be grain-cut, and leaving less compass, the conversion will be greatly simplified.

Therefore determine on the cant of the forenoon timber, which is y, by letting four forward two feet one inch on the norh of the main half-breadth line before the perpendicular of X, and its heel nine inches abaft the perpendicular of U on the flepping-line, which is three inches nearer the middle line than the bearding, or half-thickness of the dead-wood, and draw the ticked line marked cy in the half-breadth plan, Plate I. The after cant-timber of the forebody may be before the forenoon square timber O two feet nine inches on the main half-breadth line, and the heel on the flepping-line two feet five inches before O, on the ticked line marked cp, drawn as before; then may the intermediate canttimbers cg, go, e, c, e, e, c, c, c, e, c, e, be drawn, with their joints to intersect their respective perpendiculars as far as U, at the main-breadth line: then ec and eg equally between ec and cy; draw the ticked lines representing each cant-timber from thence to their heels, which are all equally spaced on the flepping-line, between cp and cy.

The **Hawse-pieces can now be determined on and drawn in the**
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the half-breadth plan, the sides of which may stand parallel with the middle line, or canted square with the bow, which will lessen their heels and bevelings, and affilt their conversion, as before observed, by the cant-timbers; their number may be four, besides the knight-head, which comes next the item, unless the apron is fized more than the item, which cannot be the case when the rabbit is in the middle; as that has now become general, a filling about fix inches fized is fayed next the item, which makes it unnecessary to call the knight-head again the item to receive the bow-spirit. In the half-breadth plan, Plate 1., the knight-head is drawn next the item, therefore let off from the item one foot four inches, its fiding at the top-timber line or head; before cant 3, is introduced a short timber, which shortens the heel of the knight-head and hawse-pieces, not that the heels are expected to be gotten fo low down as to fay against it, for if the knight-head runs down low enough to take a bolt through the gun-deck hook, it is reckoned fufficient, the remainder being made good with a chock. From the item, at the timber or timbers before cant 3, let up the fiding of the heel, which is thirteen inches. In the fame manner let off the fiding of the hawse-pieces, four in number, from each other, as they岙afee together, in wake of the hawse-holes; that is, 18 inches at the head for the firft hawse-piece, 17 inches for the head of the fecound and third, and 18 inches for the fourth; and the fiding at the heels to be all alike 13 inches, as in the half-breadth plan, Plate 1.

The hawse-holes may now be drawn, which fhou’d be fo fized as to wound the hawse-pieces as little as poftible; they may therefore be placed fo that the middle or centre of the midship-hole may come in the joint of the firft 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 holes are let out, 17 inches, and in dilance from each other on a fquare 18 inches, to which lines may be drawn in the half-breadth plan to extend from the thick-ness of the outufide to the infide plank, and in a fore and aft direction, fo as to crofs the middle line of the gun-deck at the main-mall. Sometimes, to avoid wounding the hawse-pieces too much, middle pieces are introduced in wake of the holes fided, about fix inches lefs 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 confequently more fided, and are wounded proportionally, but little.

The hawse-holes may now be reprefented in the feer-plan, thus; let 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 flive outwards, we fhall find them about fix inches above the upper fide of the lower check, which will leave a fufficient fubftance of bulter under the hole for the wear of the cable. Square up, from the half-breadth plan, where the holes interfet the infide and outufide plank at the main half-breadth line, that being very near their height; then by drawing lines to their five parallel to their depth, they will be reprefented as the dotted lines in the feer-plan, Plate 1.; but fo continue them to the outufide of the bulter, as the fided holes in the feer-plan are, square up from the half-breadth plan, where they interfet the fore paf part of the check.

The cant-timbers in the after-body may now be drawn, and every part depending on them; in order to which we must firft determine on the cant of the fashion-piece; therefore, having the round-af of the wing-tranfom reprefented in the half-breadth plan, and likewise an horizontal line at the height of the wing-tranfom, let off fifteen inches, its moulded breadth, at the fide on the horizontal line, which is the fization of the aft-line of the fashion-piece; then, to determine on the cant of it, the shape of the body must be considered, for the more it is canted the ftraighter will be the timber, and square with the plank of the buttock, confequently stronger and much eafier obtained.

Therefore, let the heel of the fashion-piece at the aft-line be nine inches on the flepping-line in the half-breadth plan before perpendicular 34, and drawing a ftraight line from thence to the fore-line of the wing-tranfom, as above, the cant of the fashion-piece will be defcribed, and will be found situated in the bell manner poftible to afwer the before-mentioned purprofes.

The cant of the fashion-piece being reprefented, the cant of the timbers before it may be easily determined; let 29 be the foremoft cant-timber in the after-body, which, on the main half-breadth line, may be equally fpaced between the after square-timber 28, and the perpendicular 30, and its heel on the flepping-line be one foot nine inches abaf 28, drawing a ftraight line, as before; the other cant-timbers between 29 and the fashion-piece, which are e 30, e 31, e 32, e 33, e 34, e 35, and e 36, may be equally fpaced on the flepping-line at the heels, likewise on the main half-breadth line, drawing ftraight lines as before, which will infi- fect their perpendiculars as far aft as 34, on the main half-breadth line; thus the cant-timbers in the after-body will be reprefented as in the half-breadth plan, Plate 1.

The line drawn for the cant of the fashion-piece repre- fents the aft-line of it, as before observed, which lets on to the ends of the tranfoms; but, in order to affilt the conversion with regard to the lower tranfoms, there may be two more fashion-pieces abaf the former; therefore the foremoft fashion-piece, or that which is already drawn in the half- breadth plan, only takes the ends of the three upper tranfoms, which are the wing, filling, and leg tranfoms; the middle fashion-piece takes the three next, and the after fashion-piece the three lower ones; therefore let off in the half-breadth the fiding of the middle and after fashion-pieces, which is 12 inches each; then draw lines parallel to the foremoft fashion-piece at the fiders, and the middle and after fashion- pieces will be reprefented in the half-breadth plan.

The fashion-pieces and tranfoms may now be reprefented in the feer-plan, as the thwartship appearance of the fashion-pieces limits the length of the tranfoms as they ap- pear therein; square up from the half-breadth plan, where the fashion-pieces there interfet the flepping, the horizontal or water-lines to their repective water or horizontal lines, and flepping-line, in the feer-plan; but as the foremoft fashion-piece runs up three or more feet, if to be gotten above the wing-tranfom, 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-breadth plan, in pencil, as they may be rubbed out afterwards, and the interfetion of the fashion- pieces squared up as before; then curves drawn through the spots as squared up will reprefent the thwartship appear- ance of the fashion-pieces in the feer-plan, as in Plate 1.

The height and fiding of all the tranfoms may now be drawn in the feer-plan, thus; let down 13 inches below the horizontal line representing the upper fide of the wing- tranfom already drawn, and draw a line parallel thereto, which will fhew the fiding or under fide of the wing-tranfom as far forward as the fashion-piece.

The filling-tranfom is the next, which nearly fills up the vacancy between the under fide of the wing-tranfom and upper fide of the gun-deck plank, and may be reprefented by drawing two parallel lines under the wing-tranfom to its fiding, which may be ten inches, if it will allow two inches between
between its upper side and the lower side of the wing-transom, and
four inches from its lower side and the gun-deck plank.
The deck-transom must be governed by the gun-deck, let-
ing the under side of the gun-deck plank represent the up-
per side of it; draw another line at fourteen inches, its fiding
parallel to the upper side, which will complete the gun-deck
transom. The transoms below the gun-deck, which are fix
in number, are all eleven inches fided, and are represented by
drawing horizontal lines from the fore-side of the rabbit of
the stern-post; 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 afther for a free circulation
of air. Every means should be taken to preserve them, as
they are more difficult to shift than any timbers in the ship.
The stern-post 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-transom, which will admit of the tiller to be three
inches clear of the helm-port transom, and two inches from
the under side of the beams above; then a straight line drawn
from the heel to the head to the dimensions set off, will
represent the fore-side, observing not to draw the fore-side
of the post through the transoms.

The inner post may be drawn by setting off before the
main post sixteen inches, its size 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 transom; then, by draw-
ing a line, as before, for the fore-side of the main post, the
inner post will be represented as in the hear-plan, Plate I.

To Define the Perpendicular View of the Stern.

In designing the perpendicular view of the stern, there will
be an opportunity of seeing whether the knuckles of the
counters are disposed, that the lower and second counters
are in proportion to the rail of the stern; at the same time,
whether the heights of the decks, which, in the present
draught, Plate I. are sprung shaft sufficiently to give depth
to the lights, as well as for other conveniences to make a
well-proportioned stern.

Draw an horizontal line at the upper side of the wing-
transom at the middle line, in the hear-plan, body-plan, and
likewise for the stern underneath the body-plan, as the basis
of the stern, from which all the heights will be set up or
transferred. Continue down thereon the middle line of the
stern from the body-plan, and drop perpendiculars from the
knuckles of the side counter-timer in the body-plan, to the
base line in the plan of the stern, and then draw the side
counter-timer on each side of the middle line, the same as in
the body-plan above, and the round-up of the upper and lower
counter at the knuckles of each timber. Having the form
of the side counter-timers in the plan of the stern, set
within them the scantling of the timber, and draw their
infillides.
The lower and upper counter-rails being drawn in hear-
plan, try if the under sides at the midship-timer project
enough to bury their respective counter-planks, thus; square
aft a line from each counter at the knuckle, and on those
lines set aft from the knuckle the thickness of the counter-
plank, say three inches at the lower counter, and one quarter
more, that the moulding may not come to a sharp edge.
The lower counter-plank may be increased to four inches,
it general thickness. Proceed in the same manner with the
upper counter, its birthing being two and half inches thick.
This will shew how much the fight-part of the rails will be
on a level view below the knuckles of the timbers. Then
transfer their height to the plan of the stern at the middle,
and keep them parallel to the knuckles to the outside, suffi-
cient for the projection of the quarter-galleries, as in plan
of the stern, Plate I.

Take the height of the under side of the quarter-deck at
the aft part of the middle stern-timber in the hear-plan, and
set it up in the plan of the stern at the middle line; then
round 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 the plan of the stern, to the quar-
ter-deck at the middle line, and set it off in the direction of
the side-timber at the inside. 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 transom. As, if they were to round by the
fame mould as the upper counter-rail, the bars in the fashes
next the side would be longer than those in the middle line,
and would appear as if the top of the lights rounded less
than the upper counter-rail. Draw in the upper part of the
lights about an inch and half below the under side of the
quarter-deck transom, and their lower part about six inches
above, and parallel to the upper counter-rail, which will
allow sufficient depth for the water-table. Set off within-
side the stern-timbers, in the plan of the stern, the thickness
of the clamps, and the projection of the cornice in the cabin,
and let that be the side of the lights.

Then determine on the breadth of the murons, allowing
sufficient for the weights and pulley-pieces, and divide the
fashes, fix is number, equally.

Now, as well-proportioned lights are great ornaments in
sterns, having the breadth of the lower part of the lights in
the clear, let their depth be at least one-third more than the
fated breadth; set off upon the rake of the stern-timbers, in
the hear-plan, and transfer that to the plan of the stern,
which makes a good proportioned light. Set off likewise
the mock-light in the aft part of the quarter-gallery the
fame size as the ruff.

Then to rake the fashes regularly from the middle to the
fides, continue upwards the middle line and the outside of
the side ftern-timbers in the plan of the stern, till they interflect
at the said middle line; then from their spacings at the lower
part, the fides of the lights may be drawn to their heads, or
upper part, with a straight batten fixed at the intersection of
the middle line. In the same manner may all the interme-
diate stern-timbers be drawn to their fiding in the middle of
each muron from the wing-transom to the under side of the
quarter-deck, likewise the shorter ones that make the side of
the counter-ports, and those under the middle of the lights
to the upper counter-rail. At about half the breadth of the
murons from the mock-light, place the inside of the quarter-
piece; then set off at the heel sixteen 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 so, place the outside of the gallery, which
determines the projection of the gallery from the side.

Draw in the plan of the stern the foot-space rail, its under
side 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 brest-rail, transferring its
height from the hear-plan at the after-part, and set it up at
the middle line as in the plan of the stern, and rounding it, as
defscribed for the quarter-deck, to the inside of the quarter-
piece. Then let the round-house deck be drawn in the plan
of the stern as directed for the quarter-deck, when will de-
terline the lower part of the taffrail, as the necking-moulding
should be kept an inch and a quarter below the round-house
transom. Then may the boundary, or upper part of the
taffrail and quarter-pieces, be finished as in the plan of the
stern.
In the starboard quarter-piece is designed the aft part of the gallery, which is at the middle of the quarter-piece in the sheer-plan; therefore it will be proper to draw the form of the middle of the quarter-piece, and the fore-side of the taffrail, upon the sheer-plan. Thus, take the heights from the level line at the upper side of the wing-remainder 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 set them up in the sheer-plan, drawing level lines. Square up the spots on the quarter-piece and taffrail to the round-oft of the stern on a level; then take what the round gives at each spot squared up, and set it off from the midship stern-timber on their corresponding level lines in the sheer-plan. This produces the ticked line that was drawn in pencil in the sheer-plan, shewing the middle of the quarter-piece and fore-side of the taffrail. Take the side 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 sheer-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 sheer-plan, drawing a level line. But to find how much the after-end of the rail will be before the knob of the upper counter at the side-timber, the round-oft of the upper counter-rail must be laid down on a level, as in the half-breadth plan; transfer the outer end of the said rail square from the middle line in the plan of the stern, on to the round-oft from the middle line in the half-breadth plan; then square it up to the sheer-plan, on the level line last drawn. Design the lower gallery rim, with the lights and mummies, as in the half-breadth plan, which is a continuation of the upper counter-rail, and this will determine the length of the gallery in the sheer-plan. Take the height in the plan of the stern to the foot-space rail, at the outside of the quarter-piece, and transfer it to the aft-side of the quarter-piece in the sheer-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 sheer-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-oft of the lower counter-rail, as before described, at its outer end, and then draw all the rails and lights, as set up in the sheer-plan, from thence forward, agreeable to the sheer of the ship, to their boundary, or fore part of the quarter-gallery.

Lastly, the upper finishing being designed in the sheer-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 taffrail, may also be drawn.

To Design the Plan of the Head.

Continue forward the middle line of the half-breadth plan. Upon it square down the fore-side and aft-side of the figure from the sheer-plan, and upon those lines set off the half-finding of the figure.

Then draw the main rail to its half-breadth appearance, thus: set off the finding of the after-end of the main rail from the outside of the plank at the top-timber half-breadth, to the fore-side of the beak-head in the half-breadth plan; and also the finding of the fore-end from the outside of the figure, the fore-end being square down from the fore-part of the hair-bracket in the sheer-plan; observing, however, to add to the finding the thickness of the lining: then, by drawing straight lines to those spots, the half-breadth plan of the main rail will be represented as in Plate I.

Square down from the sheer-plan the head-timbers, where they interfect the under side of the main-rail, to the middle line of the half-breadth plan: likewise square down the fore and after-sides of the knight-head, and draw the half-breadth line at the upper side of the beak-head-flat, and the thickness of the outside plank.

Square up from the middle line in the half-breadth plan the head-beam, so as to let ait about two inches upon the stern; 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 cheek as you see the ticked line in the half-breadth plan, then the half diameter of the bowfprit parallel to the middle line; and also the fore and aft carling as much without the bowfprit as the gammoning may lead down clear of the bowfprit, and outside of the upper cheek.

The feet of each, no less than two double ones, should be placed the most conveniently, as shown 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-mail from the sheer-plan to the middle line of the half-breadth plan, and from that intersection draw a line forward, to form an angle of thirty-fix 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 rolling against the knight-head; the length may be ascertained by a line drawn from the fore yard-arm at the outer end.

The round-hooves, or seats of each for the officers, are clearly shown in the plans of the upper deck and forecastle; which plans and draught of the inboard works will be designed hereafter, the sheer-draught plate being completed.

To Design the Disposition of the Frame. Plate II.

The utility of a plan of this description requires little explanation; as it is evident, upon inspection, that it exhibits the disposition and shift of every timber, and consequently affords the means of difposing 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 flocks, 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 carved together and bolted. Sometimes the frames are fayed 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 fplit out before the planking is brought on, that a free pafage may be given for the circulation of air.

By the disposition of the frames in their several flations, they fland 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 futtock will, in like manner, make the sides of the middle deck ports in three-decked ships, and the sides of the 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, scuttles, 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. Those timbers, however, in the sudden turn of the body, having so much compacts in their length, and others 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.

Those 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 wall, 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 foldily with dry oak fillings, as are also those over every gun-deck and middle deck port, that there may be held boring in wake of the port-rope-pipes, and mumble-lashing eye-bolts; also behind iron knees and standards. 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 incumbered 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 fide timbers; and forward, from the foremost frame to the hawepieces.

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 flapping-line for the heels of the cant-timbers, the under side of the decks at the side, also the ports, the plank-sheers, rough-tree rails, and beak-head; then the side fide 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-breadths, and plank-sheer, to their respective lines in the sheer-plan, as Plate II. at 9, 8, in the fore-body, and at 1, 32 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 hawepieces, which may likewise be transferred as the rest, and also the hawef-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 show 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 for much from the joint. The frame-timbers may now be marked with their respective names, likewise the single 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 stern-timbers, 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 afloat frame 36.

The parts 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 these 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 futtock 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 tumbler-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 sides, 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 compacts, cannot be gotten fo long, they may be scarfed, as at 4, observing 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 admirably 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. The design of expanding the bottom and top-side, 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 fo very material, that, unless it be judiciously performed, it will unavoidably be very injurious to, or subversive 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 planks 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 clats 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 shifted of various lengths, according to their thickness; as two and a half and three-inch plank to have a fix-feet shift, and two planks between; and four-inch plank and upwards, to have a five-feet shift, and three planks between every two butts on the same timber. It is possible, however, to have a very bad shift, and yet have three strakes between every two butts on the same timber: that is, when the butts rise one above another in a regular manner, like steps; for, as the upper butts, or those in the top-side, are the most likely to give way, all below would be inclined to follow; as, if the ship begins to break her after amidship, it is most probable that the butts are of the same length; therefore, let one of the butts between have a double shift, or extend twelve feet; then will the stepping of the butts before mentioned be prevented, and the planks be twenty-four feet long.

The wales must be wrought of such length, and the butts shifted, so as to give the strongest shift to the ports and each other. To do this, some of the planks in midships should have a three-port shift; that is, should over-launch three ports; being careful, in large ships, to make one butt answer for the pump-dale scupper. To affit the conversion, the planks may be wrought top and butt. When the wales consist of four strakes, they have a fair feam in the middle; but if wrought in three strakes, let the two lower strakes be worked top and butt, and the upper strake of a parallel breadth.

The thick-fluid, or diminishing strakes, from the lower edge of the wale to the thickness of the bottom plank, being of English oak, is wrought top and butt, and should be shifted from the butts of the wales 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 Eastcountry plank of the best quality. The English plank is worked top and butt, to twenty-four-feet lengths at least. Now, to break the shift, fo as to work East country plank to advantage, requires care; for, as just observed, the general shift of English plank is twenty-four feet, whereas East country plank is from thirty to fifty feet; consequently, the best way is to work a double shift at first, or one of forty-eight feet in length. It rarely happens that the shift 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 shifting the East country plank, to keep the shift 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 fix-feet shift.

East country plank is wrought of a parallel breadth from ten to eleven inches, excepting forward and aft; for the fore and after-hoods that come into the rabbet should be English oak-plank. Four or five strakes nearest the keel may be of elm or beech, observing to shift the butts clear of the scarp of the keel; and, likewise, that no butt is placed under the pumps, and to work them very hard at the poll. The edges and butts of the fix or eight strakes next the keel in East India ships, are rabbetted close; and fine flannel, dipt in tar, is put between, and thick kerly, also dipt in tar, is spread between those planks and the timbers.

In planking the fore part of the bottom, the breadth of the strakes must be considered, and also the shape of the bow, that every strake of plank may be brought into the rabbet; and every plank should be kept from inyng as much as possible. But, in full-bowed ships, it would be impossible to bring every strake to the item without too much try. It is, therefore, customary to work in the bow of such ships a drop-strake next under the water, or more, if necessary, and a cleat at about four strakes under it; by which means all the strakes that come in the rabbet will be of sufficient breadth. In order to take out the try, bring the cleat well forward. In most ships, a drop-strake abaft, close up under the water, affits the planks very much; and to produce a fair edge, be careful not to work too broad on the fusilion-piece.

The plank of the top-side is generally wrought in parallel breadths, therefore it had better not be more than nine inches broad. The top-side, being cut by the ports, drifts, &c., requires the greatest strength to be given to it in shifting the plank; as no butt should be placed immediately over or under a port, unless there are two planks between. The planks in wake of the main-mast should have a three-port shift: the others, afore and abaft, may have a two-port shift. As it is stronger to butt between the ports, it may be allowed sufficient to have a shift of five feet six inches, where a plank comes between; or five feet, where two come between. But there should not be less than a fix-feet shift where no plank comes between. The channel and sheer-wales, in large ships, should work down to the lops of the ports in midships; and, where the sheer lifts forward and aft, should work down to as many ports as may leave sufficient lop, and afford wood to receive the port-hooks, letting the wood so worked down be continued six inches each way beyond the lops of the ports; thence to hance one foot to the regular breadth: but, by all means, let planks run through, if they hold but five inches after the lops are cut, so that the port-hooks will clear the seam; 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 so wrought as to have the seam to cut the plank as little as possible by the holes; and care must be taken that no seams come behind the cheeks.

The sheer-strakes, as they are the greatest strengtheners of the upper part of the top-side, should have their butts disposed with the utmost care, in order to produce the greatest strength between the drifts, and give the strongest shift to each other. They are wrought of parallel breadths, with hook and butt sars 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 lengths, must be of Eastcountry plank.

Observe; if the channel or sheer-wales are in three strakes, two of them may be wrought top and butt, to affit the conversion.

In planking the inside, attention must be paid that the butts of the clamps, spikings, and fringes in the oilt, should give shift to the butts outlise.

Clamps, when wrought of a single strake, should have hook and butt sars about four feet long.

Gun-deck clamps and spikings should have a three-port shift in midships, as should likewise those of the middle and upper deck. Clamps and spikings, when wrought in two strakes, may work top and butt, and one butt of the latter is to come in wake of the pump-dale scupper.

The clamps of the lower deck cannot be wrought towards the after part of the ship, agreeably to the hang of the deck, fo as to admit of the after-beam's coming home to the timbers, as it would wound them too much, or produce too great a try; therefore the clamps may lift aft to produce an easy edge, and some of the after-beams, of 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 douelled 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 necessar y; for when the ship is planking, without a plan of this fort to affit, 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 breadths 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 shift of the bottom and top-side before you at one view, you have a better opportunity of seeing whether the butts 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 flation of all the timbers, and the lower edge of the rabbit of the keel, from the attic of the rabbet of the stern-post, to as far forward as the rabbet of the keel continues straight, that is to timber M; likewise the scarfs of the keel; all of which are to be set 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-frakes, upper and lower sides of all the ports, the height of the decks at the side, and under side of the plank-flare, 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-frake, and under side of the plank-flare, 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 station 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 rabbet of the keel to the under side of the plan-flare 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-flare. Then square up the station of dead-flat, as shown on Plate III.; and upon that line set up the middle of the rabbet, 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 rabbet of each girt, to the middle of the rabbet of its respective timber in Plate III.

Now fix the girt of each water-line, &c. as taken from the half-breadth plan, to its corresponding height, as marked on dead-flat, Plate III.; then stretch each girt, observing it does not pucker, in such a manner that the stations of the timbers, as marked on the girts of the water-lines, &c. and their corresponding heights, as marked on the girt of each timber, may intersect each other; then with needles confine them in that situation, and make dots at every intersection, which will represent the expanded heights and lengths of all the water-lines, main-wales, &c. in the square bodies. Fair curves may then be drawn through these dots, which will shew the square bodies expanded from 28 aft to O forward.

Then, to expand the cant-bodies afore and abaft, proceed to draw in pencil the joints of the cant-timbers in the body-plan, Plate I., thus, lay a slip of paper in the direction of each cant-timber in the half-breadth plan, and mark on it their intersection at each water-line, main-wale, channel-wale, ports, sheer-frake, and plank-flare; also the middle of the rabbet of the keel and flim, and middle line. Then transfer each timber to marked to the body-plan, Plate I.; and mark on each corresponding line their half-breadths from the middle line; then curves drawn through those spots will represent the joint of each cant-timber from the keel to the top of the side. In the same manner draw the sides of the short timber before cant y.

The thwarts of the joints of all the cant-timbers being represented in the sheer-plan, Plate I., square up from the half-breadth plan the fore-side of cant y and the timber before it, and likewise the sides of the hawse-pieces, where they intersect the water-lines, main-wale, &c. to their corresponding lines in the sheer-plan. Then drawing lines in pencil through the spots so squared up, the thwartship view of the hawse-pieces, and the cant-timber before y, will be also represented in the sheer-plan.

Now draw in pencil the fore and aft view of the hawse-pieces in the body-plan, Plate I., by setting off their fiding at the heads and heels from the side of the flim, and draw straight lines to intersect the fore-side of cant y and the timber before it; then transfer the height of the flims from the sheer-plan, where they cut off against the foremost timbers, to the same timbers in the body-plan, as in Plate VIII. Lay ing-off By figs. 1 and 2.

Transfer the heights of the main-wale, &c. where they intersect the joint of the cant-timbers in the sheer-plan, Plate I., to their corresponding timbers in the body-plan. Then with slips of paper girt the cant-timbers, as before, for the square ones, marking all the heights let off, and the heels where they cut the flim forward and those abaft on the keel.

Likewise girt each water-line, main-wale, &c. from square timber O, in the half-breadth plan, round to the flim, marking thereon the joints of all the cant-timbers, the sides of the hawse-pieces, and flim; then girt the flim in the sheer-plan from M, marking O, the heels of all the cant-timbers, and the heights of the water-lines, wales, &c.

Then place the girt of the flim on Plate III., confining it at M; and likewise fix all the girts of the cant-timbers in the fore-body, confining their heels respectively to their stations on the flim; also the girts of each water-line, wales, &c. confining them respectively at square timber O; then move the whole till they all agree, that is, the ends of the water-lines, &c. are to agree with their respective heights on the girt of the flim, confining them with pins till the whole of the fore-cant-body agree, and as much as possible let them lie smooth, without puckering. Then may be marked on the plan the proper edges of the slips of paper, which
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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 fixings of all the timbers may then be drawn from their moulding edges, and the openings shown where required for air, or to make the sides of ports, observing to taper the heels of the cant-timbers on the leaping-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 Itern-timber, there only remains to be explained the expanding of the transoms.

The buttock-lines being drawn in the several plans of Plate I., 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 fleer-plan, and mark thereon where they cut each buttock-line fore-side of the rabbot of the Itern-poilt, and the after perpendicular.

Square down the after perpendicular to the half-breadth plan, and thence from off each transom on its corresponding buttock-line, and the rabbot on the half-thickness of the port. 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 buttock-lines, where they cross the aft-sides of the fashion-pieces in the body-plan, by transferring their heights from the fleer-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 I.; and mark thereon where the upper sides of the transoms and buttock-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 buttock-lines, as also the side of the Itern-poilt, or infide of the rabbot, which is the extreme length of the planks when worked. Then extend other slips of paper round the several buttock-lines in the fleer-plan, Plate I., 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 buttock-lines and planks also.

Then place the slips of paper as on Plate III., those for the heights of the transoms and buttock-lines to the aft-sides of the fashion-pieces, respectively marking their heights, to which fix those for the buttock-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 buttock-lines as they properly intersect the transoms. The farthest spots on the papers of the transoms give the boundary of the Itern-frame at the infide of the rabbot, and the farthest spots on the papers of the buttock-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 Itern-frame complete.

Take a slip of paper, and place it up the rabbot of the Itern-poilt, in the fleer-plan, Plate I., and mark on the paper the lower edge of the rabbot of the keel, the three lower water-lines, and the lower edge of the lower transom; then place the slip of paper as in Plate III., keeping the spot for the lower edge of the rabbot well with its corresponding spot on the keel; and move the slip of paper, till the marks for the water-lines and lower edge of the transom agree with their extremities; then, by marking the edge, the poilt will be deferred, and the boundary of the planks below the transom.

The operation may be performed by the ribband-lines, as well as by the water-lines, as before observed; but in that case, the cant-timbers must have been drawn in the body-plan, Plate I., on the square as well as on the cant, to level through their proper heights, which was omitted, to prevent confusion: nevertheless the lower ribband is represented in Plate III.

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 seeing the distance of every beam from the port-hulls, 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 steps of the ports. This should be carefully examined, otherwise you will be under the necessity of making a bad shift in the top-side; or be forced to cut too low 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-hooks to bear the weight of the ports; inconveniences which ought to be well considered, before it be too late to alter them.

The strength of the ship, with respect to keeping her from breaking her thier, chiefly depends on the thrust 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 infide plank, 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 be the work; but then it would be imprudent to work longer than the usual length of the planks, because when the ship is in repair work, 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 neater, and be equally as strong, if not bored too much.

To design the Profile, 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 fleer-plan of Plate I.; 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 fleer-plan of Plate I. the scale, keel and fflag, flern, Itern-poilt, rudder, counter-timbers, fashion-pieces, transoms, cutting-down lines, keelson, apron, flemson, all the decks, and centres of the masts; also the drifts, plank-flere, and line of the frame-timbers, and their ports.

The situations 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, 
maft-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 de-
cency.

To difpoze 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 moulding of the beams, which is for 
the gun-deck, 16 inches; upper-deck, 12 inches; quarter-
deck and forecastle, 8½ inches; and round-house, 6 inches.
Then place the first beam of the gun-deck under the middle 
of the first port, or nearly fo; the second between that and 
the third, which takes the heels of the bow-sprit-steel; the aft-
side of the latter to be 3 feet 10 inches before the centre of 
the fore-mast; the fore-side of the fourth to be 2 feet 6 inches 
abate it; the aft-side of the fifth to be 10 feet 9 inches abate 
the centre of the fore-mast, against which are the fore riding-
bitts; the aft-side of the seventh to be 21 feet 10 inches 
abate the yard centre, which takes the after riding-bitts; 
the sixth 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 abate the fore-hatchway; and the fore-side 
of the thirteenth 11 feet; between these two beams are let 
down the fore-jeer capitan-steel. 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 
abate 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 abate the after-hatch; and 
the twenty-second 5 feet 6 inches in the clear abate it, which 
takes the step of the main-jeer-capitan; from the twenty-
third to the thirtieth are about 4 feet in the clear abinder. 
Between the twenty-third and twenty-fifth is the ladder-way 
to the cock-pit, and hatch to spirit-room; and the twenty-
third beam should be placed exactly under the centre of 
the main-mast, all the beams having any thing attached to 
them being particularized. The intermediate ones may 
be equally spaced between them; and their firdings, which are 
16 inches, may now be set off, and each beam be drawn. 

As beams are seldom made of less than two pieces, the 
lips, which are four inches, had better be added to the firding.

On the upper deck the first beam is placed under the 
beak-head, to receive the tenons of the beak-head fantages; 
the second beam must be so fixed, as not to be too much 
wounded by the bow-sprit; 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 stationed over 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, abat a which is a ladder-way, and next abat it 
the capitan; the seventeenth beam takes the top-fall-sheet-
bitts on the aft-side; and the next beam before makes the 
fore-side of the main-hatchway, 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 
abat makes the after-hatchway; between the twenty-first 
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 abatis 
fores in to the fore-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 heads of the main-topfall-sheet-bitts; the second beam 
is about 4 feet 6 inches abat 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 as the mizen-mast are 
kept about 2 feet 8 inches in the clear abinder. Between 
the third and fourth beams is a fluttle on each side for the 
top-tackle; from the seventh to the eleventh 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 twentieth 3 feet 6 inches before fourteen, so as to receive 
the tenons of the steering-wheel flutations in the middle; 
the twenty-fourth beam is placed so as to receive the tenons 
of the munion of the steer-bulk-head, and sometimes 
rounds aft for the bulk-head to follow the round-aft of the 
tern, or nearly so. Against the fore-side of the foart-
timbers, and scored aft into them, is a transom like the 
deck below, but having a balcony: the deals run aft 
to form the same.

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 milt-room, a 
half-beam should be introduced, to make good the deficiency.

The cat-beam is so placed that the flutations of the beak-
head-bulk-head may face on the fore-side ½ inch; and when 
the cat's-tail comes in upon the forecastle, and is secured 
thereon, it must be three-feet sided, as it requires a rabbit 
of five inches on the aft-side to receive the ends of the deals; 
but of late years the cat's-tail comes in under the beams, which 
greatly alld 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 two feet in the clear. 
The third beam is two feet before the centre of the fore-mast; the 
fore-topfall-sheet-bitts come on the fore-side, and the heels 
upon the upper deck. The fore-side of the fourth beam 
is three feet abat the centre of the fore-mast, which allows for 
the fore-jeer bitts to come on the fore-side of the beam; and 
their heels should cast outwards sufficient to lead the fore-
tack ait clear of the galley. From the fifth to the eighth 
bears are the gratings over the galley; on the fore-side of 
the ninth beam is the fluttle for the fire-bearth funnel; etween that and the tenth, the stem-gratting 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-topfall-sheet-bitts, in 
the royal navy.

The round-house beams are smaller than those of the 
quarter-deck; therefore, let the number of beams on the round-
houe be two, or more, in number than in the fame length 
of the quarter-deck. The round-house should always have 
a great round-up, both for strength and convenience.

With regard to placing the round-house beams, we have 
only to attend to the foremost flutation of the steering-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,
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The beams of the several decks, as taken from the sheer-plan, Plate I., being described, those of the orlop only remain: therefore, let down from the upper side of the gun-deck beams 7 feet 1 inch, for the upper side of the orlop beams; but as the platforms forward and abaft are laid with three-inch deal or plank, they may be kept to much below the range of the other beams, that is, from forward to beam number fix, and from the twentieth to the after-beam, which is immediately under the twenty-seventh beam of the gun-deck.

The beams of the orlop round-up 2½ or 3 inches in midships, and should be placed directly under those 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 the capitan-steel, &c. for lowering the fore-jeer capitan down on the orlop occasionally; but this has been left off in the navy some years. The fifteenth and sixteenth beams take the well-bulk-heads; and till of late years the well was inclosed by a looper-board bulk-head from the orlop to the gun-deck, but is now only laid over with grating. Between the twentieth 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 fix; the flaps of the fore-mall being made by the fifth and sixth hooks, and framed by carlings. These hooks stand square with the body, but the hooks under the gun-deck and upper deck lay with the shear of the deck; there is likewise a hook under the hawse-holes. The magazine and light-room extend from the aft-side of the first beam of the orlop to the aft-side of the sixth, which takes the heels of the after-riding-bitts. Next abaft the magazine-bulk-head are the floor-rooms to the aft-side of the eighth beam; and under those a shot-locker. Close abaft the main-hatchway is the pump-well, inclosed with a bulkhead of three-inch plank, about ten feet fore and aft, and eight feet athwartships in the clear. In the well is the step for the main-mall, and the pumps on each side; and adjoining the well, on the fore and after-floors, are shot-lockers about two feet in the clear. On the fore-side of the twentieth beam is the bulk-head of the spirit-room, which extends to the aft-side of the twenty-second beam; and on the fore-side of the twenty-third beam is the after-bulk-head of the coal-hole, and fore-part of the powder-room, which extends to the after-side of the twenty-fourth or after-beam. The orlop cannot extend further aft, or 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 bread-room; and the space abaft it to the transoms is called lady's-hole. Close before the powder-room-bulk-head is a crutch; and two more crutches are spaced abaft the powder-room.

In the profile, Plate IV., is represented the method of connecting the fides and beams together by knees and riders, as used when that plate was engraved; but owing to the great scarcity of knee-timber since that time, other methods of connecting the fides and beams together have been adopted, which will be more noticed hereafter, under the head of improvements and projected improvements in the building of ships. See Substitute.

Hanging and lodging-knees of wood of a kindly growth is certainly the best mode of connecting the fides and beams together. The addition of breadth and top-riders, particularly in wake of the masts, and three or four in the waist, where they rake much, and so cross several of the timbers, must certainly diffuse the fide; but this may be more necessary in repairs than in new ships, if the hanging-knees are of a good growth, as before observed: but by no means to dispense with a hanging-knee to introduce a rider, but only when they can clear each other, as the gun-deck beam fifteen and upper deck beam fourteen, then it may be allowed to be very strong. Observe, whenever a rider comes in the throat of a lodging-knee, it can only be made of iron.

In the hold it is customary to place four floor-riders, one under the beam at the aft-side of the fore-hatchway, and the other under the beam abaft the main-mall; the next under the beam before the main-mall, and the other midway between that and the fore-hatchway. The floor-riders extend about twelve feet on each side beyond the keelson, and about one foot four inches square.

Lower futtock-riders are from five to fix in number, one on the side of each floor-riper, and one or two abaft the after floor-riper. Their length is from the side of the keelson, to give about eight-feet shift to the

Second futtock-riders, which extend from the floor-riper head up to the under side of the orlop-beam, and are about one foot two inches square.

Third futtock-riders are in length from the head of the lower futtock-riper to the under side of the gun-deck beam, and score on the side of the orlop-beam 1½ inches wide with a dove-tail, and are in size the same as the second futtock-riders. Observe, in shifting the riders, that they come clear of the pumps and of each other, otherwise they must call side ways, as at the nineteenth beam of the orlop.

A long carling 14 inches deep and 12 inches broad, is scored two inches on the under side of the fix after gun-deck beams, or to the beam before the mizen-mall, and connected to the sternpost-knee by an iron plate on each side at the after-end, the bolts being driven through and clenched on each plate alternately.

The inboard works being described in profile on the several decks, it is necessary also to represent them on the plan of each deck.

Instructions for designing the Plans of the Decks. Plates V. and VI.

Transfer from the sheer-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 a middle line, and therefrom square up the flations of all the timbers, as taken from the sheer-plan. Next transfer from the body-plan the half-breadth of each timber at the height of the deck intended to be drawn, and let them off on each side the middle line, at its corresponding timber and plan; but in Plates VI. and VI*: half the deck only is represented; then transfer from the sheer-plan, where the deck intersects the aft-side of the stern and stern-post at the rabbet, as in Plate VI., and on those lines set off half the thickness of the stern and stern-post. A curve drawn through the half-breadths as cut off, ending in the rabbet above and abaft, will represent the outside of the timbers; then within that line set off the moulding of the timbers, and drawing another curve thereto, gives the boundary of the deck at the side, and determines the length of the beams.
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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 tabbed; those in midships, being the longer, 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 leared to each arm. The method of connecting the sides by hanging and lodging-knees is likewise shewn in this plan, with the iron lodging-knee behind the rider, (engraved hanging by mistake,) as at the fifteen and sixteenth beams. The beam-arms at the main-hatchway and main-rooms are represented as tabbed 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 infide of which must be kept half the diameter of the mast, and five inches more for the wedging, and extend from the bitts to the flcpe of the bow-sprit: the cross-chocks, which frame the main-hole athwartships, are to be eight inches thick, and kept at the frame distance on each side the centre of the mast, and rabbot into the partners: the main-hole is made eight square, but now circular, by corner-pieces rabbetted to half their thickness into the partners and cross-chocks: on the fore-side of the fifth beam is a cap-choclet, about two feet square, and another abaat the fifth beam for handing up carldges, &c. from the magazine. The fore riding-bitts are 1 foot 8 inches square, and placed four feet aunder, or two feet on each side the middle line; the after riding-bitts are of the same size, and placed 4 feet 6 inches aunder, and the standard against their fore-sides extends to the fore riding-bitts: the cross-pieces abaat the riding-bitts are 1 foot 6 inches fore and aft, and two inches lefs deep, and the face-pieces on their aft-sides are of elm six inches thick. The framing of the fore-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, dovetailed 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, at the rate of 2 inches in six feet of length. The capstan-partners are here framed as on the upper deck; but by this method of lowering the fore-jeer capstan is discontinued, let it be framed as the main-jeer 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-cases through the mast-partners, and the back-cases without; the fprocket-wheel and fpindle-work in brass rhodings or gudgeons, let into the top-fail-sheet 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-edges 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 6 inches deep, to be scord 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 flap is an iron cap to receive the fpindle. The hatch to the spirit-room, and ladder-way to the cock-pit, are framed as the fore-hatchway. The main flap to be 1 foot 8 inches broad, and 1 foot 4 inches deep, and scored down between beams 25, 26, and 27, two inches. The bread-room flap is doubled, which is 2 feet 4 inches square, is on the larboard-side, and is framed with coamings and head-edges, with a cap or top as high above the deck as at the hatchways: on the starboard-flap this is a flap cut about two feet square over lady's-hole, and another 1 feet square over the fpindle to the magazine. On the gun-deck, in the middle of the three or four after-beams, is a standard, sided 12 inches, the upper end to stay against the transoms, as high as the helm-port tranform.

A fpindle without the coamings at the main-hatch is represented, the binding-flaps all fore and aft, which are to strengthen the decks, as they are weakened by the hatchways, therefore the butts should be shifted clear of them; in the inner flap are driven the stopper-bolts. Forward is shewn the moulded size of the deck-hook and eaking, also the plan of the hawle-holes and manger, with the flations.

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 boatwain's cabin on the larboard-side, with such another for the carpenter directly opposite; and before each is a floof-room, to hold their respective flores; before the boatwain's floof-room is a flail-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 floof-room. Cloke before the heel of the larboard fore-foorl riding-bitts is a cap-choclet, inclosed, to hand up filled carlings; and on the opposite side a flat fpindle to the magazine, likewise inclosed; at the end of the light-room passage is a fpindle to the light-room: abaft the riding-bitts are fpindle to the boatwain's, gunner's, and carpenter's floof-rooms under the orlop. The fore-fpindle is of the same size, and immediately under that on the gun-deck, but has only a flat framing round it, to take the hatsches that cover it. The beams of the orlop are rabbetted on each edge to receive the flat, which is only oak boards 1/2 inch thick as far as the after-platform. The midship flail-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 captain-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 shewn 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 spindles, one to the powder-room the other to the light-room.

On the larboard-side abaft is the fleward's room, abaft which is the bread-room; and the interval between the fleward's room and light-room bulk-head is the fleward's bed-place and racks for flowing cheeche: next before the fleward's room is the purfer's cabin, before that the flop-room, and next to that a compartment for the mariners' clothing. From the fleward'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 fleward's room to the mariners' clothing
is birthed up with a bulk-head of 1 3/4-inch deal, and the fame
from the boat-swain's cabin forward, and between those
flations and whole deck battens or lattice-work. On
the starboard-side, opposite to the steward's room, &c. is the
captain's flore-room, doctor's cabin, and firit lieutenant's
flore-room; and between the captain's flore-room and paffage
to powder-room, is fitted a dippermary for the doorf.
On this plan it is cumfory with a different coloured ink to
draw the plan of the works in the hold; and to diftinguifh them on the plate, they are reprefented by fine ticked
lines.
Under beam 1 is a bulk-head for the boundary of the light-
room, together with its plan, and also the magazine-lights,
jams, and flap-boards, (to throw the rays of light more
into the magazine). The magazine is surrounded by a frong
bulk-head of three-inch plank, the edges rabbeted together,
the inside of which is doubly lined with felt flat, fo 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 firt
laid with three-inch plank, caulked on beams underneath,
upon which are not flain, with copperldumps, the palling beams,
framed together at right angles, about three feet
alunher: the upper edges are rabbeted to receive the flat,
which is 1 3/4-inch deal, lined on the underfide. The bulk
head at the fide, which forms the wing, is conftrued with pannels,
and rabbeted flations to receive the pallings: in the fore-
part of the magazine in midfhips is the filling-room, which
is lower than the surface of the flat about twelve inches:
this is lined with lead, as it is the place where the cartridges
are filled, (hence its name,) for greater security: as it is fide
abof the lights, glafs falls from the sides, guarded with a
copper-wire net-work: in the fides of the filling-room are
racks for filled cartridges, and a compartment behind them
for faves of empty barrels. The powder barrels are flowed
upon dunnage battens, over the palling flat, which is
parted off from the filling by an open bulk-head of flations
and battens. Magazines are now only fitted up to receive
barrels with cartridges already filled.
Abaft the magazine are a flore-room for the boat-swain; on the
larboard-side, in midfhips, a flore-room for the gunner,
and under that a fhot-locker; and on the starboard-side a
flore-room for the carpenter.
Next abaft the main-hatchway is the plan of the well,
and fhot-locker afore and abaft it. Under the fore-fide of
the 20th beam is the bulk-head of the fpirit-room, and under
the aft-fide of the 22d beam the bulk-head of the coal-hole:
its after bulk-head is under the fore-fide of the 23d beam,
which also makes the fore bulk-head of the powder-room,
which is inclofed round with a bulk-head similar to that of
the magazine forward; likewise the light-room, and paffage
to the powder-room, which is inclofed up with racks for
flowing filled cartridges, as reprefented in the plan: all
of the powder-room bulk-head is occupied for the broad-
room, to the bulk-head for lady's-hole.
On Plate VI. is reprefented the half-plan of the quarter-
dock, wait, and forfeilace, likewise the half-plan of the
upper deck.
On the plan of the upper deck is fhewn the bead-head flations,
whole fides are rabbeted to receive the bulk-head: the
midft flations to be about 2 feet 6 inches on each fide
the middle line, and 12 inches square as high as the flat of the
beak-head; they tenon at the heel into the foemt
beam of the upper deck, and receive into their outflades
the tenon of the collar-calling, which is of the fame fize as the
flations, having its upper fide well with the flat of the
beak-head, which is of the fame height as the lower fides of the
ports. The midft flations to be 6 3/4 inches square above the
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collar-calling: the other flations, which are four in number
on each fide, are all 6 3/4 inches square, and face aft 3/8ths of an
inch into the cat-beam: the two outer flations are placed
afunder to the spread of the round-houfes, and fhould be
kept far enough out that the funnel may come clear of the
fide: the third flation from the middle line must be fpaced
fo as to make the bow-fhape port: the next flation within
makes the head-door: on the midft-side of the head-door is
a fcuttle, with a flap hung over it to lead in the fore-tack.
The heels of all thefe flations tenon into the collar-calling
with a double-flop.
The framing of the fore-maft partners are fhewn, as before
directed, for the main partners on the gun-deck, on the out-
fide of which are the heels of the fore-sheet and jeeb-bitts;
the heel of the former to spread sufficiently from the middle
line to lead the fore-tack clear of the gallery, having a fheeve
fitted into it for that purpofe. Aft ahaft the fore-maft partners
are the cans for the galley, which is inclofed abaft by two
doors.
The fore-hatch and ladder-way to be framed, as directed
on the gun-deck, with coamings ten inches broad, and nine
inches above the deck, and head-ledges fix inches thick:
next abaft are the fore-jeeb-capitain partners, to be seven
inches thick, their ends let down into a framing similar to the
hatchway (or to have their ends fquare, and flipt in with the
deck), and bolted through the beams and callings, and their
edges to be rabbeted to flop the caulkings. The ladder-way,
main hatchway, main-maft partners, after-hatch, main-jeeb
capitan partners, gratings, and ladder-ways, are all framed
as before defcribed.
On this plan the flat of the deck is reprefented, and the
several butts shifted: close to the fide are the water-ways,
five inches thick, and the firft frapke of oak which is cut
off between the riders; the next four frapakes are all English
oak in the wear of the guns, flipt in fhort lengths, and
anchor-fock, or top and butt, to affift the converfion.
The felf of the deck is three-inch Puffis deal, except the binding-
frakes, which are the second and third, without the main
hatch-coamings, and under the forefeilace: the deals muft
be fo flipt as to work their whole lengths, and great waite
will occur, that is, 30, 36, and 40-feet lengths. The mizen
partners are framed with a cauling on each fide, and corner-
pieces as high as the beams, and the flat round them is oak,
five inches thick.
Clove up under the beams is reprefented the tiller, as fitted
with the horn-loop over the end, for keeping up the tiller-
rope in the fweep, and a hoop abaft it, with eyes in it,
through which the rope is reeled, to be fet up taught by
tackles hooked to the eye-bolts: further aft, at the after-
ed, are iron rods, which are hoove taught by a frew-nut, to
keep the tiller aft. At the fore-end, on the upper fide, is
an iron goofeneck, which traveries on the fweep, and keeps
up the fore-end; the rope traveries round the fweep in a
groove, and is led up to the wheel on the deck above by
fheaves fitted at the end of the fweep, and the blocks afiore
the maft reprefented by the ticked line.
Sometimes abaft, where the fide is to round to have
riders, iron f tandards are fitted, as on beams 26 and 27.
On the beam, before the mizen-maft, is the bulk-head of
the ward-room, fitted with double doors on each fide.
The knee under the cat-beam prevents the hanging of
a door at the aft-fide of the round-houfes forward: they are
therefore inclofed with a bulk-head, and a door on the att-
fide.
On the plan of the forefeilace is fhewn (as was the prac-
tice when the plate was engraved), the conftruction of the
fife-rail, as let over the heads of the bead-head flations,
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-mall is framed in midhips a ladder-way, and round the fore-mall are the fore-top-fall-fleet and jeer-bitts, with their cross-pieces; on the fides of the bitts the check-blacks, or they must be provided very large, to receive all the sheaves necessary for sheets, braces, &c. A bitt of the fore-mall, on each side, is a fairritt for the top-tackles to lead through to a hook to an eye-bolt on the upper deck. Over the gallery, in midhips, are framed the deck-gratings; and between them coamings for the chimney-chim. At the aft-part of the forecastle are represented the belfry bitts, with the knees to support them; and over the breast-beam are flown the foot-rail and stantions, as then used, but now discontinued.

Along the walk into the side, instead of gang-boards, as formerly, the deck is continued from forward to aft 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 stantions, now rendered unnecessary by continuing to much of the deck along. On each side of the main-mall is a flat fairritt for the pumps to be paddled through; and on the aft-side of the beam abaft the mall are the brace-bitts. A bitt of the breast-bitts, on each side, is a flat fairritt, for leading through the main top-tackles to an eye-bolt driven in the upper deck. From the lefthand beam to the twentieth 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 stantions; in the next opening is the mizen-mall: the partners are formed with thick-plug, as at the upper deck. On the beam abaft the mall is the bulk-head of the lobby and bed-place, and on the twenty-sixth 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 selden-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-fall-fleet-bitts on the fore-side of the beam before the mall, and stantions are abaft: when an open stantion, 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 its fize 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 laid 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 grove: the several plans are laid off one over the other, as to the practisioner, 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 rabbit 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 B, D, E, H, K, M, O, Q, S, U, X, and the foremold-perpendiculars, and likewise frames 2 and 4 abaft. This must be accurately done, so as not to exceed the room and space.

Now describe the stantion, as in Plate VII., fig. 1., supposing it of the full size, by setting up from the line A A the height of the centre from Plate I., and the near side distance thereon from the adjoining perpendicular, as at Q, Q; by which radius the fore and after sides are swept, likewise the rabbit 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 tops last let off, and to the curves already swept, the stantion 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 stantion; 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.L., 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 the middle-siding of the stantion S from the middle line.

The main half-breadth line may now be laid off, by transferring it from the half-breath-plan, Plate I., to its corresponding timbers on the floor, from the line A A; and to end this line at the stantion, take the height in the sheer-plan, fig. 1., where the lower height of breadth-line intersects the aft-side of the rabbit of the stantion, and transfer it to the middle line of the body-plan, fig. 3.; and from thence take the half-thickness of the stantion, and set it up from the middle line of the half-breadth plan upon a line squared down from the aft-side of the rabbit of the stantion, at the lower height of breadth in the sheer-plan. Then, by pinning a batten to the several half-breath lines, fast off, and to its ending at the stantion, 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 on to the floor, and by pinning a batten thereto, produce the line B, in fig. 1.

Transfer from the half-breath plan, Plate I., the rising half-breath, 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 some straight line, as AA, allowing the addition of twenty feet; then, by pinning a batten to these heights set up, produce the curve, Plate VII. fig. 1.

Transfer from the half-breadth-plan, Plate I., the top-timber half-breadth on to the floor, and by pinning a batten to the several half-breadths set off, the curve C, in Plate VII. fig. 2, will also be represented.

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, making the line AA, Plate VII. fig. 1, serve for the middle line M, Plate VII. fig. 3, and one of the perpendiculars for the base line, or upper edge of the keel, as before observed. The diagonal lines in the body-plan are not only used in laying-off the body on the floor, and taking the bevelling of the several timbers, but are of very principal use in the actual building; for at their stations the ribbands 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, being so near the bilge, 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 to as far forward and aft as the floor extends.

The diagonal marked B in Plate VII. figs. 3 and 5, is placed in midships from eighteen inches to two feet, according to the size of the ship, below the floor-head C; it is the station 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 bevelling of the timbers are taken.

The diagonal marked D in Plate VII. figs. 3 and 5, is situated in the middle, between the floor-head and first futtock-head, at which place a ribband and harpin are necessary for the security of the first or lower futtocks, and hence called the first futtock-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 futtocks, and is therefore called the first futtock-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 futtocks. 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 futtock-head and the second futtock-head, at which place a ribband and harpin are necessary for the security of the second futtocks, and hence called the second futtock-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 futtocks, also the heads of the double futtocks afore and abaft the floors, and is therefore called the second futtock-head; it should be spaced about seven feet above the first or lower futtock-head, in order to give sufficient scarf or shift to the lower part of the third futtocks. Bevellings are also taken at this diagonal, all fore and aft.

The diagonal marked H in Plate VII. figs. 3 and 5, is situated in midships in the middle, between the second futtock-head and the third futtock-head, at which place a ribband and harpin are necessary for the security of the third futtocks, and hence called the third futtock-ribband. Observe, the harpin is placed low enough at the item that the wales may be worked before it is taken down, or it may fly up like the others, and not come home to the item. Bevellings are also taken at this diagonal, all fore and aft.

The diagonal marked I in Plate VII. figs. 3 and 5, terminates the heads of the third futtocks, and is therefore called the third futtock-head, and should be spaced about seven feet above the second futtock-head, so as to give the same shift to the fourth futtocks as the other futtocks have. Observe, such third futtocks as come under the gun-deck ports, must be continued upwards to the under 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 firing transferring the lower height of breadth-line E from the sheer-plan, Plate VII. fig. 1, from H to X, to the fore body-plan, fig. 3, and striking horizontal lines at each of these heights across the body-plan, as at K; then transfer the main half-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 breadth sweep from the fore body-plan, Plate I., of timber dead-flat, set it off upon its lower height of breadth line, and it will sweep it downwards nearly as low as the second futtock-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 item, transfer the height where it intersects the half-thickness of the item in the body-plan, fig. 3, to the fore part of the rabbet of the item in the sheer-plan, fig. 1; from thence square it down to the middle line of the half-breadth plan, fig. 2. Take the half-thickness of the item 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 half squared down; and from thence sweep an arc the thickness of the bottom plank taken on the diagonal, the after part of which are is the ending of the fore part of the floor-ribbands. Then, by pinning a batten to the several half-breadths, and to the back of the are or ending, the floor-ribband will be laid off.

In the same manner proceed with the ribbands or diagonals
D, F, 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 5, 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 set 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-breadths 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-breadths, 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 same process will complete all the timbers. With regard to the heeling of the timbers exactly, set off the half-thickness of the keel from the middle line in the body-plan, fig. 3, on the base line, and parallel thereof to its depth; then with compasses, opened to the thickness of the bottom plank, sweep two arcs, so as to form the triangle at the outfire 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 thickness of the plank; then to keep 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-thicknesses of the item in the body-plan, fig. 3; from thence, with compasses opened to the thickness 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-sloe, 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 swept 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 each height; then take the top-timber half-breadth from the half-breadth plan, fig. 2, at every timber, from dead-flat to X, and let 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-sloe, 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 so 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 respetively 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-breadths of all the timbers at the top of the side, and let 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 to 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-strakes shall come well with the knuckles; for if the knuckle was to come in the middle of either sheer-strake, the foreshaft of it must then be wrought, taking a large piece of timber and much labour. In Plate VII., the upper edge of the sheer-strake is well with the knuckle. Another consideration to be taken into this account is the lifting the sheer forward, that it may have the fame appearance on the ship as is designed on the draught; for if not lifted gradually some inches higher towards the item, 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 item 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. 3, and mark on the batten the slanting of the square timbers and the side of the item; then pin the batten to the sheer of the wale in fig. 1, keeping the slanting 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 at, to intersect their corresponding timbers and the item; then a batten pinned to those interections will give the curve for lifting the sheer of the ships round the bow. But as the forms of the bows of ships are so very different, it cannot be recommended as an undervailing 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-strakes, and consequently the knuckles of the timbers, all partake of this considerable additional height.

The square body afore dead-flat being now laid-off, proceed to lay-off the after-body abait dead-flat; but it is only necessary to point out such differences as occur at the extremities of the ship, the midship part being similar in both bodies.

On the mould-loft-floor it is customary to set off as many of the perpendiculars abait the fore-body already laid off, as to have sufficient room for the item-poit, 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 14, consequently from 14 strike up from the line A A all the remaining perpendiculars to 36.

Strike in the aft-side of the item-poit 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 thickness of the bottom plank.
SHIP-BUILDING.

Transfer from the floor-plan, Plate I., the heights of the centres of the floor-sweeps, lower and upper heights of breadth, top timber-line, and top of the side, as before.

Transfer from the half-breadth plan, Plate I., the half-breadths of the floor-sweeps, main half-breadth, and top-timber half-breadths. But to end the main-breadth, and likewise the top-timber half-breadth in the half-breadth plan, fig. 2, the side-counter-timbers must be laid off in the floor-plan and body-plan, and where they intersect the side-counter-timber in the floor-plan, must be squared down to the half-breadth plan.

In the plan of the after-body on the mould-loft-floor, its middle line is made by the side-line of the fore-body, consequently the bodies at the lower part cross each other. This would have appeared very confused in the plate, but it is always a maxim in laying-off on the floor to use as few lines as possible.

The lower height of breadth and sweeps, and the centres of the floor-sweeps in the after-body, fig. 5, may all be obtained exactly in the same manner as directed for the fore-body. The diagonals struck in, and the several half-breadths of the timbers let off thereon, form the after-body plan, Plate I. These timbers which come near the after-end of the keel, must be ended by tapers from the inner-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, fet off the thickens of the bottom plank. Then take off the half-breadth of each timber to the inside of the rabbet, and cut 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. 5, 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 take the bevellings of all the timbers in the square body; that is, from O forward to 28 abaf.

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 fame 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 midship edge well with the middle line, and lower end 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 battens of the same width be nailed aros, with their upper edges kept well with the floor-ribband 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 shew the proper flattens of the diagonals, and likewise the direction of the floor-heads. Then, upon the cross battens shall be marked the intermediate floor-heads 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 united together at the middle line by hinges, so as to shut together, and be more handy for use.

The cutting-down line being transferred from the floor-plan, fig. 1, to the floor, as at M, Plate VII. fig. 1, take its height above the upper edge of the keel at every floor from dead-flat to O, and let them upon the middle line of the mould from its lower edge, and square them across, marking each floor's name respectively. Fix one or two battens horizontally across, from the cutting-down board in the middle to the foremost floor, as braces, to prevent the mould from racking. The mould is now finished for moulding the floors of the fore-body thus far.

Now lay the blank side of the mould upwards in the after-body, fig. 5, and mark thereon, as before, the moulding edges of as many of the after-floors from dead-flat as the mould will contain, and the heights of their cutting-down, which will be found to extend to 21.

Then to the floors from 22 to the after-square floor 28, another similar mould must be made.

The lower futtock-moulds are held made of feathered board of the above thickens, the outer edge being faced to the frame-futtock, and the inside edge to the adjoining filling, from a few inches within the side of the keel to the firft futtock-head. Then when the mould is in its place, mark thereon the side of the keel, lower diagonal A, floor-ribband B, firft futtock-ribband D, and firft futtock-head E; or a shorter way, the diagonals numerically, 1st diag. 2d diag. &c.

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 splittings to the corresponding fillings at every diagonal, and also 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 keel C, firft futtock-ribband D, second futtock-head E, second futtock-ribband F, and second futtock-head G.

The third futtock-moulds may be next made in the same manner from the firft futtock-head to the second futtock-head, marking thereon the keel E, second futtock-ribband F, second futtock-head G, third futtock-ribband H, and third futtock-head I.

The fourth futtock-moulds differing in their shape, and being much longer than the others, the belt and readiest 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 afofe and abaft dead-flat. The inside of the mould towards the upper part may be made to the scantling line, but at the heel, and a few feet above it, should be made as broad as possible; so that by this one mould may be moulded nearly all the fourth futtocks in the fore-body. Lay the mould in its place at dead-flat, and mark thereon the keel G, third futtock-ribband H, third futtock-head I, lower and upper heights of headdith K and L, gun-deck port-fill M, upper deck port-fill N, top timber-line O, and top-side P.

Next place the upper part of this mould to the foremost 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, in consequence of the radii of the upper-breadth sweeps being all of one length); then, while the mould is in this position, if it covers 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 shall...
must be moved to the next timbers aft, placing it after the same manner, until the timber is found to which it will mould, as described above: while the mould lies well to the timber above the breadth, take its corresponding third futtock-mould, keeping the heel of the third futtock-mould well with the heel of its timber, then raise or mark its moulding edge on the fourth futtock-mould. In the same manner place it to the other timbers, marking thereon its corresponding third futtock, at the same time marking all the respective heights of the ribsbands, &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 left forward abaft than in midships,) measure the distance from the mould to the line of the timber or 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 square 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. Thse 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 compasses at the heel, may be marked upon one mould to each body, proceeding as before, only making the lower end of the mould sufficient to be as good as any compasses timbers thereon. But should the heels differ 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 futtocks, from the top of the side to the heel I, or third futtock-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 shew in what manner their bevellings may be taken; for, until then, the timbers which have bevellings cannot be cut out.

Provide a bevelling-board for the floors, in breadth as much as the floors are laid; and, in length, sufficient to take all the floor-bevellings thereon, as Plate VII. fig. 8. The first 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 square, 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 bevelling 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 A, 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 outides 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-breath plan.

Plate VII. fig. 2, (observing, 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-breath 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-breath plan, and set 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 those spots of the lower diagonal, beginning with the firt floor before dead-flat that has any bevelling, which is A, and, with the other leg, sweep the nearest 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 at 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 futtock, and one for the top-timbers, observing that the breadth of each board corresponds with the fiding of its respective futtock and top-timber; then, to take the bevellings for each, we must act as before explained for the floors; only observing which futtocks are standing bevellings, and which are under: for futtocks that have standing bevellings, the fiding of the timber must be fet off upon each diagonal, abaft the joint of its respective timber in the fore-body half-breath 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 first futtocks standing bevellings, second futtocks under, third futtocks standing, fourth futtocks 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 futtock and top-timber are as follows: for the lower or first futtock, lower diagonal a, second diagonal or floor-ribband b, third diagonal or first futtock-ribband, and first futtock-head d, Plate VII. fig. 7. For second futtocks, floor-head, which is second futtock-heel, third diagonal or first futtock-ribband, and second futtock-ribband, and second futtock-head. For the third futtocks, first futtock-head, which is the third futtock-heel, fourth diagonal or second futtock-ribband, second futtock-head, fifth diagonal or third futtock-ribband, and third futtock-head. For the fourth futtocks, second futtock-head, which is fourth futtock-heel, fifth diagonal or third futtock-ribband, third futtock-head, main-breath, port-fill-line, top-timber-line, and top-side. For the top-timbers, third futtock-head, which is the top-timber-heel, main-breath, port-fill-line, top-timber-line, and top-side. The bevellings for the main-breath, and all above, may be taken from the half-breath plan, by fixing the flock of the bevel to the joint of the timber, and moving the tongue to the respective half-breath 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 beveling 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, 14 inches; at the gun-deck ports, M, 14 inches; at the third futtock-heads, I, 14 inches; at the second futtock-heads, G, 12 1/2 inches; at the first
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First futtock-heads, \( E \), 15 inches; and at the floor-heads, \( C \), 13. Then pinning a batten to all those spots, making it fair to the cutting-down of dead-flat at the middle line, will give the scantling-line, or inner edge of timber dead-flat; then take the fixe or moulding at the head or heel of every timber, and let off on their respective moulds.

Then to mould the floors, the mould is laid on the timber, and the moulding edge of the intended floor is brought towards the outside of the piece; then fixe if there is cutting-down in the piece sufficient for bevelling, and sufficient below it for seating, which should be no less than sixteen inches, increasing forward and aft, as the strength may require. When that is done, 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 lines on the battens, and then observing whether there is wood sufficient to mould the inside 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 first futtock-mould will finish its moulding edge, or a pliable batten may be pinned to the spots, and the moulding edge formed as low as the piece will admit (so that it is not within the given subflance below the cutting-down), the batten being fair raised by its edge; then raise up the firmarks 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 will then be completed, and the deficiency, if any, below the seating is made good by chocks.

To mould all the futtocks except the fourth, the mould need only be laid off to the outside 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 inside by moving up or down; if not, it must be finished by a pliable 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 futtock-moulds are laid upon the piece, and should be in an horizontal position (as indeed all moulds should to try the bevellings); then see if 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 hole 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 there is wood in the piece sufficient for the bevellings, rake by the side of the mould inside and out as low as the main-breadth; below that it may be completed by the upper part of the corresponding third futtock-mould, keeping it well to the holes made by the gimlet at the heel and third futtock-ribband, which firmarks must be also raked up on the piece, likewise the heights of breadth, port-fill lines, top-timber line, and top-fide. The inside towards the head is finished by the scantlings given, and a batten as before described. But when fourth futtock-moulds have spiling 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 spiling marked upon the mould; then, towards the heel may be finished as before; but the upper part above the upper-breadth sweep must be completed by a mould made to the top-timber hollow. The top-timber line marked thereon must be placed to that given by the fourth futtock-mould, with its edge there fixed to the spiling, and its heel to the back of the upper-breadth sweep; its edge may be then raked by, and the fourth futtock will be formed up to the head or top of the side from the moulding-edge; then set off the scantling at the different firmarks, and the top-timber hollow placed to those spots will form the inner edge of the said fourth futtock, and so will the timber be completed.

Top-timbers are moulded so much like the fourth futtocks, as to render a further description unnecessary.

The moulds for the square body being finished, proceed to make moulds for the flem, fern-poll, &c. The mould for the flem is made to the lines representing the fore and after sides, or moulded breadth, from the head to the heel; but in pieces, according to the number the item is to be composed of. The flem is defcribed on the mould, which is readily seen by marking spots on the piece corresponding with the lines on the battens, and then observing whether there is wood sufficient to mould the inside 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 first futtock-mould will finish its moulding edge, or a pliable batten may be pinned to the spots, and the moulding edge formed as low as the piece will admit (so that it is not within the given subflance below the cutting-down), the batten being fair raised by its edge; then raise up the firmarks 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 will then be completed, and the deficiency, if any, below the seating is made good by chocks.

The fern-poll mould is made to the lines representing the fore and after sides of the fern-poll, from the head to the heel, and a batten to the flem; then, across the mould may be marked the height of the upper side of the wing, filling, and deck-tranfoms at the middle line, also the heights of the harpins. Another mould is also made for the bearding-line on the poll, the aft-fide of which must be raked to the beard line from the upper side of the wing-tranfom down to where the beard-line intersects the fore-side of the inner poll, and the fore-side of the mould to the fore-side of the inner poll; then upon the mould must be marked the stitutions of the upper sides of all the tranfoms, marking their respective names thereon. By many, the use of this mould is superceded by marking the whole of the heights, &c., upon the fern-poll mould.

Another mould may be made to the thwartship bearding of the fern-poll, thus: square down the intersection of each water-line, with the fore-side of the inner poll in the flem-plan, to its corresponding water-line in the half-breadth plan; then throw 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 fern-plan; and a curve made to pass through those spots will be the thwartship bearding of the poll, at the fore-side of the inner poll, 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 fern-poll.

A mould should be made to the dead-wood abscit, which is limited on the upper part by the cutting-down line, on the lower part by the upper edge of the keel, the after end by the fore-side of the inner poll, and the forenoon end by the aft-side of the after-floor. The mould for the dead-wood knee is represented on it; and so likewise are the several pieces that compose the whole, as they can be gotten to as to give shift to each other. Upon this mould are fastened battens, with one edge freight to the middle line: they correspond with the flutions of the square timbers; and the other edge...
is hollowed to the moulding of the timbers, which gives the half-thickness of the dead-wood below the stepping or bearding-line, as marked on the mould, as all above that line the dead-wood is trimmed perpendicular to the siding of the keelson. 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-breadth plan, Plate VII., fig. 4, where the lines representing the joints of the cant-timbers, as transferred from the sheer-draught, Plate I., intersect the middle line, there may be supposed the hinge of a door; and the lines for the cant-timbers may be supposed to represent the door, which may be swung forward at pleasure; so that if the ship was on an even keel, the sides of the cant-timbers (though trimmed to their proper form) would become perpendicular, similar to the door; or supposing 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 respect; and as the cant-timbers at the middle line become perpendicular, making one straight section in the direction of the cant-timbers; so the cant-ribbands at their intersection 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 represented by a door that is hung perpendicular, so may the cant-ribbands be represented by any plain surface, like the flap of a table, that may be hung horizontal to the side of a room; then will the side of the room become the middle line of the ship, equal to the middle line in the half-breadth plan, fig. 2, and the flap of the table may be cut down to the direction of the diagonal lines in the body-plan, fig. 3.

To understand it clearly, suppose 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-breadth plan, fig. 2; let it be the floor-ribband; then within the floor-cant-ribband in the half-breadth plan, fig. 4, is the square or horizontal ribband B, which is the same or distance from the middle line which the flap of the table makes when canted down, as in fig. 3.

The cant-ribband in the half-breadth plan, fig. 4, is the same as the flap of the table, if lifted up till its level, shewing the extreme half-breadth 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-breadth plan, fig. 4, is the proper line to make the mould to for the harpin. But the intersection 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, where the cant-timbers cross the square ribbands, square them up to their corresponding cant-ribbands, as may be readily seen in fig. 4, which are the proper flations 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 exactly under the long ticked line B, which is the square ribband. The flations 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 straight line from the intersection of the cant-timber with the middle line, to their corresponding flations on the harpin-mould; as at cant-timber S, fig. 4. This will give the direction as the cant-timbers stand 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 least; for it is possible 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 unfaiths in the body is more readily seen; but when the ribband-lines and water-lines produce fair curves in fig. 4, and likewise 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 distances taken square from the middle line of the fore body-plan, fig. 3, to where the floor-ribband intersects each of the square timbers O, Q, S, U, X, and Y. Then fit them off from the middle line on their corresponding timbers in the half-breadth 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-breadth 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 intersects each of the square timbers O, Q, S, U, X, and Y. Then fit them off from the middle line on their corresponding timbers in the half-breadth plan, fig. 4. Now proceed to the operation, where the cant-timbers in fig. 4, intersect the square ribbands A, B, C, D, E, or 1, 2, 3, 4, and 5. Take the nearest distance or square from the middle line, and set them off square from the middle line to intersect their corresponding ribbands in the body-plan, fig. 3, and from thence level out lines at pleasure, 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 intersection 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 likewise the proper flations of the harpins to be croffed on the timbers.

Square up from the half-breadth plan, fig. 4, where the cant-timbers cross the half-thickness of the dead-wood H, to the bearding-line R in the sheer-plan. Likewise from fig. 4, where the cant-timbers cross the main half-breadth line, port-fill line, top-timber half-breadth, and half-breadth at top-side, let them be squared to their corresponding lines in the sheer-plan.

Take the heights in the sheer-plan, where the cant-timbers cross the bearding-line, likewise the lower and upper main-breadths,
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breadths, the port-fill line, the top timber-line, and top of the side, 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 let 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-fill half-breadth, top-breadth, and top-side, 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 harrpins on the timbers.

To Lay off the Bevellings of the Cant-Timbers.

Let the bevelling of cant-timber u be required, and this will suffice for all, as the process is alike. Strike a line afoxe and likewise abaft the joint of cant u in the half-breadth plan, fig. 4, to the fecting of the timber, which should be the breadth of the bevelling-board. Square a line from the interfeftion of the joint with the middle line, to crofs the edges or fiding of the timber u in the half-breadth plan, as at L, fig. 4; then take the neareft distance or fquare to the middle line, from where the ticked line afoxe crofses the square ribbands A, B, C, &c. and set it off square from the middle line in the body-plan, fig. 3, on each corresponding ribband, in the fame 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 in the direetion 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 crofses the middle line at the joint in fig. 4, to the square ribbands A, B, C, &c. in the direetion of the ticked line, before the joint or fore edge of u, and let 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, interfefts the half-breadth of the dead-wood, square it up to the bearding-line in the fheer-plan, and transfer that height to the body-plan, fig. 3. Then take the distance in fig. 4, from the fquare line, as before, to the line for the half-breadth of the dead-wood, in the direetion of the ticked line; and let 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 fimplify the lower end. Where the fame ticked line, in fig. 4, interfefts the main half-breadth line, square it up to the lower height of breadth line in the fheer-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 direetion of the ticked line, and set it off square from the middle line in the body-plan, fig. 3, on the height laid off. Then, by pinning a fatten 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 u, and the two edges will be run in the body-plan, fig. 3, as the ticked lines there reprefent, the neareft distance of which, taken with compaflies, 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 fo much within (or under from) a fquare, confequently the ticked line without the joint will be fo much without (or branching from) a fquare.

Figs. 5 and 6, exhibit the form of the fashion-ice and cant-timbers of the after-body, which being laid off and bevelled in the fame manner as cant-timber u in the fore-body, it is ufeless to explain them; nevertheless, cant-timber 35 is completely laid off, that it may be referred to at leisure. It may be neceflary to add, that the greater parts are required to prove the correellines of the after-body, not only by the water-lines, but by the vertical leetions or buttocke-lines, and by introducing one or more square timbers abaft 36, to prove the butocke quite aff, and hence called proof-timbers. When there are all found to agree, it will not only produce a fair cant-body, but likewise a fair ftern-frame. See Plate IX. Laying-off C.

Observe, the diagonal H, fig. 5, or third buttock-ribband, ends up on the aft-side of the wing-tranfonm, which requires the following method to end it. Transfer the height from the line A, the upper edge of the keel, where the diagonal H interfefts the margin-line of the tranfonm in the body-plan, fig. 5, to crofs the margin-line in the fheer-plan; and where it crofses, 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 direetion of the diagonal H, to where it interfefts the margin-line of the wing-tranfonm, and let 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 buttock-ribband. To end it as a fquare ribband, take the neareft distance, or fquare, from the middle line in the body-plan, fig. 5, to where the diagonal H interfefts the margin-line, and let it off square from the middle line, fig. 6, to interfeft the margin-line there; and if truly squared down for ending the cant-ribband, the ending of the fquare ribband will also interfeft the margin-line in the fame place in fig. 6.

Moulds are generally made to each timber, or buttock, in the cant-bodies; and in frolling or marking them, it must be obferved, that the itations of the heads and ribbands are where the lines levelled out interfeft the lines of the cant-timbers. On the heels of the double buttock and half-timber moulds, nail on a batten to the lepping and fide of the dead-wood, by which the heel is to be cut off. To perform this, let off on the half-breadth plan, fig. 6, the thicknefs of the lepping, or dead-wood, above the lepping-line, which may be the half-thicknefs of the keel, 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 direetion 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 fame cant-timber; and from that spot square up a line to the upper fide of the cutting-down, which will give the height of the inide of the timber, and will reprefent the fide of the dead-wood to which the batten is to be nailed. A firnark, crofsed on this batten at any certain height above the keel, and carefully crofsed on the fide of the timber, when trimmed to correspond to a line gotten upon the dead-wood at that fame height above the keel, will be the fureft and beft method of keeping the cant-timbers to their exact height on the fhip.

Bevellings.—To take the bevellings, provide a board as broad as the fecting of the timber, and long enough to take all the bevellings of the fore-side of the joint, and likewise abaft it, as Plate VII. fig. 9. Begin with the fore-side of cant-timber u, fig. 4; the heel-bevelling is the firft to be taken, which gives the direetion to trim the heel of
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 direction of the joint of cant-timber \( u \) in the half-breath plan, and place the tongue well with the middle line, or at the half-thickness of the dead-wood, as at \( F \), 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 bearding-line, is next taken. Thus, where the joint of cant-timber \( u \) intersects the half-thickness of the dead-wood, in fig. 4, square 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 intersects, and extend the other leg to the ticked line, representing the fore edge 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-breathths, 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-breath plan, fig. 4, as at \( G \), and place the tongue in the direction of the respective half-breath lines, as at top-breath, observing to let the tongue teach forward: these bevellings are set 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 observing that the square line at the heel comes within side of the middle line of the half-breath plan, and likewise when the bevel is applied to take the bevellings at mainbreadth and above, the tongue of it must teach aft; these bevellings may then be marked on the same 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 may the bevellings 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 cantbodies, 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 section, being made acquainted with the nature of cantiing the ribbands, it may only be necessary to observe, that the ribbands at the port-fill line would be placed better about eight inches below the upper side of the lower fill, so that they may be let out above the ribband; and likewise the ribband at the top timber-line should be so placed, that one of the sheer-frakes should be wrought before it is disturbed. 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 diagonal or cant-ribbands lines in the cant-bodies, figs. 4 and 6; from the stem or stern-pole, to the adjoining square timber, as \( O \) and \( 28 \), 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 intersect the square ribbands, square them up to their corresponding cant-ribbands; then striking a straight line from the intersection of each cant-timber, at the middle line of the half-breath plan, to the corresponding flations latt, squared up, will give the direction of the cant-timbers as they stand with the harpin-mould, as at cant-timber \( r, \) 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 displaced. The flations of the square timbers make no alterations, because the harpin is lowered to its cant in a perpendicular direction. Fix the flock of a bevel in the direction of the diagonal, say 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 sided), and so 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 same harpin-line in the body-plan, fig. 3, and the tongue against the side of the item, and mark that likewise upon the board; and by that bevelling the foremost end of the harpin must be trimmed, to say against the item. The fore and aft part of the harpin against the item is obtained by the foot, or swell 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-breath plan, fig. 4. Another bevelling is taken and applied over the end, after it is cut off to the fore and aft-line, and belved 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 rabett; then mark it on the board, and the bevellings are completed. To complete the harpin-mould, square down from the sheer-plan, where the fore-side of the rabett of the item crosses the upper side of the harpin, to the mould on the half-breath plan, and make a firmark, which being kept to the fore-side of the rabett 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 observed, but made separare here for clearnels. The hawse-pieces, in figs. 1 and 2, are supposd to stand perpendicular when in their places, and their sides to look fore and aft. They may be called square timbers, only they look fore and aft, instead of athwartships. This being the first method of laying-off the hawse-pieces, will be easiest understood.

Strike in straight lines as much adenser, and parallel to the middle line in the half-breath plan, fig. 3, as the knight-head and hawse-pieces are to be sided, marking them \( K, \) \( H, \) 1, 2, 3, and 4.

Where the edges of the foremost cant-timbers, marked \( E, F \) in the half-breath plan, fig. 3, cross the water-lines,
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main-breadth, and level line, at their heads A, square them up parallel to any of the square timbers, to their corresponding lines in the heer-plan, fig. 1, and likewise do the fame with the bearding-line, which will give the ending of the timbers on the bearding-line; then, by pinning a batten to all those spots, this shews the thwartship view of those cant-timbers when in their places, as F G.

Where the lines for the knight-head and hawse-pieces, in the half-breadth plan, fig. 3, cross the water-lines, main-breadth, and heads, let them be likewise squared up to their corresponding lines in the heer-plan, fig. 1; a batten pinned to those spots, making a fair line, and the edge rasied or chalked by, gives the form of the knight-head and hawse-pieces, and shews them in their proper places; and where the lines for the knight-head, and 1, 2, and 3 hawse-pieces, meet the fore-side of the short cant-timber, before cant y, in the half-breadth plan F, fig. 3, let them be squared up to the fore-edge, G, of the same timber, in the heer-plan, fig. 1; likewise the heel of hawse-piece 4 crossing the fore-edge of cant y, which gives the heeling of the knight-head and hawse-pieces.

The midship side of the knight-head connecting well with the side of the item, the rabbit being in the middle of it, makes the aft-side of the rabbit the fore-side of the knight-head. But when the rabbit is not in the middle of the item, it connects well with the side of the apron and dead-wood, consequently the bearding-line represents the fore-side.

Before the moulds for the knight-head and hawse-pieces can be crossed, if made, the hanging of the harpins must be described in the heer-plan, fig. 1. Thus, their heights perpendicularly from the base line, where they intersect the square timbers, and at the side of the item, in the body-plan, fig. 2, and transfer them respectively to the heer-plan, fig. 1; then, by pinning a batten to those heights, we have the lines A, B, C, D, and E, or hanging of the harpins in the heer-plan, fig. 1.

The heels of the knight-head and hawse-pieces, where they intersect the cant-timber in the heer-plan, fig. 1, are lined up perpendicular, in which direction they must be cut off, to fay against the side of the cant-timbers F and G. The moulds may now be made of inch-board to the lines marked K, or knight-head, and 1, 2, 3, and 4 hawse-pieces in the heer-plan, fig. 1, from the heads to the heel, and the moulds at the heels to be cut off in the direction of the perpendicular line theret, and while in their places mark a firmark on the moulds, wherever the harpins intersect the moulding edge of the knight-head and hawse-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 hawse-piece 4. The firmarks on the harpins also shew the height to keep the harpins on the ship.

The bevellings may be next taken, and marked on a board, which should be as broad as the fiding of the hawse-piece, having a board to the knight-head, and each hawse-piece, or all on one board, if not thought unhandy, as fig. 4. The first bevelling taken from the knight-head or hawse-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 hawse-piece 4, is the under bevelling. To cut off the heels to fay against the cant-timber thwartships, the bevel should be applied square from the heel, as cut off, to the perpendicular lines at the heels in the heer-plan, fig. 1. But to get the bevelling at the heel to counter-mould them, when the heel is cut off and trimmed to the above bevelling, the foremost edge of cant y must be laid off on the square, as i, and on the cant, as h, in the body-plan, fig. 2, as the joint of any of the cant-timbers were in Plate VII.; and so must likewise the fore-edge of the cant-filling before y, the latter being introduced only to shorten the heel of the knight-head and foremost hawse-pieces. Then strike in the body-plan, fig. 2, the fiding of the knight-head and hawse-pieces parallel to the middle line; and where the moulding edge at the heel intersects the square edge, or fore and aft view of the cant-timber, as g in the body-plan, fig. 2, level it out to intersect the cant edge b. To do this with less trouble, take the height in the heer-plan, fig. 1, of the heels of the knight-head and hawse-pieces at their intersection of the thwartship view of the fore edge of the cant-timbers, as F and G, and set them up in the body-plan, on their respective cant edges, marking them up perpendicular; then place the flock of the level against the perpendicular lines, and the tongue to the cant edge of the timber, as G for the knight-head, and F for hawse-piece 4, which will give the exact bevelling to be applied on the heel when cut off for the counter-moulding of the knight-head or hawse-pieces.

The side of the knight-head and hawse-pieces being parallel to each other, they will serve, in the heer-plan, fig. 1, for the bevellings of each other, similar to parallel lines laid down for the cant-timbers; for, as much as the moulding edge of the hawse-piece, 1, is within or abaft the moulding edge of the knight-head, from the head to the heel, so much is the bevelling of the knight-head within or under from a square, in the distance between the knight-head and the hawse-piece, 1, in the half-breadth plan, fig. 3; therefore with compasses sweep the nearest distance at each harpin, &c. from the moulding edge to the after edge of the knight-head and each hawse-piece, as may be seen at hawse-piece 4, in the heer-plan, fig. 1, and set it within a square upon the board, as at e, fig. 4; and so on for the others.

The bevellings of the knight-head and hawse-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 so true in their application as when taken on a square.

But was the counter-moulding bevelling at the heel correctly set off, and another at the head for the knight-head, then the mould for hawse-piece 1, 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 chock was fayed before it was moulded, and the knight-head properly fided.

In the same manner, the mould that is made to the moulding edge of the hawse-piece 2, would counter-mould the hawse-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 hawse-pieces, because there is a sufficient number of square harpins already run; for in the half-breadth plan, fig. 3, where the knight-head and hawse-pieces cross the square harpins, let them be squared up to their corresponding harpins in the heer-plan, fig. 1, which will give the exact form of the knight-head and hawse-pieces; and, if the work is correct, will agree with the former by the water-lines.

To Lay off the Hauwse-Pieces, where the Sides are required to look fore and aft, and likewise to be fided left at the Heels.

Every timber in the ship which is fided straight, must appear, either in plan or elevation, as one 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 hawse-pieces are intended to look fore and aft, that is, at any particular height the sides of them...
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 hawfe-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 hawfe-piece 4, which is intended to be laid off, in order to get the bevellings of No. 4 hawfe-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 hawfe-pieces end against, must be squared up and represented in the sheer-plan, fig. 5, as in the preceding operation.

The fore and aft view of the foremost edge of cant-timber y, and the cant-filling before it, both on the square and cant, must be laid off as b, i, in the body-plan, fig. 6, as before explained.

Now proceed to lay off the hawfe-pieces, or to shew 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-thickness of the item in the half-breadth plan, fig. 7. Therefore take the distance square from the middle line to the heels of the hawfe-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 hawfe-pieces in fig. 7. Take the distance square from the middle line in the body-plan, fig. 6, to where the hawfe-pieces cross the hawfe-pieces A, B, C, D, and E; and set them off square from the middle line, on their corresponding square hawfe-pieces 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 hawfe-piece 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 shews 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 shew the form of the body, supposing it to be cut by the different sections of the hawfe-pieces, to which form the moulds are to be made to trim the hawfe-pieces. Proceed in the following manner:

Where the hawfe-pieces 1, 2, 3, and 4, in the half-breadth plan, fig. 7, cross the square hawfe-pieces c, d, e, f, and g; and likewise the main-breadth B, and hawfe above A; let them be squared up to their corresponding hawfe-pieces 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 hawfe-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 half-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; this gives the moulding edges of the hawfe-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 hawfe-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 hawfe-pieces, 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 hawfe-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 shew the proper method that may be depended on, lay-off the moulding edge of hawfe-piece 4, or the outside of No. 3, which will make the most difference, because it stands most from a perpendicular.

There must be supposed 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 hawfe-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 hawfe-pieces in the sheer-plan, fig. 5, where the moulding edge of hawfe-piece 4 intersects them. Then take the distance from the heel of No. 4 hawfe-piece, in the body-plan, fig. 6, to each hawfe, main-breadth, &c. taken in the direction of the moulding edge of hawfe-piece 4; and let them up perpendicular from the heel of hawfe-piece 4, in the sheer-plan, fig. 5, on the lines before squared up, at their corresponding hawfe-pieces: then pinning a batten to those spots, mark the curve in fig. 5, which will give the exact moulding of the hawfe-piece, and the heights for the flations of the hawfe-pieces to be crossed on the hawfe-piece moulds.

Though the exact and proper method to lay-off the hawfe-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 shewn in the sheer-plan, fig. 5, because it makes but 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, suppose the head of hawfe-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 hawfe-pieces are made to the lines in the sheer-plan, fig. 5, as before directed.

The bevellings, supposing the hawfe-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 hawfe, is the proper bevelling of them, agreeable to their distance from each other taken at their corresponding hawfe-pieces in the body-plan, fig. 6.

Where the heels of the hawfe-pieces step 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 hawse-pieces to lay against the fore-side of each cant-timber.

The bevelling of the hawse-pieces must likewise be done as in fig. 3; for though in the half-breadth plan, fig. 7, the form of the moulding edges of the hawse-pieces appear in this view, yet the sides of them, at level heights, are exactly fore and aft; therefore the bevellings to trim the heels to lay against the side of the cant-timber, is the same for all the hawse-pieces, and must be taken with the floor 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 No. 4 hawse-piece.

To take the bevelling of the heel, to be applied when the heel is trimmed by the last bevelling, in order to counter-mould the hawse-pieces, transfer the heels of the hawse-pieces from the sheer-plan, fig. 5, to the cant-timber in the body-plan, fig. 6, as for taking the bevelling of the hawse-piece 4, and strike up a perpendicular line, to which apply the floor of the bevel, and the tongue to the fore cant-edge, as at e, fig. 6. This gives the bevelling of the heel, in order to counter-mould the hawse-pieces.

As the most accurate method of moulding the hawse-pieces has been treated of, it is requisite it should be referred to respect the disposition of the heels, and the bevelling of the heels. As the bevelling of the heel is shewn for No. 4 hawse-piece, the following will explain the difference that may be expected, if the hawse-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 hawse-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 hawse-piece No. 4, in the direction of the line of the hawse-piece, and set it up perpendicular from the heel of No. 4 hawse-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 hawse-piece, which gives the exact form of the heel to lay against the fore-side of cant-timber y.

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 floor of the bevel should be applied to take the bevelling of the heel, in order to counter-mould the hawse-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 deferred on the plate.

Where the hawse-pieces in the half-breadth plan, fig. 7, cross the square harpins c, d, e, f, and g, square them up to their corresponding cant-harpins, as at h, which gives the proper stations of the hawse-pieces on the cant-harpins; but the direction of the hawse-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-fell and head; for where the hawse-pieces cross those harpins in the half-breadth plan, fig. 7, is the proper station of the hawse-pieces on the aforesaid harpins; or otherwise it is the proper distance from the middle line which the hawse-pieces will be on each harpin, when the harpins are in their places; because those harpins are shewn in the half-breadth plan, fig. 7, as they really appear when they are in their places.

To Lay-off the Hauue-pieces when canted.

The method of laying off and disposing of the hawse-pieces when canted, is the most complete of any, as it is the rule for the length of the ship, and will likewise afford the conversion of the timber; for by canting them, they will not only be diminished at the heels, whereby a less piece of timber will make them, as in the foregoing method, but the bevellings will be less acute; and as the canting 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 canted nearer to a square with the body, add more to the security of the plank, and the timbers are not wounded so much by that securit. The canting of the hawse-pieces is also some advantage to the hawse-holes; for although the hawse-holes are generally cut nearly parallel to the middle line, yet cantiug of them leaves most wood at the outside of the hawse-hole, which is the farthest from the middle line, as it is the wearing side of the hawse-hole.

Dispoae of the hawse-pieces in the half-breadth plan 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 hawse-pieces are to be cut off.

Lay off the thwartship view of the hawse-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, croises the half-thickness of the dead-wood C, square them up to the bearding-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 beak-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 hawse-pieces heel against.

In the same manner proceed with the hawse-pieces: where, in the half-breadth plan, fig. 11, they intersect 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 intersect the thwartship view of the said cant-timbers, as E and G in the sheer-plan, fig. 9. This shews the exact height of the heels of the hawse-pieces, where they slope 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 hawse-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 croised upon the hawse-piece moulds. The moulding edge of the knight-head is the aft-side of the rabbet of the stem.

Where the knight-head and hawse-pieces intersect the fore-side of the cant-timber, marked E in the half-breadth plan, fig. 11, to a batten in the direction of the line of the knight-head, or hawse-pieces; mark thereon the points where they are intersected by the water-lines; and let 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 hawse-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 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 thwarts 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, in the direction of the fiding
and ticked line, and set them off from the middle line in the
body-plan, fig. 10, on their corresponding lines, marking spots.
Then by pinning a batten to these spots, mark the curves
K, H, I, 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 direc-
tion 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 thwarts
view of the foremost cant-timber at G, and transfer them to
the body-plan, fig. 10; and where they intersect their re-
spective hawfe-pieces, 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 stations of the harris below the main-breadth can-
not be marked on the moulds. Therefore the thwarts
view of the harris 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 thwarts view of the knight-head and hawfe-
pieces, shall the exact height be transferred from the sheer-
plan, fig. 9, to their corresponding lines in the body-plan,
fig. 10, which gives the exact stations of the harris to be
crooked on the knight-head and hawfe-pieces moulds.

The beevlings are to be taken thus: Strike a line in the
half-breadth plan, fig. 11, to the fiding 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
of all to be understood. Then square a line at the heel, where
the moulding edge of No. 4 hawfe-piece crooks the can-
timber marked E. Then take the distance from the squared
line in the direction of the fiding or ticked line to the separate
water-lines, where they intersect the ticked line, and set them
off from the middle line in the body-plan, fig. 10, on their
behalfing water-lines. Where the ticked line in the half-
breadth plan, fig. 11, intersects the cant-line E, square it up
to intersect the thwarts view F, in the sheer-plan, fig. 9,
as marked with a star, and from thence transfer it tt the
body-plan, fig. 10, as far as the middle line. Then take the distance
from the squared line at the heel in the half-breadth plan,
fig. 11, to the cant-line E, in the direction of the ticked line,
and set it off from the middle line in the body-plan, fig. 10,
at the height last mentioned. Continue the ticked line or
fiding of the hawfe-piece to intersect the water-lines 1, 2,
and 3, in the half-breadth plan, fig. 11; then take the dis-
tance from the squared line at the heel to those water-lines
in the direction of the fiding or ticked line, and set them off
from the middle line in the body-plan, fig. 10, on their corre-
sponding 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 fiding 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 trans-
fer 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 fiding or ticked
line, and set 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 a square in the
distance from the fiding 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-lides 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 thwarts
view of the cant-timber marked F, to its corresponding
cant-timber in the body-plan, fig. 10, and strike a perpendi-
cular 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-pieces, 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 croosed upon the hawfe-piece
mould.

To Lay-off the Hawfe-Pieces by the Square Harpins taken
off.

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 E, F, in the half-breadth
plan, fig. 11. The point where the knight-head and hawfe-
pieces intersect the fore-lide 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 same 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 same body-plan) for laying off and bevelling the
cant-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 stations of the harpins
on the hawfe-piece moulds, when laid off by the water-
lines) will now be proved to agree with the operation by the
harpins.

Now the knight-head and hawfe-pieces are intended to
be laid off together by the harpin-lines. There is no ne-
cessity to lay-off the thwarts view of them in the sheer-
plan, fig. 9; but the thwarts view of the fore-lide of the
cant-timber they heel against will be wanted, to find the
height of the heels. Having the plane height of the har-
pins laid off before in the sheer-plan, fig. 9, where the
fore-lides of the cant-timbers, marked E, F, intersect the
square
square harpins \( c, d, e, f, g \), in the half-breadth plan, fig. 11, square them up to their corresponding harpins in the sheer-plan, fig. 9. This gives the thwartship view of the cant-timbers; and if the work be true, it will answer the fame as by the water-lines. The exact height of the heels should be found, in order to prove the rest of the work; and as the lines of the hayse-pieces in the half-breadth plan, fig. 11, are continued abaft the fore-side of the cant-timbers, as \( E, F \), to intersect the square harpins \( c, d, e \), then by having spots in the body-plan, fig. 10, beyond the middle line, (when the batten is continued to the spots beyond the middle line on those harpins,) it would intersect the middle line at the proper height of the heel of the hayse-piece.

To prove the hayse-piece No. 4, as laid off by the water-lines, let it be laid off by the level or square harpins: thus, where the moulding edge intersects the fore-edge of the cant-timber, marked \( E \) in the half-breadth plan, fig. 11, square it up to their intersecting thwartship view \( F \), in the sheer-plan, fig. 9; and transfer that height to the middle line in the body-plan, fig. 10. This gives the heel of the hayse-piece No. 4, exactly similar to the method by the water-lines.

Observe in the half-breadth plan, fig. 11, where the hayse-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. 10, there striking a level line, in the same manner as was done for the cant-timbers. Then take the distances in the half-breadth plan, fig. 11, from the intersection of the hayse-piece No. 4, with the cant-edge marked \( E \), to where it intersects each of the square harpins, in the direction of the line for the said hayse-piece; and let them off square from the middle line in the body-plan, fig. 10, on their respective level lines before mentioned; observing to let off the distance to the left hand of those which were taken abaft the cant-line \( E \). This gives the spots for the moulding edge of the hayse-piece No. 4; and is likewise the exact elevation of the harpins to be crossed on the moulds.

Proceed in the same manner to find the spots for the moulding edges of the other hayse-pieces; as those for the main-breadth and beak-head harpin are found in the very same manner as by the water-lines.

The beveling-edge is laid off in the very same way as the moulding edge; only the distance taken in the direction of the tied or fising-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 that the difference of laying-off, between the water-lines and harpins, is in the performance only.

To find the proper latitons of the knight-head and hayse-pieces on the harpin-moulds, we need only square up the intersections of them with the square harpins to the cant-timbers, in the same manner as was done for the cant-timbers. And the points where the knight-head and hayse-pieces in the half-breadth-plan, fig. 11, cross the harpins at the ports and beak-head, shew the proper latitons of them, as they appear when the harpins are in their places, they lying level in a thwartship direction to the sheer of the ship, the fore and aft-way. The main breadth is only used as a beveling spot; for it was required to place a harpin to that height, its great value would require a very different operation to form the line to make the mould to.

To Lay-off the Tranforms, Plate IX. Laying-off C.

The trantsoms and fashion-pieces compose the stern-frame. The upper ones are the wing, filling, and deck-tranforms; and there may be as many under the deck-transform as the form of the body will admit, of kindly growth. The uppermost is called the wing-transform, which is the base of the stern.

This may be admitted the strongest and best method of uniting the after-part of the ship together: the strongest, because every transform crossing the after-part of the ship, and bolting through the stern-poll, they may be confidered similar to the breast-hooks; so that when the planks are wrought on the buttock, and the wing-transform knees, and fleerers or diagonal knees are bolted, it may be allowed to be as strong as the fore-part or bow is with the breast-hooks, because the fore-part of the ship has no other asistance to keep the bows together.

As there are several operations required to lay-off the stern-frame, Plate IX. Laying-off C, is made a separate plate for that purpose; though it represents the lines on the floor, as before observed.

The fashion-pieces being struck in the half-breadth plan on the floor, and the water-lines run as in Plate I., square up the intersection of the fashion-pieces with the bearding-line, water-lines, the end of the wing-transform, and main half-breadth line in the half-breadth plan, to their corresponding bearding-line, water-lines, wing-transform, and height of breadth line in the sheer-plan; then a batten pinned to those spots will represent the thwartship view of the aft-sides of the fashion-pieces \( T, F, P \), Plate IX. fig. 1.

Where the aft-sides of the fashion-pieces intersect the before-mentioned lines in the half-breadth plan, take the distances square from thence to the middle line; and let them off square from the middle line, on their corresponding lines in the body-plan. A batten pinned to these 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 trantsoms to the sheer-plan on the floor; likewise the fiding or depth of each transform, as \( W, F, D, 1, 2, 3, 4, 5, 6 \), Plate IX. fig. 1.

In the body-plan, fig. 2, describe the upper side of the wing-transform \( a \), by a segment of an are 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 buttock are intended to be cut off, which is called the margin-line. Square down from the sheer-plan the aft-side of the wing-transform to the middle line of the half-breadth plan; and from thence descibe the aft-side of the wing-transform at its upper side, by a segment of an arc to its round-off, which shews the line to which the mould is to be made. Take the height of the margin-line \( e \), at the middle line in the body-plan, fig. 2, and transfer it to the fore-part of the rabbet of the stern-poll, in the sheer-plan, fig. 1; and from thence square it down to the middle line in the half-breadth plan, marking a parallel are to the aft-side of the wing-transform, which is likewise called the margin-line. Continue to shew the level view of the moulding edges of all the trantsoms in the body-plan, fig. 2, in the following manner: the wing-transform, the filling under it lying level, then form the segment of an arc to their round-up, as above. This is the proper curve to which the round-up mould is made for fiding those trantsoms. The next is the deck-transform, which is generally laid off to the round-up of the gun-deck beams; the other trantsoms below the deck lying straight and level, are represented by level lines only.

Transfer from Plate I. the buttock-lines \( 1, 2, 3, 4, 5, 6 \), and
and let them be struck on the floor in the body-plan and half-breadth plan. Then proceed to run the buttck-lines in the sheer-plan, fig. 1, as directed in the construction of the sheer-draught, Plate 1. The buttck-lines, the square timbers, and likewise the water and ribbont-lines, should be made to agree to the greatest exactness.

The moulding edges of the other transoms may now be laid off from the buttck-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-transom is already described to which the mould is to be made; the filling-transom 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 transom which is fined straight, and lies level, than 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 bearding-line, where, at the bottom of the body-plan, fig. 2, and as low down as the deck-transom the inner poft is fined the same; likewise the buttck-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 cant of the fashion-pieces P, M, A. Then strike a perpendicular line, P, in the sheer-plan, fig. 1, at the intersection of the upper edge of the wing-transom, at the fore-part of the rabbit; likewise another at right angles with the middle line, at the after-side of the wing-transom, as PP, in the plan of the transoms, fig. 3.

Now from the perpendicular P, above mentioned, called perpendicular of the transoms, take the distance in the sheer-plan, fig. 1, to where the upper side of the filling-transom, E, intersects the fore-side of the rabbit of the poft or bearding-line B, and set it off from the same line P, in the plan of the transoms, fig. 3, at the middle line, squaring a line across to each bearding-line; which line will be the after-part of the filling-transom at the middle line. Observe where the bearding-line, C, of the poft, in the sheer-plan, fig. 1, comes before the fore-side of the rabbit, to take the aforesaid distance to the bearding-line of the poft, as that terminates the after-part of all the transoms; then take the distances in the sheer-plan, fig. 1, from the perpendicular line P, to where the line representing the upper side of the filling-transom intersects the different buttck-lines 1, 2, 3, 4, 5, and 6, and get them off from the same line P, in the plan of the transoms, fig. 3, on their corresponding buttck-lines on each side of the middle line. Then take the distances in the body-plan, fig. 2, from the middle line, to where the upper side of the filling-transom, E, intersects the square timbers, and get them off on both sides of the middle line on their corresponding timbers, in the plan of the transoms, fig. 3; then by pinning a batten through the spots on the buttck-lines and square timbers, to its after-part at the side of the bearding C, the moulding edge or upper side of the filling-transom will be described on one side the middle line; the mould may then be made to that side, and canted over, and the opposite side marked thereby, being faire thus to have both sides alike. This filling-transom having been laid off horizontally, of course, when moulding the filling-transom, the mould must lie in an horizontal position; but having to little room between the wing and deck-transoms, it becomes necessary to give the filling-transom a round-up between both. Those who would be more correct in laying-off transoms, that have a round upwards, may see the full details farther explained in the following methods.

To lay-off the deck-transom, strike a straight line in the sheer-plan, fig. 1, at its under-side of the deck, at the middle line, to take that part of the hang of the deck only, which is terminated between the rabbit of the ftem-poit and the fashion-piece, as E, fig. 1. Then take the round of the deck R, at every buttck-line, as under the body-plan, fig. 2; and let them off below and square to the straight line H, in the sheer-plan, fig. 1, marking parallel lines thereto, to intersect their corresponding buttck-lines, which gives the moulding edge of the transom. Proceed in the same manner with the lower edges, by striking a line for the lower side of the transom at the middle line parallel to the former; and set the round down, as before, upon any buttck-line.

The upper and lower sides of the deck-transom being obtained on the buttck-lines, in the sheer-plan, fig. 1, transfer their heights from the sheer-plan, fig. 1, to the body-plan, fig. 2, respectively; then by pinning a batten to those heights, the upper and lower sides of the deck-transom, d d', may be represented in the body-plan, fig. 2.

The lines above mentioned, in the sheer-plan, fig. 1, parallel to the sheer of the deck, at the intersection of the buttck-lines and fashion-piece, should be continued ast to the perpendicular P; then take the distances from that line, in the direction of the parallel lines, to the buttck-lines and fashion-piece, and let them off square from the said line P, in the plan of the transoms, fig. 3, on their corresponding buttck-lines and fashion-piece. Next take the half-breadth from the body-plan, fig. 2, at the intersection of the deck, at the side, with the square timbers, and let them off on their corresponding timbers from the middle line, in the plan of the transoms, fig. 3; then by pinning a batten to those spots, this forms the moulding edge of the deck-transom D D. The transoms under the deck, all lying horizontally, may be laid off by taking the distances of the buttck-lines and bearding-line from the perpendicular P, in the sheer-plan, fig. 1, on the upper edge of each transom, and setting them off on their corresponding buttck-lines from the same perpendicular P, in the plan of the transoms, 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 transoms, fig. 3; a batten pinned to those spots will represent the moulding edges of all the transoms.

To prove the intersection of the transoms with the side of the fashion-piece, which is the end of each transom, as already laid off in the plan of the transoms, fig. 3. Thus, where the upper side of the wing-transom in the body-plan, fig. 2, intersects the foremost square fashion-piece S, level it out to intersect the cant-fashion-piece C. Then take the nearest distance from the cant-fashion-piece at that place to the middle line, and set it off from the middle line in the plan of the transoms, fig. 3, in the direction of the line of the foremost fashion-piece F. In the same manner prove the filling and deck-transoms. Take the distances from the middle cant-fashion-piece to the middle line along the upper side of Nos. 1, 2, and 3 transoms in the body-plan, fig. 2, and set them off on the middle cant-fashion-piece M, from the middle line in the plan of the transoms, fig. 3, as before. Take likewise the
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the distances from the aftermost cant-fashion-piece to the middle line for the transoms 4, 5, and 6, and let them off, 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 off the ends of the wing, filling, and deck-transoms, at the joint or aft-side of the foremost fashion-piece $F$, and transoms Nos. 1, 2, and 3, under the deck at the aft-side of the middle fashion-piece $M$, and Nos. 4, 5, and 6, at the aft-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 sloping 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 bevel the Transoms.

The moulds are made of fir battens fayed to the lines already laid off in the plan of the transoms, fig. 3, for their aft-sides; and another to their fore-side, at their moulding or breadth at the upper side; which are confined together by battens at each buttock-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 size of its leant $c$, with the middle line correctly marked thereon.

The bevelling of the transoms are frequently taken from the buttock-lines in the sheer-plan, fig. 1, in the following manner. Apply the flock of the bevel $E$ to the upper side of the transom, in the sheer-plan, fig. 1, and the tongue to the buttock-line; but let the tongue be off at the upper and lower sides of the transom, as at the filling-transom in the sheer-plan, fig. 1, which gives the exact bevelling of the transoms at their corresponding buttock-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 sheer-plan, fig. 1, by the buttock-lines.

The bevelling 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 buttock-line; keeping the tongue well at the upper and lower sides of the transom, as before observed, and must be applied on the transom, by placing the bevel at each corresponding buttock-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 buttock-lines in the sheer-plan, fig. 1, and the bevellings may be taken very exact; but it requires to be very particular in applying the bevel on the transoms; to do which, the flock of the bevel must be kept in the direction of the buttock-lines, at the upper side of the transom, and the tongue teaching to the buttock-line below, which ought to be marked at the lower side of the transom, and not trusting to the bevel's canting promiscuously, for then the bevel may not be exactly square.

When this trouble is taken to bevel the transoms, 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 buttock-lines which intersect the transoms; as for instance, there are only two buttock-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 those transoms is to lay-off their lower sides, which is very easy to be effected here, because all the transoms lie level. Proceed in the sheer-plan, fig. 1, at the under side of the lower transom, to take the distance from the perpendicular of the transom $P$, to the intersection of each buttock-line, and likewise the bearding-line; and let them off from the line $PP$, on their corresponding buttock-lines and bearding-line, in the plan of the transoms, fig. 3. Then from the middle line of the body-plan, fig. 2, take the distances at the lower side of the said transom to the square timbers, in the same manner as the moulding edges were done, and let them off on their corresponding timbers, in the plan of the transoms, fig. 3, which gives the spots; to which a batten pinned will give the form of the lower edge $L$, which is ticked, to distinguish it from the moulding edge. In the same manner may be laid off the lower or bevellings of edges of all the transoms.

The distance from the upper or moulding sides of the transoms, to the ticked line for the lower sides, shews how much the transoms are under from a square; only in the distance from the upper to the lower sides of the transoms, in the sheer-plan, fig. 1, must be supposed the breadth of the beveling-board.

By having the lower sides of the transoms laid off, we have an opportunity of taking as many bevellings as may be thought sufficient, without any confinement; therefore, on the lower transom may be placed three bevelling spots, which should be divided equally between the beech and the fashion-piece; then take the nearest distance from the spots on the moulding edge, (which must be firmarked on the moulds,) to the ticked line for the lower edge, by sweeping it with a pair of compasses, which shews how much the transom is under from a square at each bevelling spot, as at $a, b, c$, in the plan of the transoms, fig. 3, agreeable to the depth of the transom. In the same manner may the bevellings of all the transoms below the deck be taken.

The bevelling for the breech of the transom is taken from the upper side of the transom, and the tongue to the bearding-line in the sheer-plan, fig. 1; for the transoms are all supposed to be cut off in the direction of the bearding-line $C$. The ends of all the transoms, when moulded, are trimmed square from the upper side. But the square, when applied to the end of the wing, filling, and deck-transoms, must be lifted up as much as the transom rounds down, and appears out of winding with a batten in the middle line.

To find the bevelling for the ends of the transoms, when cut off, let the flock of the bevel be placed to the lines of the upper sides of the transoms in the body-plan, fig. 2, and the tongue to the cant-fashion-piece, which gives the proper bevelling over the end of the transoms when cut off.

But to find the bevelling for the end of the wing-transom, take the distance square from the middle line to the intersection of the joint, or aft-side of the foremost fashion-piece, with the end of the wing-transom, in the plan of the transoms, fig. 3; and let it off square from the middle line on the upper side of the transom in the body-plan, fig. 2, and level it out till it intersects the cant-fashion-piece. Then apply the flock of the bevel on the line bevelled out, and the tongue to the cant-fashion-piece, as at $B$. This gives the bevelling for the end of the wing-transom, when cut off. But the bevel must be lifted up as much as the wing-transom rounds down at the end, and appears out of winding with a batten kept well with the middle of the wing-transom. The same must be also done for the bevelling at the end of the filling and deck-transoms.

The points where the transoms under the deck-transom in the body-plan, fig. 2, intersect the cant-fashion-pieces, are the proper stations to be crossed on the fashion-piece mould. And where
where the lines (before mentioned) levelled out intersect the cant-fashion-piece, is the proper section of the wing, filling, and deck-tranoms on the fashion-piece mould for the moulding edge, but not for the direction in which those tranoms strike the fashion-piece, because of the round of those tranoms; which will be more explained in the following method.

When the lower sides of the tranoms are laid off, it is but little trouble to make a flight mould to counter-mould the under sides of all the tranoms, by making it only to one arm of the tranoms, and then canting it over, to mould the opposite arm. Then, when the breech of the tranom 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 tranoms, fig. 3; to which the tranom-mould is made. Then trim the end of the tranom square, and set off the bevelling for the end of the tranom; then cant the tranom over, and applying the mould made for the under side to the breech and bevelling at the end, you have the tranom counter-mould, without the assistance 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 Tranoms when canted.

The utility of canting the tranoms is, that it greatly affords the conversion of timber, is better for fastening the plank of the bottom, and bolts square to the ftern-poll. When the tranoms have a very great bevelling, it is difficult at the upper edge to get sufficient fastening 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.

Dipose of the tranoms in the sheer-plan, fig. 4; let the wing and filling-tranoms be placed level, and the upper side of the deck-tranom to the proper hang of the deck; and the other tranoms 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 ftern-poll, and likewise at the fashion-piece. These show the disposition of the tranoms at the middle line.

Now proceed to shew the level view of the moulding edges of all the tranoms in the body-plan in the following manner: the wing-tranom 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 fixing these tranoms, as before observed. The next is the deck-tranom d, which being confined to the hang of the deck, and the round of the beam, is the most difficult of any, 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-tranom at the middle line. Transfer the heights of the ticked line H, or upper side of the deck-tranom, 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 buttock-lines, transfer them to their corresponding buttock-lines in the body-plan, fig. 5; a batten pinned to these spots shews the interjection 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, mark the round-up of the gun-deck beam R; 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 buttock-lines are there marked and numbered in the same manner with those from which they were squared 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 interjection 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 sections 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-tranom.

Let the buttock-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 buttock-line, and set it down below the deck at the middle line H, in the sheer-plan, fig. 4, on their corresponding buttock-lines, and transfer those spots to the buttock-lines in the body-plan, fig. 5; then to those spots on the buttock-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 them to their corresponding timbers in the sheer-plan, fig. 4: by pinning a batten to those spots, with those made before on the buttock-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-tranom.

To find the lower side of the deck-tranom 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 tranoms.

To find the level view of the tranoms below the deck, in the body-plan, fig. 5, observe where the lower and upper sides of the tranoms in the sheer-plan, fig. 4, intersect the buttock-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 tranoms in the body-plan, fig. 5.

To lay-off the cant-tranoms, proceed, as before, to make a separate plan, as fig. 6. The moulding edges of the wing, filling, and deck-tranoms, are laid off so similar to the former, as not to need repeating here. But should the deck-tranom have much flier, 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 flier of the deck I, and set it off from the line P P, in the plan of the tranoms, 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 tranoms, fig. 6. This would give the exact spot on timber 32, if the deck was required to hang and round to extremities, in the same manner.
as by pinning a battcn to the round of the wing and filling-transoms in the body-plan, fig. 5, and marking the square timbers, buttock-lines, and square fashion-pieces on the batten; then let the batten lie straight, and it will be the exact half-breadth at every square timber, buttock-line, and fashion-piece, and will give the exact length of the wing-transom.

To lay-off the transoms under the deck, take the distance from the line P, in the sheer-plan, fig. 4, to the buttock-lines in the direction of the transoms, and set them off from the line P P, in the plan of the transoms, fig. 6, on their corresponding buttock-lines. Take the half-breadths in the body-plan, fig. 5, square from the middle line to the intersection of the transoms 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 transoms, fig. 6, to intersect the fashion-piece, marking a line parallel to the middle line, as a a, transom No. 6. Then take the distances from the line P, in the sheer-plan, fig. 4, in the direction of the transoms, to the fashion-piece, and set them off square from the line P P, in the plan of the transoms, 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 transoms intersect square timber 36, and set them off square from the middle line, in the plan of the transoms, fig. 6. Then take the distances from the line P, in the sheer-plan, fig. 4, to square timber 36, in the direction of the lines of the transom, and set them off square from the line P P, in the plan of the transoms, fig. 6, to intersect their several half-breadths, as at b, c, d, e. In the same manner proceed to find all the spots for the square timbers, in order to prove the buttock-lines. This will give the exact form of the moulding edge of all the transoms below the deck, and the flatness of the fashion-piece on the transom, with the length of the transom at the moulding edge.

To find the direction of the end of the transom, 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 sheer-plan, as may be seen ticked, and marked K, M, L, calling them the fashion-pieces at the middle line in the sheer-plan, fig. 4. Take the distance from the line P, in the sheer-plan, fig. 4, to the middle line of the aftermost fashion-piece K, in the direction of the transoms No. 6, and set it off from the line P P, in the plan of the transom, fig. 6, on the middle line, and mark the ticked line g, from the spot on the middle line, to the spot on No. 6 transom. This will give the direction to cut off the end of the transom, in order to lie against the side of the fashion-piece.

To bevel the Transoms when canted.

Those transoms which are not sided straight, as the wing, filling, and the deck, are generally bevelled by the buttock-lines, as before observed; but rather than trust to the bevelings only (it being rather difficult to apply them truly as they should be), lay-off the underside of all the transoms, and make a slight mould to them. This will correct the bevelings, and make greater dispatch in trimming the transoms. Then there need only (except for proof fake) be taken the beveling at the bearding-line, and the beveling at the end; for the mould will give the roll. But observe to be careful in the bevelings at the ends of the transoms; for instance, the ends of the wing and filling-transoms, when they lie level, are to be cut off square; but keep the square as much above the end of the wing and filling-transoms, as they round in their length, and let the square look out of winding with the middle of the transom. Alfo the bevel (when applied on the end after it is cut off, in order to bevel the end for counter-moulding) must be kept as much above the end of the transom, and look out of winding with the middle of the transom.

As the bevelling for the end of the deck-transom is taken against the cant-fashion-piece by a level line in the body-plan, fig. 5, it must be observed how much the transom at the middle line in the sheer-plan, fig. 4, is below a level (fupposing one foot). Then place a batten at the middle line on the transom, and lift the foremost end of the batten up till it becomes level, as supposing the transom to be in its place: then proceed with the square and the bevel for the end of the transom, in the same manner as for the wing and filling, looking out of winding with the batten at the middle line.

To bevel the transoms, which are cut in the sheer-plan, fig. 4, proceed in the same manner as in beveling the cast-timbers, by making a parallel line to the moulding edge. Therefore lay-off the bevelings of the transoms, by squaring a line from the upper side, where it intersects the line P, in the sheer-plan, fig. 4, to the under side, as the ticked line a at the lower transom. Take the distances from where the squared line, a, crosses the lower edge in its cast direction, to the bearding-line c, and to all the buttock-lines, and set them off square from the line P P, on their corresponding lines, in the plan of the transoms, fig. 6. Where the bearding-line c, in the sheer-plan, fig. 4, proves to be square from the direction of the transom, as it is, or very nearly so, at the lower transom, then the bearding for the moulding edge, and likewise for the bevellings, will come as near together in the plan of the transoms, fig. 6. This may sufficiently prove that the method of bevelling is correct.

Where the under side of the lower transom 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 transoms, fig. 6, striking lines parallel to the middle line, as at ii. Then take the distances from the squared line a, in the sheer-plan, fig. 4, in the direction of the under side of the lower transom, to the square timbers and fashion-piece T, and set them off square from the line P P, on their corresponding lines last struck, in the plan of the transoms, fig. 6. To these spots, and those on the buttock-lines, pin a batten, and it will represent the ticked line, b b, within the lower transom, which will shew how much the lower transom is under from a square, agreeable to the depth of the transom. Take the distance from the squared line a, in the sheer-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 transoms, 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 transom; and the distance between the two ticked lines shews how much the end of the transom is under from a square, agreeable to the depth of the transom.

The ticked line b b, in the plan of the transoms, fig. 6, which is for the bevellings, is the line to make the temporary mould to, in order to counter-mould the transom; and by cutting off one end of the mould to the thwartship-line for the brecch of the transom, and cutting off the others to the ticked line m for the end of the transom, when the mould is applied to the under side of the transom, it will be easily perceived if the work be true.

To find the exact bevelling to be applied over the end of
of the tranom, after the end is cut off, in order to counter-mould the tranom, proceed in the following manner.

Where the upper and lower sides of the lower tranom intersect the after-cant-fashion-piece P, in the body-plan, fig. 5, level them out to intersect the after-cant-fashion-piece O. Where the upper side of the lower tranom intersects the perpendicular ticked line K (which is the after-fashion-piece in the sheer-plan, fig. 4), transfer that height to the middle line, in the body-plan, fig. 5; and from thence draw a straight line to the upper side of the lower tranom, on the cant-fashion-piece, as the ticked line e; to which line fix the block of a bevel, as at B, and the tongue to the cant-fashion-piece O, as low down as the spot for the lower side of the tranom. This is the proper beveling to be applied on the end of the tranom, after the end is cut off, in order to counter-mould the tranom. The ticked line e, to which the block of the bevel is placed, is the direction of the tranom to be crooked on the fashion-piece mould. The bevel B, which is represented in the body-plan, fig. 5, ruling the beveling of the end of the lower tranom, sufficiently proves the utility of canting the tranoms; for, by having so little beveling, it greatly affists the convection of timber, as well as that it must 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 tranoms in composing the stern-frame, by which method most ships are inclosed abaft. But yachts and cutter-built vessels are, owing to their clearness of run abaft, enclosed by a square tuck, by which room is gained; and, when properly put together, this mode of construction is, perhaps, stronger than tranoms would be in vessels of this description.

The tuck proposed to be laid off is that of the royal yacht, Plate XI. But that the reader may be led progressively on from the caffet to the most difficult part of the operation, we shall first propose a square tuck, the sides of which are to be out of windings, or in the same direction as the rabble of the posts, in consequence of which the wing-tranom must be strait athwartships, and the whole will be one flat surface (similar to the tranoms of boats), or a section of the vell cut athwartships, but not in a perpendicular direction, which is the only difference between it and the square timbers; and as the section is agreeable to the rake of the stern-post, it consequently follows, that the laying it off must differ from the square timbers in the operation.

The horizontal view of the tuck must first be represented in the body-plan, fig. 8, which is done in the following manner: Strike a horizontal line in the sheer-plan, fig. 7, at the height of the wing-tranom at the side, as at 5; and likewise as many horizontal lines below that as may be thought sufficient; and where they intersect the aft-part of the rabble of the post a, square them down to the half-breadth plan, fig. 9; then transfer their heights to the body-plan, fig. 8; and where they intersect the square timbers 23, 23, 24, 25, and P, in a horizontal direction, take those distances from the middle line, and let them off upon their corresponding timbers from the middle line, in the half-breadth plan, fig. 9; then by pinning a batten to those spots, the horizontal lines 1, 2, 3, 4, 5, and 6, will be represented; then take their distances from the middle line, in the half-breadth plan, fig. 9; then by interfleting the lines squared down from the sheer-plan, and let them off from the middle line on their corresponding horizontal lines, in the body-plan, fig. 8; then by pinning a

batten to those spots, the horizontal view of the tuck, a, will be represented in the body-plan, fig. 8, as high as the wing-tranom at the side. But when the fashion-piece required to run up, to take a bolt or two through the heel of the side counter-timber, proceed in the same manner to run a horizontal line or two above that at the side of the wing-tranom; say, one at the upper side of the wing-tranom 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 intersect the aft-side of the rabble a in the sheer-plan, fig. 7, square them down to the half-breadth plan, fig. 9, and take their distances from the middle line in the half-breadth plan, fig. 9, to where they intersect the horizontal line 6, and the main half-breadth line, and let them off from the middle line on their corresponding horizontal lines, in the body-plan, fig. 8; then by continuing the curve, a, upwards through these spots, the horizontal view of the tuck will be continued up to the height of breadth.

Now, where the horizontal view of the tuck in the body-plan a, fig. 8, intersects the bearding-line 6, that height, and transfer it to the sheer-plan, fig. 7, striking there the horizontal line 8, which represents the raising of the tuck; then take the distance from the raising of the tuck, in the sheer-plan, fig. 7, on the rake, in the direction of the rabble of the post a, to the respective horizontal lines and height of breadth, and let them up the middle line, from the horizontal line 8, at the raising of the tuck, in the body-plan, fig. 8; striking a horizontal line to the rake, at every height, as shown by the fine-ticked lines; then, where the horizontal view of the tuck, a, intersects the horizontal lines first struck, carry it up parallel to the middle line, to their corresponding horizontal lines on the rake; which will give the spots through which the fine-ticked curve is to pass, that will represent the proper shape of the tuck, agreeably to the rake, as e; and the line to which the fashion-piece mould must be made.

The bevellings for the fashion-piece may next be taken, by proceeding as follows. The aft-side of the rabble of the post a, in the sheer-plan, fig. 7, represents the aft-side of the fashion-piece of the tuck; therefore, take the side of the fashion-piece, and let it off above the rabble, and square there to; then, by striking a parallel line to the aft-side a, the fore-side of the tuck b will also be represented; next, from the raising of the tuck 8, on the aft-side, square the line C from the rabble to the fore-side; and from its intersection at r, take the heights of the horizontal lines up the fore-side, and let them up on the middle line from the horizontal line 8, at the raising of the tuck, in the body-plan, fig. 8; strike horizontal lines for the fore-side of the fashion-piece, as distinguished by the long-ticked lines; then, where the fore-side of the fashion-piece b, in the sheer-plan, fig. 7, intersects the horizontal lines and height of breadth, square it down to their corresponding horizontal line and main half-breadth, in the half-breadth plan, fig. 9; at which intersections take the distances square to the middle line, and let them off from the middle line on their corresponding horizontal lines, for the fore-side of the fashion-piece, in the body-plan, fig. 9. Continue the fore-side of the fashion-piece down to the bearding-line d, as you see ticked in the sheer-plan, fig. 7; then take the distance from the intersections of the squared line at the raising r, down the fore-side of the fashion-piece to the horizontal line 1, and where it intersects the bearding-line d, and let it off in the body-plan, fig. 8. Below the horizontal line 8, at the raising of the tuck down the bearding-line, strike a horizontal line for No. 1, and proceed as before directed to obtain the half-breadth
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breadth spot on the half-breadth and body-plans, figs. 9 and 8; then to all those spots pin a batten, and mark the curve which shall intersect the bearding-line, and the fore-side or bevelled-edge, d, of the fashion-piece will be represented in the body-plan, fig. 8.

The aft-side and fore-side appear now in their proper shape, in the body-plan, fig. 8, and of the same form as the fashion-piece, when trimmed and laid flat with the aft-side upwards, as then both edges will be seen, in consequence of its being a standing beveling; therefore, the distance from the line represents the aft-side to the line of the fore-side, taking the nearest distance, as at $c$, which will show how much the bevelling is standing, or without a square, in the breadth of the bevelled-board, which should be equal to the fiding of the fashion-piece.

When the mould is made to the ticked line, $c$, of the aft-side, the heel of it must be cut off well with the line for the fecting of the tuck, and likewise well with the middle line, in order that it may dovetail and bolt into the stern-poll. Mark also on the mould the bearding-line, or side of the inner poll. The different firmarks for the ribsbands must be marked on the moulds; but, in order that the stations of the ribsbands may be correctly marked, observe where the diagonal lines intersect the horizontal view of the tuck $a$, in the body-plan, fig. 8, and carry them up parallel to the middle line, to the line for the aft-side of the fashion-piece $c$, to which the mould is made. This will be their proper stations or upper sides, and may thence be marked on the mould.

The bevelling may be taken at the different firmarks or ribsbands, and set off where taken, as the bevel at the seventh ribband, which will shew it more clearly. The ticked line $g$, drawn parallel to the stock of the bevel, is the same distance from the outside of the bevel, as the fashion-piece is fided. Then draw a line square from the stock of the bevel to the ticked line $g$; and where it intersects the ticked line $s$, as at $h$, set off from $h$ to $i$ the same distance as the fore-side is from the aft-side at that place, as before directed, and open the tongue of the bevel to $i$. This will shew 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 $j$, although the ending of it only differs from thofe explained before, and need only be described. Transfer the height from the body-plan, fig. 8, where the diagonal $j$ intersects the horizontal view of the fashion-piece $a$, and set it up in the stern-poll, fig. 7, at the aft-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 $a$, in 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-transform, in the body-plan, fig. 8, and set it up in the stern-poll, fig. 7; and where it intersects the aft-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-transform, and set it off from the middle line, in the half-breadth plan, fig. 9, on the line half squared down; then mark a line through those spots, as the long-ticked line $a$, in the half-breadth plan, fig. 9, which will be the true ending of the diagonal $j$, or any diagonal crossing the wing-transform and fashion-piece.

Square tucks of lighters are like thofe above described, and the transforms of boats are laid off in a similar manner, but composed of only one piece athwartships, and their upper side is bounded by the upper side of the sheer. But the tucks of yachts (or frigates, if built of sir) partake of the round-forward of the wing-transform, which causes the fashion-pieces to take a part of it also the whole of their 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 round-forward, in its finished state.

Suppose a flat surface, of thin deal (in length from the head of the fashion-piece or height of breadth to the fecting of the tuck, and in breadth to the outside of the transform) was placed with one edge to the rabbe of the poll, and the other edge bent round to a curve, as much as the outside of the tuck is intended to 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 as it will appear in its finished state. Then take it from its position, and lay it flat, letting the round be unconfined; 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 sheer and body-plans, figs. 10 and 11; then proceed to lay it off upon the flat, agreeable to the rake of the rabbe of the stern-poll, as before directed, with this difference, having no round- aft made, but one straight line in the thwartship view, in the sheer-plan, fig. 7, which was the aft-part of the rabbe of the stern-poll; but, in the present square tuck, where the head of the fashion-piece is carried forward, to connect with the end of the wing-transform, the moulding edge of the fashion-piece forms a serpentine line.

Therefore, where each horizontal line intersects the aft-part of the rabbe of the poll $a$, in the sheer-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-transform, at the side, set off from the aft-side of the rabbe of the poll $a$, the round-forward of the wing-transform, in the sheer-plan, fig. 10, and square it thence down to the half-breadth plan, fig. 12; upon which set off the half-breadth of the wing-transform, and thence sweep a curve, the centre of whose 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 aft-side of the wing-transform $a$, 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-transform $a$. The horizontal lines being transferred from the half-breadth plan, fig. 9, to fig. 12, take the distances square from the middle line in the half-breadth plan, fig. 12, to where the horizontal lines intersect their respective curves for the aft-side of the tuck, and set them off from the middle line on their corresponding horizontal lines, in the body-plan, fig. 11; a batten pinned to those spots will shew 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 sheer-plan, fig. 10; and by drawing a curve to pass through those spots, the thwartship view of the aft-side of the fashion-piece, $b$, will be represented in the sheer-plan, fig. 10; and what the thwart-
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thwartship view of the aft-side of the fashion-piece leaves the rabbet 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 shown 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 rabbet of the stern-post at the head

conformable to the end of the wing-tranform, yet a square

line at the scepting 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 distingued by a fine
tick.

Then take the half-breath 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

sheel-plan, fig. 10, and take the nearest distance to the aft-

part of the rabbet of the stern-post \( a \), which is square from

the rabbet, 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

\( c, e \), which gives the round-aft of the tuck at any height,

square from the rabbet 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 \( a, b \), 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 \( c, e \), 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 scepting

intersects the polt, 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-breath 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-breath plan, fig. 12, square out from the middle line, as at \( e \); on which (square from the middle line) let off the half-breath 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 \( c \), take the half-breath 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 reach to the scepting 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 \( e, \) as shown 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 fided, and let the midhip-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, 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 after-way, square. Then

faken 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. This will have the belt opportunity of seeing how to convert the piece, by seeing both sides at once. Then will the fashion-piece be of a parallel thickness 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. 1, square from the rabbet 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-breath 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 interference 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 distingued by long-tick. Then take the

half-breaths in the half-breath plan, fig. 12, to the fore-side

of the fashion-piece on the horizontal lines, square from the

middle line; and let them off square from the middle line

on to the line for the round-aft, on a square \( e, \) under the

body-plan, fig. 11. Then take them off again on the round-
aft line, and let 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 useful, to run lines in order to trim the outide of the fashion-piece by bevellings; therefore, would it be better to make a mould to the fore-side, and trim a spot to fay to the side of the inner post or dead-

wood, and set off a bevelling for the outide at the main-

breath, as at \( B \), fig. 12.

Mark the line at the fating \( S \), 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 fay to the inner post, mark the spot \( 6 \) square from the

aft-side.
aff-side to the fore-side, to which place the spot b, on the mould for the fore-side, must properly correspond; and the head of the mould must be kept well with the spot to the bevelling at the main-breadth. The mould lies then in its proper place to mould the fore-side of the fashion-piece.

It is customary, in boats, for the planks of the bottom to run through to the aff-side of the tranform, and sometimes to the aff-side of the fashion-piece of lighters; but in larger vessels it is better to rabbet the fashion-piece; for when the planks of the bottom are rabbeted into the fashion-piece, and the inside of the butts left longer than the outside, the planks are apt to be pressed to the timbers on caulking their ends; while, on the contrary, when the planks run through the fashion-piece, they are not able to bear the force that is required to be made by caulking their ends sufficiently. In vessels of this class, likewise, the ends of the planks would be liable to be flar'd off by accident.

The fashion-piece, as it is laid off, both fore and aff-sides, is conformable to the timbers of the body, being for that reason easier undertook; but when the fashion-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 outside of the fashion-piece, at several places, parallel to the lines for the fore and aff-sides of the fashion-piece, and square from the lines.

Then extend the compasses to the thickness of the bottom plank, or otherwise run as many fictitious diagonal lines as shall be necessary, and square from the moulding edge of the fashion-piece. Then set off the thickness of the plank of the bottom, and lay off the extreme outside of the fashion-piece, likewise the aff-side, observing the round in the direction of the diagonal line, whereby a mould may be made to the aff-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 fashion-piece; and then, as the fashion-piece at the aff-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 sheer-plan) are parallel to the upper side of the keel; and are canted 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 fashion-piece are rabbeted on their aff-sides, to receive the planks of the tuck; but do not take the rabbet too low down as where it intersects the polt, but leave it square some inches above it, that the midship piece may be gotten in its length as it rabbets into the polt, and it will also leave a better butt for caulking, as shewn in the body-plan, fig. 11.

The wing-tranform mould must be made to the fine ticked curve d, in the half-breadth plan, fig. 12. The bevelling of the wing-tranform will be the same athwartship on the aff-side, which bevelling is the rake of the rabbet of the polt; and the wing-tranform is rabbeted at the aff-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 heels of the flern-timbers should be placed as much before the aff-part of the wing-tranform as the thickness of the planks of the lower counter.

To prevent any error in the true height of the fashion-pieces, let the firmark c, in the body-plan, fig. 11, be correctly marked on the mould and side of the flern-polit, so that when the heels of the fashion-pieces are letting-on the polt, those firmarks must exactly agree.

To Lay-off the several Parts of the Head, Plate X. Lay-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 thwartship 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, Laying-off D., may be made of fir-board about an inch thick, and up the fore-part of the knee and item, as high as the cutting-down and feeling of the figure; but these need be no broader than about five inches for lightness, as at 39, 39, fig. 1. Then across the mould are fastened battens, which not only keep the mould together, 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 set off the half-fiding of the item, 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 set off the half-fiding 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. to 12. Then, to determine on the fiding of the knee at the fore part, pin a batten from the upper part of the knee round the fore-side, marking thereon the lines 1, 2, 3, &c. Then apply the batten to the perpendicular 25, fig. 1, keeping it fast 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-fiding of each spot, and set them off on their corresponding lines at the fore-side of the knee; proceed in the same manner for the half-fiding of the item at 24, fig. 1, and strike in the lines as ticked across the knee. Then battens being made to those lines, and nailed across the mould, the half-fiding of the knee may be readily set off at the upper side of each batten, and the knee, when put together, may be trimmed straight from the fore-side to the item or aff-side of the knee: the cutting-down, as at 1, 2, 3, and 4, fig. 1, is fided in the same manner.

To make the Mould to the Grize, G, fig. 1.—The grize 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-breadth plan, fig. 3, as at C, C, to the main half-breadth 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 sheer-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 aft as the cheeks are there shewn, marking a firmark 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-breadth plan, marking on the piece the fore-side of the item from that mould: then failling the flight-mould to the knee-arm of the cheek, observing to keep the firmark on 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 thwartship lines, or lines which are square from the mould. Then there is a certainty, when the cheek is threated, no angle will appear in the throat, as there will be sometimes by the usual method, particularly in full-bowed ships, where the sheer springs more than the flight of the cheeks. When the side-arm of the cheek is trimmed...
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trimmed by a mould made to the sheer of the ship, and 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 lay-off the Head-Rails.—Strike in the perpendiculars Z and Y from the fore-side of the figure, and foremost end of the upper rail in the sheer-plan, fig. 1, down to the half-breadth-plan, fig. 2. Determine on the half-breadth of the lacing, as at 1, 2, fig. 2, as the foremost end of the upper rail comes against it. The after end falls against the plank at the back-head timber, from whence strike a straight line to the lacing at its fore end. Then set off the riding of the rail, allowing the thickness of the lining, and strike the line P, or outside; which being the fight-edge of the rail when in its place, is the proper edge to be laid off.

Strike the horizontal line 32 at the upper part of the foremost end of the upper rail, in the sheer-plan, fig. 1. Then square up to the line 32 the aft-side of the stem-timber 20, and as many lines at equal distances as may be needful, and number them 1, 2, 3, &c. above the line 32, as shown in fig. 1. Set off the fame frications 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 main-rail, 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 sheer-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 fame form, when in its place, as that in the sheer-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 let them down from the line 32 in the sheer-plan, fig. 1, on their corresponding perpendiculars; which will give the inside of the main-rail in the sheer-plan, fig. 1, as the ticked line, which rifes 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 sheer-plan, in order to lay off the timbers exactly.

Strike the ticked line in the plan of the rails 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 sheer-plan, because in a thwartship view this is the proper edge of the lower edge of the rail: for the lower part of the rail in the sheer-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 off, 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, strike them from thence square from the line P to the lower part of the rail laid off; then take the distances on these lines from the line P to the lower part of the rail, and let them off from the line 32 in the sheer-plan, fig. 1, on their corresponding perpendiculars. This gives the lower part of the rail in the sheer-plan, at the chamfer, being the fight part of the rail when trimmed and in its place.

Before the main-rail is canted, as in the half-breadth plan, fig. 2, the proper form of it cannot be ascertained in the sheer-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 sheer-plan; for instance, the middle line at the after part of the rail in the sheer-plan, is the ait-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 fame.

Before the middle rails can be canted in the half-breadth plan, fig. 2, to their proper spread, proceed in the following manner; strike an horizontal line from where the ait-side of the stem-timber 20, in the sheer-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 sheer-plan, fig. 1, to the upper and lower parts of the three rails L, M, and N; and let them up from the horizontal line before-mentioned in fig. 3, as you see 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-thickness of the knee at 7, or ait-side of the stem-timber in the half-breadth plan, fig. 2, and set it off from the middle line in the plan of the timber, 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 ait-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 propered 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 sheer-plan, fig. 1, intersect the ait-side of the hair-bracket H, strike the horizontal lines 33 and 34, answerable to those 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 sheer-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 is formed by a 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.
SHIP-BUILDING.

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spots, of the in and rail, taken each of the timbers at the timber side of the timber, which ticked. Then take the distances from the upper side of the rails, and strike the in- sides 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 aft-sides of their respective timbers in the sheer-plan, fig. 1, making spots which form the upper side of the rails at the in-side, the same as was performed for the upper rail. Take the distances from the upper side of the cheek in the sheer-plan, fig. 1, at the aft-side of the timbers, to the spots last mentioned, and likewise to the line for the upper side of the rail at the in-side, 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 half-breadth plan, fig. 2, at the aft-side of each timber, to the in-side 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 in-side. The same operation may be performed to find the lower part of the rails at the in-side; or you may draw the in-side 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 the in-side.

As the line of the chamfer of the upper rail N (being the right-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 cheek to the chamfer of the rail, at the aft-side 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-breadths at the aft-side of each timber in the half-breadth 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 drawn, and from thence draw the under side of the rail to the in-side.

Having the upper side of all the rails, inside and out-side, 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 in-side of the rails is higher than the out-side, if cut off in the direction of the aft-side of the timber. Then having the spots, as before mentioned, for the out-side 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 in-side, which was set down agreeable to what it measures on 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 aft-side of each timber, set off from the middle line u on the base line of its corre-

fponding timber in fig. 3. Like wise take the height from the upper side of the upper cheek in the sheer-plan, fig. 1, to the ticked curve, representing the cutting down or facing of the knee, and set it up from the base line of each timber in fig. 3. This will give the score to be cut out, in order to let the timber meet its opposite at the middle line. Then set off the sublance at the upper side of the upper cheek, and draw the in-side and out-side of the timber as represented in the plate. This will be the exact form of the timbers, or more particularly, of the scores of the middle rails; and if laid off in the grofs, might be performed to the greatest nicety.

To bevel the Timbers in the Head.—In the sheer-plan, fig. 1, set off the fiding of the timbers, and strike in their fore-sides. Then square a line from the aft-side to the fore-side, from where the aft-side intersects the upper side of the cheek, as at 18, 19, 20, in the same manner as was done to find the bevellings of the cant-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 aft-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-breadth plan, fig. 2, and take the distances from the middle line to the out-side 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-breadth plan, fig. 2, intersects the in-side of the middle and lower rails, 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-breadth plan, fig. 2, agreeable to the lines squared out, to the lines of the rails laid off, and set them down below their corresponding lines 33, 34, 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 timber, fig. 3, striking new horizontal lines. Then take the distances from the middle line in the half-breadth plan, fig. 2, at the fore-side of each timber to the in-side of the rails, and set them off on their corresponding horizontal lines last drawn, 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 aft-side.

In the same manner every operation performed for the fore-side as was directed for the aft-side, the heights being taken from the heel as squared in the sheer-plan, fig. 1, instead of the upper side of the cheek, which shews how much the rails lift at the fore-side from a square; and the half-breadths being taken at the fore-side of the timbers in the half-breadth plan, fig. 2, shew how much the scores at the fore-side of the timbers are under from a square with the aft-side, because the timbers in the half-breadth plan are square from the middle line.

Having the disposition of the rails for the fore-side of the timbers, set off the same distance from the rails as it is from the rails of the aft-side, both inside and out-side, and mark the curves as ticked for the in-side and out-side 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 aft-side, so much is the out-side of the timber under, and the in-side standing from a square, agreeable to the fiding of the timber. Or, having the aft-sides of the timbers laid off exactly, the fore and aft 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 flands 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 scores 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. 2, answerable to them. Let fall a perpendicular from the intersection of the upper part of the upper rail N, with the aft-side of the hair-batten 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 must be supposed 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 intersection of the lines 1, 2, 3, &c.

Then in the sheer-plan, fig. 1, where the perpendiculars 1, 2, 3, &c. intersect the upper side of the upper rail, level after-lines at pleasure, as you there see fit; then place the batten to each level line, marking thereon its corresponding perpendiculars, observing always to keep the foremost perpendicular marked on the batten to the perpendicular Y. This gives the spots to which a batten pinned will form the upper side of the upper rail O, and is exactly answerable in form to the upper side 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 stations 1, 2, 3, &c.; and when it is straight, place it to any perpendicular line, and mark the extremities of the rail, and the several stations, as at 26, fig. 1; then set off the moulded size at each end, and strike a straight line, which will give the tapering at every perpendicular, and a batten pinned thereto will form the under-side of the rail.

In the same 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, intersect the aft-part of the hair-batten H, in the sheer-plan, fig. 1, down to the half-breadth plan, fig. 2, and proceed as above.

It may be necessary to notice here, that when Plate I. was engraved, all vessels above a frigate in the royal navy had head-heads, which mode has lately been discontinued: but such of our readers as may be desirous of knowing the method of laying-off the beam-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 side stern-timber must be laid off on the floor, and a mould made to it, so that when trimmed and put up in its place on the ship, that is, to the tumble-home of the side, it should appear as its ticked line in the sheer-plan, Plate I. from whence it is transferred to the floor.

Strike the horizontal lines from the stern-timber in the sheer-plan, Plate VII. fig. 11. Laying-off A, to square-timber 56, at the wing-tranform, at the side, at the knuckles of the upper and lower counters, at the top-breadth, and at the top-side. Likewise strike as many between the wing-tranform and lower counter as may be thought necessary, that part being the most critical to obtain the exact form of the timber. Then transfer these horizontal lines to the after-body plan, fig. 5, as you see 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 corresponding 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 stern-timber in the sheer-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, intersect the aft-part of the stern-timber, square them down, or let fall perpendiculars to their corresponding lines in the half-breadth plan, fig. 6, as shown 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 set them off on their corresponding horizontal lines in the body-plan, fig. 5. A batten pinned to these spots forms the aft-side of the stern-timber A, agreeable to the form in the sheer-plan. But if these half-breadths, when set off in the body-plan, should not make a fair line, then those in the half-breadth plan, fig. 6, which seem most to require it, must be altered at the after-end, till they all correspond to make a fair line in the body-plan.

Now set off the moulded size of the stern-timber upon each horizontal line, in fig. 11, to which pin a batten, and the fore-side of the timber will be represented, because the mould is to be made broad enough to be answerable to the fore-side of the timber.

Then, where the horizontal lines in the sheer-plan, fig. 11, intersect the fore-side of the timber, transfer them to their corresponding 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 spots as you see in the plate. Then take the half-breadth of each horizontal line in the half-breadth plan, fig. 6, at the spots last-mentioned, and set them off on their corresponding horizontal lines in the body-plan, fig. 5. Pin a batten to these 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 stern-timber, as it appears upon a horizontal view when in its place, it follows next to point out a method to make a mould, in order to mould the timber, so that it shall have the same appearance when it is in its place upon a horizontal view, as it now shews in the sheer and body-plans. Unless there be a method which may be depended upon for the exact heights of the counters, it can be to no purpose to design a view of the stern, in order to dispose of the decks, the lights, and all other heights, in such a manner, that each part may bear a just proportion to the rest.

Strike the line C in the body-plan, fig. 11, the thicknesses of the mould from the side of the timber, to which place a batten, and keep one end well with the horizontal line at the end of the wing-tranform, 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-tranform at the side, set up all the heights on the batten perpendicular, and strike them through the stern-timber parallel to the horizontal lines first struck, as you see in the plate. Where the ticked horizontal lines in the sheer-plan, fig. 11, first struck intersect the fore-side and aft-side of the stern-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 I and H, to which the mould is to be made. The left heights which were set up are the proper heights of the knuckles and horizontal lines to be marked on the mould.

The ticked lines I, H, in the sheer-plan, fig. 11, to which the mould is to be made, are supposing to be the straight line C in the body-plan, fig. 11, standing half 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 fir1 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 I, H, fig. 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 set 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 dilutions or spillings on the aft-side of the mould from the lines C and A. But to mould the timber from these spillings 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 spillings marked on the mould, to have brackets made of 2-inch deal, agreeable to the spillings (dodging 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-edges may teach to the round-afi; then fall all the brackets to the under side of the mould, keeping the middle of their thicknesses exactly well with their respective horizontal lines, as they appear shaded 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 chamfered away therefo, which will direct upon the timber, when trimmed, the exact stations 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 batten, of sufficient length, be kept well to the under side of the bracket; from which let down the spiling required, wherever 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 bevelings of the aft-side of the timber, the round-afi 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 I., and set it off upon the middle line, Plate VII. fig. 6, and to its corresponding perpendicular, as squared down from the counters, &c. at the side, sweeping curves to the said round-afi on a square; thus, fix the tongue of a bevel to the different round-afi lines, and the flock parallel to the middle line will be the beveling of the round-afi at each place, to be applied square from the mould.

Take the beveling as cut off from the fore-side of the body-plan, Plate VII. fig. 11, thus: fix the block 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 bevelings taken to carry it to the fashion-piece from the stern-frame, as that is generally in its place before the stern-timbers are trimmed.

The bevelings 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 block of a bevel to the aft-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 I.; 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 base 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 let them up the middle 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 let off the projection of the plank of each counter, thus: square out a line from the knuckle of each counter at the midship-timber 32, as a and b, and draw the thickness of the plank of each counter parallel
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-ruil B, and lower counter-rail A, will be also represented in
the plan of the stern, fig. 6, and that will shew how
much the right-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 for trimming the rails, must be laid off
on a square, thus: from the fore-side of the rails at the mid-
ship-timber 34, in fig. 4, square in a line from the knuckle
to the fide-timber 33; then take the distance from the
knuckle of the upper counter from the midship-timber 32,
to the fide-timber 33, in the direction of the above square
line, and set 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 fide-timber 33, to the line squared in from
the knuckle of the midship-timber, and set it off as before
at CC, above the line AA, in 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 coun-
ter, 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 lying
plank, or piece of thick-fulh, the round-up would be the
same; that when put in the boiler, and set 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 expeditious
and exact.

The counter-rails may be cut out of a straight piece of
timber, without kiling them, as they are apt to fly after
that proceeds, thus: take the round-up and round-aft to-
gether, that is, from the knuckle of the fide-timber to the
knuckle of the midship-timber, and spring an arc thereto,
as before; then when the rails are trimmed to the fher,
and the fore-side canted 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 fide-timber at the infide; and set 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 ftranom. And if they were to round by the fame
mould as the upper counter-rail, the bars in the fakes next
the fide would be longer than those 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 dispose of the
round of the poop, or round-house.

This should determine the round of the decks abaft; and
the beams of those decks, as they approach aft in fig. 4,
must be gradually increas’d in their round-up, to correspond
with the ftranom.

Observe that the above lines, in fig. 6, for the quarter-
deck, fhow the round of the deck at the stern-timbers,
without considering at present the projection of the bal-
cony.

Set off within the stern-timbers, in fig. 6, the
thickens of the clamp, and the projection of the cornice in
the cabin, and let that be the side of the light. Then
determine on the breadth of the munions, allowing sufficient
for the weights and pulley-pieces, and divide the other lights
equally. Set off likewife the mock-light in the aft-part of
the quarter-galley, the fame size as the reft. About half
the breadth of the munions from the mock-light, place the
infide of the quarter-piece; then determine on the breadth
of the quarter-piece at the head. About the middle of
the quarter-piece place the outside of the gallery, which de-
termines 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 stern-timbers,
in fig. 4, and transfer that to fig. 6, which makes a good
proportional light. But obferve, between the upper coun-
ter-rail and the lights must be room allowed for the falt-fiils,
and about one inch and a half between their heads and the
ftranom above. Then determine on the out-bound of the
taffrail and quarter-pieces, and lower finifhing.

Next dispose of the quarter-gallery in fig. 4, having the
out-lines of the quarter-piece and taffrail, thus: let fall a
perpendicular from the knuckles of the lower and upper
counters of the midship-timbers, in fig. 4, as you see ticked
and numbered 14 and 15; then where the horizontal lines
17 and 18, from the knuckles of the fide-timber, interfeft
the perpendiculars 14 and 15, take those distances, and set
them off from the knuckles of the fide-timber, in fig. 6,
down the perpendiculars, c c, f f; from thence spring 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 anfwerable to the ticked perpendiculars 14, 15, which fall
from the knuckles of the midship-timber in fig. 4.

Take the heights from the base-line, in fig. 6, to the
knuckles of each counter, at the outside of the gallery, at
the ticked perpendiculars d d, and e e, and let them up from
the base line in fig. 4, striking the ticked horizontal lines
c c and d d. Then from the horizontal ticked lines 17 and 18,
in fig. 6, take the length of the perpendiculars d d and e e,
to where they interfeft the ticked curves 24 and 26, or round
forward on a level, and set them off forward from the per-
pendiculars 14 and 15, in fig. 4, on the horizontal lines
c c and d 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 base
line at A and B, in fig. 6, and set them off from the base line in
fig. 4, at the knuckles of the timbers last mentioned, and
continue them forward, agreeable to the fheer of thehip.
This will give the exact heights of the lower and second
counter-rails, as they will appear on the ship, 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 timbers of all ships of the line are now
continued upwards to the round-aft of the second counter-rail,
without any balcony, as they are much longer; yet
more useful, if guns are wanted to be used right-aft occa-
ionally. Nevertheless, ships of 50 guns have at present
a balcony or walk in the stern.

To understand the exact form of the balcony-rails, as
they appear in the fheer-plan, and likewife in the plan of the
stern,
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In the plan of the stern, as far as the heads of the timbers as at 24, for the convenience of the joiners in the quarter-deck, and abaft that allow three or four times for the ballasts in the aft part of the quarter-deck, and let that be the aft part of the quarter-deck at the stern. Then design, in fig. 3, 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 taffrail, must be parallel to the taffrail line A.

Strike the perpendicular line 43 abaft fig. 4 and 5, and where the ticked line I, which is the round-at the heads of the timbers in fig. 5, intersects the outside of the taffrail, 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 taffrail, and let it off on the half-breadth line 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 ast 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, &c. in fig. 4. Carry down those perpendiculars parallel to the line 43, to intersect the ends of the deck c, in fig. 5, and from thereon carry them ast 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 4, fig. 5, and let it down the perpendicular 3, from the under side of the deck, fig. 4, (for per. 2 was too small a round to be received in the plate); continue the same regular to 20, fig. 5, which answers to per. 9, in fig. 4. Take the half-breadth in fig. 6, to the outside of the quarter-deck taffrail, and let it off square from the middle line to intersect the ends of the deck c, in fig. 5. Then carry ast, as before, to the curve H, the intermediate lines 21, 22, with 23, at the outside of the taffrail, and also carry them up to the under side of the deck in fig. 4, as 10, 11, 12. 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 let off, draw the taffrail curve to the ast 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 plan, fig. 5, from the outside of the taffrail in fig. 4. Draw the taffrail line 40, in fig. 4, agreeable to the taffrail of the ship, and let off below the line 40 about one inch and a half, or as much as the joiners require for the pannelling which is at the under side of the balcony; and from that take up the depth of the rail. This will give the exact height of the foot-rail in the taffrail, fig. 4.

To find the proper height of the aft part of the quarter-deck at the under side, answerable to that in the taffrail, fig. 4, take the half-breadths at the ticked lines 14 to 23, on the line 43, in fig. 5, and let them off from the middle line on the base line, as on the left-hand, in fig. 6, and erect perpendiculars as high as the under side of the deck. Then take the heights from the base line, in fig. 4, to the under side of the deck, at Nos. 2, 3, &c. and let them up on their corresponding perpendiculars in fig. 6. Through these spots get in a ticked line, which will give the under side of the deck in fig. 6; then let off the thickness of the deck, and get in the parallel line above it. Likewise let off the foot-rail, as before directed, in fig. 4. This will give the exact form of the foot-rail, in fig. 6, agreeable to the round-ast 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 foot-space-rail is done with. But to complete the range of balusters in the balcony, so as to make them have an agreeable rake in the taffrail, fig. 4, and likewise a proper diminution of tumbling-tongue 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 stations 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 spots get in the upper side of the breast-rail D, in fig. 6. Supposing these ticked lines to be ballasters, 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 let them, as taken from the base line, fig. 4, to intersect their corresponding lines here-mentioned. Through these spots draw the curve K, which is the upper side of the breast-rail, as it will appear in the taffrail, fig. 4.

Drop the ticked perpendicular 1, from the ast-side of the breast-rail, fig. 4, to the middle line, fig. 5, and parallel to that the ticked perpendiculars 2 to 11, 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 half-breadths) from the ticked lines afore-mentioned at the upper side of the breast-rail in fig. 6, to the middle line; and let them off on their corresponding perpendiculars 2, 3, &c. from the middle line in fig. 5: a batten pinned through these half-breadths forms the line G, or upper side of the breast-rail. But observe, it only gives the form of the breast-rail corresponding with the ast part of the deck c; therefore, if the balusters are laid off in this manner, the fore-side of the mould is the reader to apply on the deck, in order to cut off the deals, and what the rail is intended to rebate on the ends of the deals must be added thereto, and as much wood as is necessary to raise the members of the rail must be left on the mould abaft the line c.
line c. 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 ballasters. 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 stern projects at 23, to the quarter-deck in fig. 4, and continue it upwards parallel to the side stern-timber to the top of the side, as you see ticked; then set off the half-breath of the stern at the quarter-deck, and likewise at the top of the side on the ticked line 25, fig. 6, taking the round-oft at each place, and set it apart the corresponding heights 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 outide 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 last 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 set them off on their corresponding lines last struck in fig. 4, from the ticked line T, forward in the direction of the ticked lines. A batten pinned to these 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 side of the quarter-piece, and that gives its fore-side, as it will appear when in its place.

The rims and tools 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-gallery 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 tools being determined in fig. 4, the breadth abaft need only be taken from fig. 6, and let the floor at the quarter-deck serve for all the rims and tools in the quarter-gallery, keeping the foremoat end well. At least, the fame mould that moulds the taffrail at the upper parts of the lights, may mould the rim at the lower part of the same lights, because the munions in the quarter-gallery should be all out of winding; and in order to make them so, the floor 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-side. This might be allowed for exactly in laying-off the floors; but it is better to leave the floor 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 floor at the quarter-deck, and to be in its place on the ship; and suppose the floor at the quarter-deck to be fayed to the side; then set off the breadth of the floor at the aft part, and nail a batter from thence to the rim. Then set off the munions on the rim, and at every munion on the rim hold a straight batter from thence to the under side of the floor, and look them out of winding with the batter at the aft part, or with each other, observing to set off the same distances at the under side of the floor from the aft part as they are on the rim. Then the wood may be dapped away, or the floor taken down, and mould the under side (which will nearly agree) to every spot, with the same mould as the rim was moulded with. Then you may be certain the batties will be out of winding, and, if required, would slide from one end of the gallery to the other. Then, when the munions are let off, you may find a greater distance from the form-mould on the floor, than there will be on the rim; but this cannot be avoided, and is of but little consequence; because the casting-livres, or confide-bracket, is introduced on purpose to intercept the finishing of the gallery with the ship-side; for if the floor 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 foremoast end, and the foremoast munions in the view of the sheet, fig. 4, would appear to rake more than the after ones; and when looking from before the gallery, the munions 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 floor 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 upper rim B, and middle floor, fig. 4, to make the moulds to, transfer the height of the upper side of the lower rim, B, and upper floor 6, 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-breath 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-breath lines, and thicken of the planks A and B without it, as far ast 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-oft, 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 thrown 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 munions, upon which set off the flatings of the lights, making them all alike, and the munions 44, 45, 46, 47, between. Square up the munions 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 floor. The aft part of the middle floor 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 end well, and allowing the additional length required by the winding 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 munion from the under side of the middle floor in fig. 4, to the outside of the middle floor in fig. 5; and at the after-sides of the musions, take their half-breadths from the middle line, and set 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 musions on the rim, and set them off on the upper side of the upper counter-rail. Then strike lines to those 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 also made; observing to take the musions of the upper lights agreeably to those below, which may be set off as follows. Determine on the fore-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 musions. Then fit the fame end of the batten to the ticked line \( H \), and move it diagonally, till the after-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 munion, the lights and musions will be represented in the upper gallery.

The upper and lower finishings may be formed at pleasure, making them as light as possible, to please the eye, and containing sufficient room in the upper finishings to hold a cittern.

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-af on 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 rake upwards to the centre of the stern, at the middle line, as marked 35, 36, 37, and 38, as on the right hand.

Draw the horizontal line \( B \) through figs. 7 and 8, which will correspond with the ticked lines 25, 25, 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, 25, to the ticked curve for the knuckles of the upper counter, and set them from the line \( B \) in fig. 8, and draw parallel lines thereon, as you see ticked, and numbered \( 9, 10, \&c. \) Take likewise the perpendicular heights from the lines 25, 25, fig. 6, to the intersections of all the timbers, with the under and upper sides of the taffrail and quarter-piece; and set them from the line \( B \), 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 side-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 30, and let it off from the line \( A, A \), in fig. 9, on the ticked lines \( C, C \), and raise the arc \( B, B \), which shews how much the stern rounds aft on a square, agreeable to the breadth of the upper counter, which round-af governs all 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 knuckles of the upper counter, square them down to fig. 9; then take the round-af of each timber from the line \( A, A \), fig. 9, and set them off square from the midship-timber 32, so as to intersect their corresponding level lines in fig. 8. Then 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-af to their corresponding level lines in fig. 8, setting them off square from the midship-timber, as before. Then from those 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 stationed in fig. 6.

If the side-timber 33, and midship-timber 32, were prolonged in fig. 8, till they intersect 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-af, fig. 9; then take its round-af at 11, fig. 9, from the line \( A, A \), and set it off square from the midship-timber 32, in 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-af \( B, B \). Then pin a batten to the round-af on a square \( B, B \), 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 \( B \), and thereon mark the several spots on the right hand, and likewise on the left. Then, if the floor will admit of it, continue upwards the spots in the middle of the side counter-timber, as at 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, 25, fig. 6, to where they intersect the upper side of the taffrail and quarter-pieces, and set up from its corresponding line 25 the middle line in fig. 7, striking horizontal lines; then pin a batten, as above, to the round-af \( B, B \), 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 laid set off in fig. 7; then lines struck through those spots to the spots before set off on the line 25, or \( B \), the timbers will have their regular tumble-home, as from the centre in the plate. Then take the distance square from the line 30, 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 off square from the line \( B, B \), 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 or 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
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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 cover-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 ship 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 ship, 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 fiding-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 fiding-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 straight fore 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 settle in building.

Keel is generally elm, fawn straight and square, and is scarfed together with coaks, with tarred flannel between each scarf, which are firmly bolted together and caulked.

The rabbit for receiving the plank of the bottom may be trimmed out, leaving about a foot at each end of the scarfs, for the better caulking the butts. In the navy, the rabbit is lined parallel to the upper side of the keel to the thickness of the bottom plank; but, in most merchant-ships, the rabbit is taken out of the middle of the keel, to prevent its caving, should the ship take the ground. The keel is left 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 midship are of a parallel thickens, and in breadth to overhang the keel about two inches on each side. The dead-wood afore and abaft, for the security of the half-timbers, is as high as the cutting-down. This part of the dead-wood below the keel is trimmed to the shape of the body, and above the keel, perpendicular to the fize of the keel. The scarfs or butts of the dead-wood should give scarf to the butts of the keel, and to each other.

Stem is composed of two or more pieces of oak timber, of the belt quality, as shifting it is very expensive. It is fayed to its fiding and moulding, then trimmed and scarfed together as the keel, and the rabbit taken out likewise.

On the stem should be marked, from the mould, the heights of the harpins, decks, casks, &c. and a line square from the keel, and a middle line as a guide to set it by.

Apron is also oak fawn to its fiding and moulding, and fayed to the aft-side of the stem, to fuccour it at the scarfs, which are bolted through the apron, observing to place the bolts within the rabbits.

Bollard-timbers are oak fawn to their fiding and moulding, their heads in wake of the bowsprit to be left the thickness of the plank inside and out; they are fayed and coaxed 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 bowsprit.

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 admittance 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 deck-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 rabbit 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 keel, 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 head: it is fayed to the fore-side of the stern-post, and a tenon made on the heel as on the main-post, and the head left long enough to tenon an inch into the tranfom next above it.

Tranfoms are oak fawn to their fiding, whether rounding upwards or straight; and to the moulding by their respective moulds. The wing-tranfom, if faved only to the margin bevelling, may be brought in for other ues, if sound defective; for tranfoms require much trouble and expence 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 tranfoms, let care be taken to work them top and butt alternately.

The tranfoms are to be trimmed with the greatest nicety, and then let on the pott, with scores 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 pott. 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 tranfoms, 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 sound well-grown timber, without sap or vein appearing in wake of the posts, and fawn full to their fodings, so that their fastening may remain after the posts 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-checks should always be rejected, or only admitted on extraordinary occasions. The heads and heels of all the timbers to have one-third of the substance left the moulding way, when trimmed; and the feet of the checks 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 succeeding floor, because the tops may sometimes
sometimes be feasty; 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 feast themselves on the dead-wood, and the throats to run up to the cutting-down or under side of the keelson; then any wood wanting below the feating may be made good by a chock.

The floors, when correctly trimmed, are let down into foors cut in the dead-wood, to the exact height of the cutting-down from the upper edge of the rabbit 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 flored, securing the foors at the head and heel to prevent any alteration; for the truth and precision of the whole fabric may be laid to depend upon the accuracy of the floors, when got into the ribsbad.

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 wanting 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 flaring, 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 to the head of the second futtock, and bolts to the third; and the heel of the top-timber fearns 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 railed 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 loft; to prevent which, the joints of the chocks and heads are secured by nailing quarter over them, and a flore fitted on the inside or bag of the frame.

The frames, as hoilled, 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 hull is plank'd, and the beams in and kneed.

The frames are next ribbanded thus: the cant-frames may be gotten near to their flations by the harpin-moulds, then the harnpinned gotten up; and, if the frames come fair, may be nailed and flored to their framework.

The square frames, correponding at the floor-mark or guide, must be levelled, and the joints let at right angles with the middle line, observing that the spacing of the ports agrees. The ribbands may then be nailed and flored, and the lower futtocks bolted to the floors.

Filling-timbers, or the timbers between the frames, are trimmed and hoilled into their places 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 scantlings 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 douls on each scarf, which should give as much shift as possible to the fearns of the keel. For some years a three-inch oak plank has been fayed upon the upper side of the keelson, and the bolts driven through that likewise.

Stem-fan is oak fawn to its fiding and moulding, then trimmed and fayed to the apron, and fearns with a hook or douls into the fore part of the keelson. The bolts through the braid-books must be consider'd, and one or two bolts may then be driven through between them.

Stem-fan-knee is oak fawn to its fiding and moulding, then trimmed and fayed against the transoms and upper side of the dead-wood, and fearns with a hook, or douls into the after-piece of the keelson. It is bolted to the transoms and stern-pont as the keelson, of which it is a continuation.

Wales are next wrought, and the thick-stuff below them: they should be fastened with dumps only for the present, as the tree-nail holes, which are double and single alternately in every timber, and should be left open as long as possible, for the admission of air. A doul in the timber next each butt in the wales, in the strake above and below it, has been lately introduced in the navy, as an additional securitv. The wales and diminishing strakes are then dubbed down fair, and large cleats nailed at the fore part of every port, to which the hup is substantially flored.

Planking.—The bottom is next plank'd down sufficiently low to work the orlop-clamps. See Planking expanded, Plate VIII.

Inboard Clamps, Thick-stuff, &c.—These are wrought similar to the outside stuff above. The clamps to the sheer 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, in wake of the ports, the lower sides are trimmed level, and between the ports square to the timbers. Clamps over ports are beared from half their depth to one inch less in thickens on the under side, excepting over the ports, where the wood is left on, for the muzzles of the guns to houset to; and the butts are douelled as the wales.

The thick-stuff is to be wrought with a square close edge over the joints of the timbers; and the spirkings are to have a seam allowed, agreeable to the thickens with the outside stuff, 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 fearned together; and if in three or four pieces, the middle pieces may be sir, 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 VI.

Beams are either tabled or douelled, and bolted together at the fearns: if tabled, the lengths of the tables are one 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 moulded 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 winding 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 sides, and fayed to the side, taking as little wood as possible out of the throat the moulding way, as the greatest strength of the knee is there. Each knee tapers towards the toe to which it is fided; and the surface 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 side-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 sides as the beams outside will allow.

In those parts of the ship aforesaid, 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 no wise flexible, nor can the bolts be driven so tight in iron as in wood. If, therefore, the ship strains, they must inevitably work loose. Again, the holes must be bored in the direction in which the knees are punched, so that where iron knees are intended to be placed, oak fellungen should be driven between the timber; otherwise the bolts may come in the openings, which is inadmissible. Besides this, the bolts may come in the beams of the outside plank; when it so happens, the belt way is to cut out a piece, and clench the bolt upon the timbers.

Bolts in wooden knees are mortly driven from the outside, and clenched upon the knees inside; but bolts in iron knees are driven from the inside, with collar or flout heads, because upon the head depends its fastening; or if the bolts be of copper, they must have 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 fluff into the plank, by means of a machine or centre-bit for that purpose, and the points under water carefully caulked after the ring is let in.

Wooden knees having become scarce for some years past, many substitutes have been attempted; and iron knees, or rather knees formed of iron and wood conjointly, are certainly bent when properly applied. See Substitute.

Standards, either on the deck or to the sides of orlop beams, are so similar to knees, as to require no further description.

Breast-hooks, steps, and crutches, are oak fawn to their fidings, 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 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 lefs wood or substance than their fiding, clear of the check.

Riders are oak fawn to their fidings, moulding, and bevellings; then fayed to their respective places, as follows.

Floor-riders in two pieces have a cross-chock fayed over the heels, with a hook and butt fcarf; their heels run down to the timber-strake, and the heads run upwards between the joints of the floor-heads and first futtock-heads.

First futtock-riders stay close to the sides of the floor-riders, and their heels extend downwards within four feet of the keelson; their heads run upwards between the joint of the first futtock-head and under side of the orlop-beams, with a cross-chock fayed over the heels as the floor-rider.

Second futtock-riders stay close to the sides of the first futtock-riders, and scar 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 tail sideways; and they bolt through the beam and the adjoining riders fore and aft.

Third futtock-riders stay and bolt to the sides 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 under 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 slices of oak, driven in tight and caulked; and the riders are fayed over the timbers, and stand diagonally at the angle of forty-five degrees.

The knee of the head is oak, each piece fawn to its sizing, agreeable to the tapered battens, where they intersect. The main piece should make the lower part of the knee, and run up to the top part of the stem, to which it says high enough for a hole to be cut in it to receive the main-tay collar. The front piece runs up to fit the figure, and should be broad enough to take the bow-deck holeways, and the lower end step in the main piece about one foot below the load draught of water. Another piece must be provided to make the lacing 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 stem-end and apron, and sometimes through the deck-hooks.

Cat-heads are now fawn straight, sideways, and plumb, moulded to flight, 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 forecastle beams, fo as to angle square with the bow.

Supportors of the cat-heads are knees of oak fayed to the under side of the cat-head, and the arm to the side to stand perpendicular; the upper arm bolted through the cat-head, and the other through the side.

Rudder.—The main piece to be oak fawn to its sizing, 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 fore-side 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 straight through to its thicknesses, and bolted together between the flaps of the pintles. The back is then fayed on, and fastened to the aft-side, and the sole 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 twofifths the thickness, 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 stem-poll is likewise bearded at the upper end; and consequently the fore-side of the rudder to much the lefs. The pintles may next be let on thus: the braces being let on to the stern-poll, and square from the aft-side, a staff of the whole length
length is run down through the holes of the braces. Now mark the upper sides of the braces correctly on the staff with a pencil, or both under and upper sides will be bent. Then mark on the staff the upper side of the wing-tranom, and the under side of the deck-tranom above; also the upper side of the deck; and, lastly, the under side of the keel. Next apply the staff on the foré-side of the rudder, and exactly mark off the upper sides of the braces in the middle line, likewise the transoms and deck. Then square down, from the fore-side of the rudder, the upper side of each brace, which, it may be observed, is the under side of the pinteles. Now set upwards the breadth of the flaps of the pinteles, and the scores may be taken out till their crowns come flush with the bearding, and the middle of the pinteles ranges well with the middle line: thin copper is dint in the scores under the pinteles. Scores or throatings are then gouged out, under the pinteles, sufficiently large for hanging the rudder, which may be formed by a piece of sheet-lead made to the crown of each brace, and traversed round its respective pintle. Let there be sufficient room in the scores to allow for the head of the bolts; and that the rudder may hang easily, all the scores must be made to the length of the lower one; that pintle being two inches longer than the others. The score nearest the load water-line is opened on one side to fit in the wood-lock, which prevents the rudder from unshipping. Ships built in the North have the pinteles put into the braces, and the rudder put together in that situation, so that it cannot be unhang until throatings are cut to clear it of the braces.

After the braces are let on to the stern-post, it is best to try all the pinteles in them, and see that they work easily in the braces, and square from the stern-post. Then their upper sides may be marked on the stern-post, and set off on the rudder, as before directed, without the possibility of error.

The head, if not round-headed, is thinned and bearded back about three-quarters of an inch, and the edges taken off to a bold round. The holes for the tellers may now be cut through the lower hole three inches clear of each tranom, and the lower part of the upper hole three inches clear of the deck: lastly, the head-hoops may be driven on.

Amongst other useful machines for drawing bolts out of ships (see BOLTS), the following was invented by Mr. William Hill. See Transactions of the Society for the Encouragement of Arts, &c. vol. x.

"First, The use of this machine is to draw the keel-van and dead-wood bolts out, and to draw the knee of the head bolts. Secondly, The heads of the keelbolts heretofore were all obliged to be driven through the keelson, floor-timbers, and keel, to get them out: by this means the keelson is often entirely ruined, and the large hole the head makes materially wounds the floors; and frequently, when the bolt is much corroded, it tears, and the bolt comes out of the side of the keel. Thirdly, The dead-wood bolts, that are driven with two drifts, are seldom or never got out, by which means the dead-wood is condemned, when some of it is really serviceable. Fourthly, In driving the knee of the head bolts, sometimes the knee starts off, and cannot be got to again, but is furled up; but with this machine it may be drawn to again."

In Plate XIV. Ship-building, fig. 3, A, A represent two strong male scres, working in male scres, 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, is, by turning the scres 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 fast hold of the bolt. At the upper part of these dogs are rings passing through holes in a collar, movable near the heads of the scres.

Fig. 4. is a view of the upper sides of the cheeks, when joined together; a, a, the holes in which the scres work; b, the chaps by which the bolts are drawn. Fig. 5. the under side of the cheeks; a, a, the holes in which the scres work; b, the chaps by which the bolts are drawn, and where the teeth that grip the bolt are more distinctly shown. Fig. 6. one of the cheeks separated from the other, the letters referring, as in figs. 4 and 5.

SHIPFUND, SHIPSEND, or Schifffund, in Commerce, a large weight in Holland, Germany, Denmark, and Sweden, containing a different number of pounds in different places. At Amsterdam the shipfund contains 3 centners, 20 lyponds, 37½ tare or tines, and 330 lbs. A lypond is 15 lbs., and a tine 8 lbs. At Berlin a ship-lift contains 12 shipfunds, each of 20 lyponds, or 280 lbs.; in all 3360 lbs.: but a salt of salt is 3260 lbs. At Hamburgh a shipfund contains 2½ centners, 20 lyponds, or 280 lbs.: a lypond is 14 lbs., and a centner 112 lbs. Hamburgh weight. At Copenhagen the shipfund contains 3 centners, 20 lyponds, or 320 lbs.; a lypond is 16 lbs., and a centner 101 lbs.

SHIPLEY, JONATHAN, in Biography, an English prelate, was born in the year 1714, and was educated at Christ-church, Oxford, where he wrote some verses on the death of queen Caroline; and in 1738 he took his degree of M.A. Soon after this he entered into holy orders, and obtained a living. In the year 1743 he was installed prebendary of Winchelner, 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 Winchelner. In 1769 he was advanced to the bishopric of St. Asaph. He died in 1783. He was author of poems, and sermons on public occasions.

SHIP-MONEY, an imposition which was anciently charged upon the ports, towns, cities, boroughs, and counties of the kingdom; by writes commonly called ship-writs, under the great seal of England, for the providing 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 Stat. 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.

SHIPPANDTOWN, in Geography, a town of Virginia, on the south side of the Patowmack; 40 or 50 miles from Alexandria.

SHIPPENSBURGH, a post-town of Pennsylvania, in Cumberland county, on a branch of Conadoguinet creek, which discharges itself into the Susquehannah; containing about 200 houses, chiefly built of stone, 1595 inhabitants, and three meeting-houses, one for Seceders, one German, and one Methodist. It derives its name from its proprietor John Shippin, esq. of Philadelphia, who leased out the place in small house-lots on ground-rents from two to four dollars a year; 146 miles W. of Philadelphia.

SHIPPER, SKIPPER, or Schipper, a Dutch term, signifying the master of a ship.

We also use the word, popularly, for any common seaman.

SHIPPISANADAN ISLAND, in Geography, an island in the gulf of St. Lawrence, on the south side of Chaleur bay, S.W. of, and separated by a narrow channel from, Miscow Island.

SHIPPING denotes a multitude of vessels.

SHIP-SHAPE, in Sea Language, denotes the fashion of a ship, or the manner of an expert sailor: thus, they say,
SHI

fay, the mast is not rigged shipshape, and trim your sails shipshape.

SHIPSTON-UPON-STOUR, in Geography, a market-town in the upper division of the hundred of Owlefield, 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 it derives the latter part of its name. The houses here are chiefly built of stone; 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 1st Tuesday after the 10th of October; both of them for horses, cows, and sheep. The Manor of Shipton 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 Shipton-upon-Stour. Naft's Survey of Worcestershire, 2 vols. fol. Beauties of England and Wales, vol. xv. by Mr. Launc. 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 Acicot, and containing about 350 inhabitants.

SHIPWRECK. See Wreck.

SHIRALDO, in Geography, a town of Perdz, in the province of Ghilan; 30 miles S. of Aftara.

SHIRBAY, a town of Syria, the residence of a sheikh; 15 miles E. of Aleppo.

SHIRBOY, a river of England, in the county of Warwick, which runs into the Sow.

SHIRE, SYVRA, originally Saxon, seir, or seires, formed from sfurvan, to divide; a part or portion of the land, called also a county; which fee.

SHIRE-CLerk, he who 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 alizes, &c. See SYRECEMOT.

SHIRE-REVE, See Sheriff.

SHIRE, Knight 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 extends into the hundreds of Broxton, Thurgarton, and Baffletlaw; 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 forest 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 Forestal in Comitatu 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 1151 the sheriff of the county prays to be discharged of "4L in valo foresta," and in 1163 he prays for a similar discharge, and for the discharge of "40L paid to the canons of Shrewsbury for alms." In the Forest book is inserted a copy of a charter by king John, granting to Matilda de Caux, and Ralph Fitzlethen her husband, and their heirs, all the liberties and free customs which any of the ancestors of the said Matilda, lords of Laxton, had held in Nottinghamshire, including the forest of Shrewsbury. The same rights afterwards fell to John Birking, 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, who having lost their possessions by forfeiture in the reign of Edward I., 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 trespassers, and prevent them at the attachment before the verdurers. 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 verdurers, and two agitators. This keeping contained the three hays of Balkwood, Lindeby and Willay. The High Forest, including the hays of Barkland and Bilhagh, and the park of Clifton, formed the second keeping; and here were two foresters riding, with two pages and two agitators. The third keeping, Rumwode, had one forester on foot; two woodwards, one at Carbunton, and the other at Budby; and the number of verdurers and agitators. The chief keeper was further bound to have a page bearing his bow, whose duty it was to gather "chimnage," which is usually supposed to have been a tax for the formation and preservation of roads.

By the late 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 verdurers, a steward, 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. Thorney-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 chace comprehends a large portion of the south walk, and was formerly well flocked 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 hays of Barkland and Bilhagh, 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 Clifton 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, felled by the Broad oak, the bough of which measures 234 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 34 feet round. Rooker, 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
Birkland and Bilhagh, letters were found cut or stamped in the body of the trees, denoting 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 1790; but the middle of John's reign was 1207, from which, if we substract 120, the number of years requisite for a tree of two feet diameter to arrive at that growth, it will make the date of its planting 1087.

The forest of Shirewood was, in ancient times, frequently the scene of royal amusements. As early as the reign of Henry II., Mansfield 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, Sir John Cockle. This forest was likewise the retreat of another personage, equally celebrated in the chronicle of ballad, the illustrious Robin Hood, who, with little John, and the rest of his associates, making the woody scenes of it their asylum, laid the whole county under contribution. Thoroton's History of Nottinghamshire, republished, with additions, by John Throoby, 3 vols. 4to. 1790. Beauties of England and Wales, vol. xii. by Mr. Laird, 8vo. 1813.

SHIRINKI, one of the Kurile islands, about 26 versts from Poromushir. On it it rives a round mountain-top; and about it, on the coast, walls of rock and loofe brittle bone, 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 sea-lions 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 stumps of the mountain pine and some elder bushes; and it has neither a stream nor a spring of water. The rocks are very much disposed to break and fall in fragments. N. lat. 50° 40'. E. long. 138° 3'.

SHIRLEY, Anthony, in Biography, second son of Thomas Shirley of Welton, in Snifle, 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 contumely with the pope: before, however, he arrived, all the disputes were accommodated, and peace was signified; he accordingly proceeded to Venice, and travelled from thence to Perlia, where he came in great favour with Shah Abbas, by whom he was sent ambassador 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 vast Indian expedition in the third volume of Hakluyt's Collection, under the following title: "A true Relation of the Voyage undertaken by Sir Anthony Shirley, Knight, in 1596. intended for the Island San Toma, but performed to St. Jago, Dominica, Margarita, along the Coast of Sierra Firma to the Isle of Jamaica, the Bay of Honduras, Thirty Leagues up Rio Dolce, and homeward by Newfoundland, with the memorable exploits achieved in all this Voyage." His travels into Persia are printed separately, and were published in London in 1613; and his travels over the Cape of Goza, and through Ruffia, were inserted in Purchas's Pilgrimages.

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 ac-

count of his talents, patronized by Dr. Laud, who, however, would not consent to his taking orders, by reason of his being disfigured by a large mole on his cheek, which, in his ellimation, according to the canons 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 meeting with no farther obstacle, he took orders, and obtained a curacy. His religious creed was not sufficiently settled, and he went over to the church of Rome, abandoned his cure, and opened a grammar school at St. Alban's. 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 cause he came to London, and resumed his occupation of a schoolmaster, in which he met with considerate encouragement, and he showed his attention to the duties of his office, by publishing some works on grammar.

During the Commonwealth, theatrical amusements being suspended, Shirley had no room in which he could display his dramatic talents; but after the Restoration, several of his pieces appeared again 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 retreat to the suburbs; in consequence of the loss 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, confounding 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 more modern authors, yet there have been critics who thought highly of them. Dr. Farmer, in his Essay on the Learning of Shakespeare, says the imagination of Shirley is sometimes fine to an extraordinary degree.

He alluded Mr. Ogilvie in his translation of Homer and Virgil, by writing notes on them.

Shirley, in Geography, a township of America, in Massachusetts, in the W. part of Middlesex county; 41 miles N.W. of Boston, incorporated in 1753, and containing 814 inhabitants,—Also, a township of Pennsylvania, in Huntingdon county, containing 862 inhabitants.

Shirón, or Shirvón, a town of Thibet; 120 miles N. of Catmandu. N. lat. 35° 10'. E. long. 85° 5'.

Shirvan. See Shirván.

Shisniew, a town of Poland, in Volhynia; 12 miles N. of Conflantina.

Shitakoontha, a name of the Hindoo 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 KurmaVatara, 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 irrigated his azure neck."

In the fongs of Jaydeva, translated by Sir W. Jones, in praise of Vishnu and Lakhmi, under their names of Krithna and Radha, the following passage occurs, which we are in-
Hindoo poetries, and the prevalence of mythological allusions, in all their writings. Heri and Narayana, we may presume, are names of Vishnu; and Padma, or the Lotus, of Lakshmi.

"Whatever is delightful in the modes of music; whatever is divine in meditations on Vishnu; whatever is exquisite in the sweet art of love; whatever is graceful in the fine strains of poetry— all that let the happy and wise learn from the songs of Jayadewa, whole soul is united to the foot of Narayana. May that Heri be your supporter, 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 bosom 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 bridgroom, near the sea of milk, the disappointed husband of Parvatि 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 Sefha, a frequent subject of poetical exuberance. See Seshä.

Of the blue-necked Siva, Nalakantha is another name, of familiar meaning as that at the head of this article; and which indeed occurs oftener than Shitakantha, or Shitakoontha.

SHITTAT, in Geography, a town of Arabia Deserta; 50 miles 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 Vifapour; 25 miles E. of Baddammy.

SHIVERAPILLY, a town of Hindoostan, in the cîrcar of Cicacle; 20 miles W. of Cicacle.

SHIVERS, in a Skip, 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 coek, 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 heels of the top-masts. See Sheave.

SHIVERS, in Rope-making, the foul particles taken from the hemp, when hatchelling.

SHIVERING, the rate 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 common brine-salt. See Salt.

SHIUMLA, in Geography, a town of Bulgaria, in the fangiac of Drihtra. In this place, thought by the Turks to be impregnable, they were defeated by the Ruslians 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.E. of Famieh.

SHOAD, in Mining, a term for a train of metalline 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 Cornwall, and other parts of this kingdom, to express such loose mailes 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.

These are stones of the common kinds, appearing to have been pieces broken from the strata, or larger mailes, but they usually contain mangan or marastic 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 smoothed and rounded.

The antimony mines in Cornwall are always easily discovered by the shoad-stones, these usually lying up to the surface, or very nearly so; and the matter of the stone being a white spar, or debased crystal, in which the native colour of the ore, which is a lashing blueish-black, easily discovers itself in itsexits 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 great 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 stones, there is great reason to suppose 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 hardest and firmest stones often containing this metal.

When the miners, in tracing a shoad up hill, meet with such odd stones and earths, that they know not well what to make of them, they have recourse to wounding, that is, they calcine and powder the stone, clay, or whatever else is supposed to contain the metal; and then washing it in an instrument, prepared for that purpose, and called a waving showel, they find the earthy matter washed away, and of the remainder, the stone, or gravelly matter lies behind, and the metallic matter at the point of the showel. 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 Mineralogia, p. 124, &c.

SHOAL, in Sea-Language, is the same as shallow, and is applied to flats in the water.

They say it is good floating, when a ship failing 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° 54'. 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 hailing 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 brought on, says Captain Cook, "a traffic between them and our people, who got drestes of skins, bows, arrows, darts, wooden vessels, &c.; our visitors taking in exchange whatever was offered them. They seemed to be the same 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
...knew not even the use of tobacco; nor was any foreign article seen in their possession, unless a knife may be considered as such. This indeed was no more than a piece of common iron fitted into a wooden handle. They however knew the value and use of this instrument so well, that it seemed to be the only article they wish'd for. Most of them had their hair shaved or cut short off, leaving only a few locks behind, or on one side. As a covering for the head they wore a hood of skins, and a bonnet apparently of wood. One part of their dress was a kind of girdle, very neatly made of skin, with trappings depending from it, and paffing between the legs, so as to conceal the adjoining parts. By the use of such a girdle, it should seem that they sometimes go naked, even in this high latitude, for they hardly wear it under their own clothing. The canoes were made of skins, like all the others we had lately seen; except that these were broader, and the hole in which the man was wider than in any I had before met with." N. lat. 60°. E. long. 108° 12'.

...SHOALS, /les of, or, as they were formerly called, Smith's Islands, a group of small islands, situated on the coast of New Hampshire, in America. The line that divides the district of Maine from New Hampshire pafes between these islands, leaving part in one of these states and part in another. They contain about 140 poor fishermen, who are supplied with a religious teacher by the society for propagating the gospel. They have a meeting-house, which serves as a landmark for seamen, and a parolour-house, erected by charity. These islands consist chiefly of a barren rock, with little foil. N. lat. 43° 59'. W. long. 70° 33'.

SHOAL-WATER BAY, a bay on the N.E. coast of New Holland, W. of Cape Townshend.—Alfo, a bay on the W. coast of North America. N. lat. 46° 50'. W. long. 124° 10'.

SHOAR, or Shore, a prop, or counterfort, set up to support any thing of weight which leans on one side. See Buttress.

Shoars, or Shores, in Ship-building, are fir-valks, spars, or pieces of timber, fixed under the ribbands, or against the sides and bottom of the ship, to prop or support her whilly building or repairing.

SHOBA, in Geography, a town of some note in Africa, in the kingdom of Dar-fur; 42 miles or 24 days' journey W.S.W. of Cobbe. This place is said to be well supplied with water, and has near it some chalk-pits, which, when Mr. Browne visited them, were almost exhausted for the purpose of adorning the royal reliquary, and some others, with a kind of white-wash. In Shoiba reside fome Jolahs; the reb of the people are Ferians, and occupied in other purpofes.

SHOCK, or Schock, in Commerce, a German word exprefling 60 pieces.

SHOE, in Geography, a small island in the Pacific ocean, near the coast of Waygwo. S. lat. 60° 11'. E. long. 170° 53'.

SHOE, Indians, Indians of North America, in an island of lake Milliouri. N. lat. 48° 15'. E. long. 105° 45'.

Shoe, 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. Bend. Baudoin, a shoe-maker by profession, has learned treatise of the ancient shoe, "De Solea Veterum," where the origin, matter, form, &c. thereof, are particularly inquired into.

Baudoin maintains, that Gofd, in giving Adam skins of beasts to clothe him, did not leave him to go bare-footed, but gave them shoes of the fame matter; that, after raw skins, men came to make their shoes of rubles, broom, paper, flax, silk, wood, iron, fliver, and gold; so different has their matter been. Nor was their form more flable, with regard either to the shape, colour, or ornaments; they have been square, high, low, long, and quite even, cut, carved, &c.

Pliny, lib. vii. c. 56, tells us, that one Tycheius, of Barotia, was the firft who used shoes.

M. Nilant, in his remarks on Baudoin, observes, that he quotes Xenophon wrongly, to shew that even in his time they fill wore shoes of raw skins.

Xenophon relates, that the ten thousand Greeks, who had followed the young Cyrus, wanting shoes in their retreat, were forced to cover their feet with raw skins, which occasioned them great inconveniences.

Nilant will not even allow, that the shoes of the country people, called carbatine, and perone, were of crude skin, without any preparation.

The patricians, among the Romans, wore an ivory crefcent on their shoes: Helogabalus had his shoes covered over with a very white linen, in conformity to the prefts of the fun, for whom he profefled a very high veneration; this kind of shoe was called coaft, udo, or ado. Caligula wore shoes enriched with precious flones. The Indians, like the Egyptians, wore shoes made of the bark of the papyrus. The Turks always put off their shoes, and leave them at the doors of the mosques.

Shoes made by rivetting instead of fewing. A patent was taken out for this invention in 1809, by Mr. David Mead Randolphi, an American. In his specification, he describes that the rivetting which he proposes to subftitute for fewing, is only applicable to the foles and heels of boots or shoes, all the other parts being made in the ufual manner. The lat which is used for this method is the only implement which demands a particular description. It is firft made in wood, of the fame figure as the common lat, and adjusted in the ufual manner to the fize and shape of the shoe which is intended to be made or put together upon it. The lower part or fole of the lat is then covered with a plate of iron or steel, about the fame thickness as a lat fole leather: this plate, being formed to the exaft shape which is defired, is flattened down upon the wood by fcrews or rivets. The iron plate has three circular holes made through it, one at the toe, another about half way between the toe and the heel, and a third at the heel: the holes are about an inch in diameter, and being filled up with wooden plugs, and cut down even with the furface of the iron, they will admit the points of temporary nails to be driven through the leather fole to penetrate into the wood, and fix the fole upon the lat whilst the work goes on.

The making of the fhoe is conducted in the ufual manner, until it is ready for putting on the lat. To do this, the inner fole is put upon the iron fole of the lat; then the upper-leathers are put upon the opposite part, and the edges of the leather are turned down over the edges of the inner fole; the outer fole is then applied over the turning-down, and flattened in a temporary manner upon the lat, by driving one or two nails, through both foles, into the wooden plugs before mentioned, which fill up the holes in the iron face of the lat. Now, to unite the two foles to the upper-leathers, holes are pierced all round the edges of the fole, and small nails are driven in, which are of sufficient length to penetrate through the fole and the turning-in of the upper-leathers, and also through the inner fole, fo as to reach the metal face of the lat, and be forcibly driven, their points will be turned by the iron, fo as to clench within fide, or rivet through the leather, and ferve instead of the fewing or stitching commonly employed to unite the fole to the upper-leathers.

Shoes,
**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 fewed 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 runner, or welt, 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 fast, 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.

These 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 flamps, each of which is an iron frame or ring, bent to the size and figure of the sole, or other part to be cut out by it: one edge of the frame is edged with steel, and ground sharp, so that it will cut the leather: the sharp edge of this frame being placed upon the skin, and driven with a mallet, will cut out a piece from the skin, which is exactly of the same size 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 flamp 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 follow: 1. The sole, which is not cut out the full size for the sole of the shoe, but wants a piece at the heel. 2. The piece-piece is a semicircle, 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; 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 soles, are cut out by knives of the above description, there being a set 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 same framing which sustains 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 depend 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 being raised 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 nseur 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 under-side of the leather with a number which designates the size of the shoe to which they belong. The flamp 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,
marked, that the workman may make no mistakes in putting the shoes together.

The leather for the welt 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 small iron rulers the width of the intended strips, and screwed down upon the wooden table, leaving between them sufficient spaces to admit the point of a knife. Several small pins project from these iron rulers to penetrate the leather and hold it fast. To confine the leather down whilst 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 covered all over 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 rollers, 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 winch, 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 one above the other in an iron frame, in a similar manner to those used for laminating; 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 preserve of the upper roller compresses it into the groove. A guide, consisting of an iron item, 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 an item, or standard, which receives a cylindrical steel pin, and holds it fast in a 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 fine sharp edge, like that of a chisel, and precluding itself to the end of the strip of leather as it passes through the rollers, will evidently divide the strip longitudinally into two pieces, when the leather is forced forwards against the edge 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 preserve of the rollers upon the leather tends to condensate its texture, and supply the place of hammering.

Preparation of the Soles.—The leather is hardened by passing 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 moved by a pinion upon the end of an axis turned by a winch; one man turns this winch and another puts the soles between the rollers. Two soles are presented together, being laid one upon the other, with the flesh sides of the leather towards each other, and an iron plate is placed between them, which is made thick in the middle, and diminishes every way to the edges, where it is thin. The grain or hair side of the leather of the two soles is outsie, so as to be in contact with the rollers when the soles are presented to the machine which draws them in; and when they have nearly passed through, the man who turns the winch reverses the motion, and rolls them back again, then forwards, and so on for four or five times, in the same manner as the motion for mangleing linen. After this operation the leather becomes hard and solid, and much reduced in thickness, particularly at the middle part.

The heels being so small cannot conveniently be rolled; but to produce the same effect they are stamped in a fly-pres: 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 laid beneath the fcrews 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 solid.

The soles are 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 Sort Nails.—The leather for the sole is next laid in 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, laid 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 inflicts 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 sustain a square iron rod or perpendicular slider, 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 sustain 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 pressed 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 when the pressure is removed. To prevent the piercer striking upon the iron of the table, and breaking the point, a screw 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 sustain the slider, and thus prevents 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 desired 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 pressed 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 placed 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 pierces any number of holes in the leather, placing it beneath the joint of the piercer by the aid of the pattern, and then pressing 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 just above the leather, which prevents its being lifted up, and following the piercer when it rises. The piercer paras through a hole in this piece.

Nailing Machine for the 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 presented to the machine by laying it upon a small table, similar to the lathe 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 lever. In the upper part of the machine is a pair of scissors, to cut the nails; they conflict 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 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 position. 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 conducts 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 same 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 hattered 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 slip 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 single within. The welt is made from the feather-edged slips 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 all round 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 same 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 same manner as before described, 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 same motion; the nails are, therefore, cut by a machine made on purpose, and applied to the leather by
The nailing Machine for long Nails.—This is made exactly like 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 slider, which is caused to descend when the foot is applied upon the treadle, and to re-ascent by the action of the counter-weight. The piercer at the lower end is not sharp-pointed, not being intended to penetrate the leather, but only to force the nails into the holes previously pierced by the preceding operation. The additional parts are as follow: a circular plate, or wheel of brass, about nine inches diameter, and of a thickness nearly equal to the length of the nails; it is perforated with a great number of holes, to contain the same number of nails; the holes being made round its circumference, as close together as convenient, and arranged in four circles, one within the other. The interior space within the circles is formed with four arms, like a wheel; and in the centre is a hole, which fits loosely upon an upright centre pin, standing in the centre of a small circular table, which is fixed sideways to the upper end of the arms, which, as before mentioned, project from the vertical column of the machine, and fulfill the upper end of the perpendicular slider. 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 with liberty 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 wheel into the tube, which is made so small, that the nail must descend with its point downwards, and fall into a small cell, so situated that the nail will stand exactly beneath the point of the piercer, when the same is at 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 only 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 in the space, or open joint, at which the two halves of the cell separate, 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 faces inclining inwards, they throw the nail into the cell itself, in which it drops down till it ticks fast; because, as before stated, the cell is smaller at the bottom; and in this situation the nail is certain to be held perpendicular, with its head under the point of the piercer.

To turn the wheel round, so as to supply a fresh nail every time that one has been put into the leather, the edge of the wheel is cut into ferrated or flaring teeth; the number of teeth being equal to the number of holes made in each of the four circles to contain the nails. A small detent or click takes into these teeth by a hook, so that it will turn the wheel when moved in one direction, but slide over the teeth when moved in the other direction. The click is jointed to a short lever, fixed upon the upper end of an upright axis, which slips down through the two projecting arms of the main column, so as to be very near the perpendicular slider; and a short lever, fixed to this axis, bears, by the action of a spring, against a wedge fixed to the slider. The action of this mechanism is to turn the wheel round one tooth at a time; thus, when the slider descends, its wedge forces the end of the short lever farther away from it; this movement is communicated by the upright axis and upper lever to the click, which slides over the flaring sides of the teeth of the wheel; but on the re-ascent of the slider, the wedge allows the lever and click to return by the action of a spring, and the hook of the click, having caught a tooth of the wheel, will turn the wheel round the space of one tooth. In this manner, at every descent of the slider, the click engages a fresh tooth of the wheel; and at every ascent, the wheel is turned round upon its centre pin; the weight of the wheel, resting upon the flat circular table, being sufficient to retain it as it is placed.

The nailing machine acts with the 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 same 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 be project through the leather on the under side. When the nails are all put in, they are beat down with a hammer, to drive all the heads to a level with the surface. The leather is then prepared from the pattern, and put into a frame called the striking frame.

The stitching machine is a small square frame of cast iron, fixed upon the top of the 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 situation 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 to the same size and shape as the cell of the sole. The sole is placed flat upon the frame, 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 incline the sole as it were with an iron hoop or raised border, all round the edge; and the frame being clamped fast 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 frame. In this frame the sole is applied, by laying the strip of leather upon the edge of the sole in contact with the inside of the iron frame, and bending it to follow the curves of the outline of the sole. As fast as any part of the length of the
Itrip is fastened 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 itrip 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 itrip of leather which compose 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 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 size; because, as the frame of the welt 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, consisting of two standards, erected from a horizontal plate, to sustain the spindle, which passes through a collar in one of these standards, and projects some inches beyond it, having at the extremity a piece of wood flat on the surface, and of the same 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 standard, erected from the same 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 same situation as the pulley of a common lathe,) is made to press against a similar flat plate, which is fastened 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 firm, whilst 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 fasten the spindle as before described, and at the same time to press 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 iron 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 reinforced 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, just within the former row of tacking nails; after which, by the nailing machine, these holes are filled with nails which project through the upper side of the sole, 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-leathers.

The upper-leathers are prepared for applying to the sole, in the same manner as the ordinary shoe, viz. by sewing the vamp, or piece which covers the upper part of the foot, to the two quarters which go round the heel, and also sewing these two quarters together behind the heel. The workmen do not hold the work upon their knees to sew 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 sewed together are laid upon one of these pieces of wood in the proper position to be sewed, and are held fast by an endless strap, which is laid over them, and the workman binds it fast down, by prefling his foot in the strap, like a stirrup. This method of sewing, which is far superior to the common mode, might, from its simplicity, be used by all shoe-makers, and would render their buskins less unhealthy; whereas at present they are subject to many diseases from sitting in the awkward and unnatural posture which is necessary to reach their work, when they hold it upon their knees.

Operation of Clampine or riveting the Shoe together.—The upper-leathers are put upon a lafli, and held tight 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 side. In the centre of the table a lafli is fixed, with the sole upwards; it is supported at a height of about six inches from the table. The sole is made of cast-iron, in a solid piece, with the stem or part by which the lafli is supported; but the other part, upon which the upper-leathers are to be moulded, is made of wood, for the convenience of altering the figure when necessary. The lafli is fixed upon the table by means of two steady pins; and a strong pin, which projects from the lower part of the lafli, and passes through the table, is bound fast by a wedge, which confines the lafli firmly upon the table, in the same manner as if it were made in a piece therewith. The table has a number of pieces of brasses attached to it by hinges, and arranged all round the lafli in such a manner, that they can be turned up against the lower part of the lafli, and then form clamps, which are exactly adapted to the figure of the lower part of the lafli, and will therefore clamp or bind the leather firm upon the lafli at the toe, heel, and every part thereof, except at the flat part of the sole. The clamps are of such dimensions, that they will touch each other when turned up, and thus form a complete cell or box, in which the lower part of the lafli 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 necessary. The clamps are forced up to their situation 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 same time presses it against the leather. When the clamp 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 flanks insulat'd in the middle of the table, from which it can be detached by withdrawing the wedge which confines it. The inner sole of the shoe is first put upon the sole of the last, being tightly 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 heel; and the other pin is fixed 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 into 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 pincers, so as to make them fit tight upon the last, the clamps are ferreved tight. In this state, the upper-leathers are made to take the form of the last, being firmly attached thereto, except at the sole 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 lie flat upon the sole, without folds or overlapping, and then, to make a close contact, the leather is beaten down. Parings of leather are likewise paled, and fluck flat upon the inner sole for levelling, to make up the sole to the same thickness in the centre as it acquires 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 faddle, being employed to determine its proper position upon the last. This frame is made of thin iron, and its figure within 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 rivetted 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 infenting all the long nails in the holes, so that their 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-prest, and by a single blow the sole is rendered conveave within, 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, at the base of the sole: the size of the inside of the frame being made exactly upon 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 driving upon the ends 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 shoe, and the points meeting the iron last are turned back, and thus clenched into their places. To render this 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 being of a semicircular figure, the points are more readily turned thereby, and are all turned the same way, so that they will not interfere.

The shoe is now put together, and the clamps being relieved and turned down, the shoe is taken off the last; for which purpose the heel of the last is made in a separate piece, and jointed to the other by inclined fittings, and with a tongue or rebate, so that it can be held fast in its place by a single hook or spring catch; but this being relieved, the shoe draws off the last with the greatest ease, the heel part remaining within the shoe, and is taken out afterwards. The shoe is now carried to the rivetting left, 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 smooth without the groove, which caues the points of the nails to turn up. Upon this last the nails are beaten down, to rivet all fast, and make the sole smooth within: the heel is then put on by laying it in its place, and driving down the long nails which have been put through it by the nailing machine, in the same manner as for the sole.

The sole of the shoe is now rasped with a coarse file, 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 brushed by a circular brush, which is turned by the lathe, and the shoes are rendered 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 manufacture. In our article Nail, we have described some nail machines; 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 slips, 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 CANTEEN, but are constructed in a superior manner, by employing cast-iron for the framing 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 slip of iron: the sheet of iron is cut so that the direction of the grain, or fibrous texture which the iron acquires by rolling, will be across the length of the slip. From this it follows, that when the nails are formed by cutting off narrow pieces from the end of the slip, 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 workman, whilst he supplies the iron by his hands. The motion of the treadle turns a crank and its heavy fly-wheel; similar to the turning of a lathe: from the crank a rod proceeds to the longer end of a front lever, the axis of which is supported on 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 fixed cutter is fixed, which acts against a fixed cutter supported by the frame; the fixed cutter has an edge on the upper side, and the moving cutter, which is fixed to the lever, is made sharp on the lower side. The revolution of the wheel and crank causes the lever to rise and fall, and the edges of the two cutters in this motion pass as close together as possible, without touching. At the most elevated position of the moving cutter, its edge rides above the edge
of the fixed cutter so far, that the thickness of the flrip of plate can be admitted between them; the end of the flrip 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 overarching piece, and pricking it down upon the edge of the fixed cutter, cuts it off, and the piece so separated forms a nail. When the moving cutter re-ascends, 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 effect this, the cut which the machine makes across the end of the flrip of iron is not perpendicular to the length of the flrip, but rather inclined thereto; and at every successful nail which is cut, the inclination of the cutter 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 flrip of iron. The thickness of the nail is regulated by the quantity which the end of the flrip is allowed to project over the edge of the fixed cutter, and the angle of inclination by two fllops, against which the edge of the flrip is always brought to bear, when the workman places it ready for the cut. To flrop 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 fllop is as far removed behind the edge of the cutter as the thickness of the nail intended to be cut off by the defect of the moving cutter. In working the machine, the workman keeps the wheel constantly revolving by the motion of the treads; and holding the flrip with its edge in contact with the two fllops, 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 flrip, it will advance forwards, until the end of the flrip touches the fllop which is beneath the cutter; on the defect of the cutter, the nail is cut off, and the workman immediately turns the flrip with the other side upwards, which has the effect of reverting the inclination of the cutter; and pushing it forwards, another nail is cut as the former, and thus the operation continues with the utmost rapidity.

There are several suits 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 artificers to perform their work in a standing posture; by which means they will avoid the diseases incident to those who follow sedentary employments.

In the common method of working, the shoe-maker is obliged to sit and floop in the most awkward posture imaginable, sometimes in order to hold the shoe and lift between his loins and his thigh, whilst he fews 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 acts 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 shown 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 two feet from the ground; a circular cushion is placed upon the bench, having a hollow or calon 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 flrip, which is doubled, and the two ends fewed together. The last is put into the double of the flrip, and it is drawn down by a treads, so as to hold the last firmly in the hollow of the cushion, which is stuffed with withinside; and as the hole through the cushion is too small for the shoe to pass through, the last can be set in any direction which is most convenient for the fewing; but by relieving the treads, it can be removed in an instant, turned round, and fixed again to few another part. A seat can be applied in front of the machine, for the workman to rest himself occasionally: this seat is supported by only two legs, and a piece of wood, which projects horizontally from beneath the seat, and enters into a mortise, made in a part of the frame. Upon this the workman sits upright, as if upon a saddle; and as his work is held before him at a proper height, he sits in an upright posture, which is not attended with the fame prejudicial effects as fliping 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 fits 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 forfe 3. 4d. (1 Jac. I. c. 21.) and journeymen shoe-makers embezzling leather shall make satisfaction for damage, or be ordered by judges to be whipped, &c. Perfon buying or receiving such leather, are to make reasonable recompense, to be levied by diftreffes, &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 Leatiers.

Shoe, in the Mange. A horf-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 sorts and sizes of feet.

To floe a horfe after the form of a lunette, a patin, &c. see LUNETTE, PATIN, &c. See also SHOEING of Horses, &c.

Berenger observes, that the ancients did not floe their horfes, 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 horf-shoes: but when they intended to defend them from any thing that might annoy them in travelling, they flattened upon their feet, by means of straps and ligatures, a fort of fondal, flocking, or what we call boots. Thefe
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There were made of fedges twisted together like a mat, or else of leather, and were sometimes strengthened with plates of iron, and adorned by the rich and ostentations with silver and gold, as in the infinaces of Nero and Poppaea.

It does not appear in what era, or in what country, the modern art of shoeing took its rise. The earliest proof which the above mentioned writer has met with is the shoe said to have belonged to the horse of Chideric, who lived in the year 481, and is preserved in Montfaucon's Antiquities of France. It perfectly resembles the shoe now in use, Berenger's Horsemanship, vol. i. p. 234.

Shoes of the Horse and other Animals. The crooked pieces of iron attached to the hoof of the horse or other beast, by means of nails. There are various forms and shapes of shoes in common use, and others which are adapted and accommodated to the particular purposes and circumstances of the hoofs. Different sorts of animals, likewise, require different forms in their shoes. In speaking of the shoe which is concave 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 sole, especially when care is taken to preserve its natural hardness. 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 hoofs. As to the distribution of the flamp-holes, every person acquainted with the subject knows, that in shoes for the fore-feet, they should be at the toe and quarters, because the wall, or crust, of the fore-feet 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 hind-feet are commonly stronger than the toe. It is impossible to lay down any general rule for disposing 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 these parts of the crust where the horn is found and firm. Farriers generally multiply these 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-horses five, that is three on each side; for saddle-horses seven, four on the outside and three within, the quarter on this side being weaker than on the other; the same 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 inside. It is also of principal importance to determine the weight of the shoe, for it is matter of astonishment, to see some horses with shoes weighing each five pounds, making together a burden of twenty pounds of iron attached to their four feet. It is obvious to common sense, that 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 shoe by its weight forces out the nails, and to 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 witnesses of these facts, and indeed are the principal authors of them, apply themselves to the correction of their own errors? The answer, it is feared, is obvious; because he who is uneducated and destitute of sound principles in his art, cannot turn to real profit the experience he has acquired, nor abandon the path of prejudice and custom, in which he has so long journeyed, but satisfies himself with continuing to imitate and repeat whatever he has been done by others.

The weights which are propounded, for shoes of different kinds, are nearly as follow:  

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the strongest of cart-horses</td>
<td>7</td>
</tr>
<tr>
<td>For the smaller horses of this kind</td>
<td>5.5</td>
</tr>
<tr>
<td>For the largest coach-horses</td>
<td>6.5</td>
</tr>
<tr>
<td>For the smaller ditto</td>
<td>4</td>
</tr>
<tr>
<td>For faddle-horses of any height</td>
<td>1</td>
</tr>
<tr>
<td>For race-horses</td>
<td>2</td>
</tr>
</tbody>
</table>

And by reducing the superfluous breadth of these shoes, their thickness may, it is supposed, be increased without making any addition to their weight. See Shoeing.

Shoes of Cattle, the small plates of iron that are fastened upon the feet of oxen, or other cattle employed in field or road labour. Shoes of this sort consist, according to some, of a flat piece of iron, with five or six flamp-holes on the outward edge, to receive the nails; at the toe is a projection of some inches, which palling in the cleft of the foot, is bent over the hoof so as to keep the shoe in its proper place. This projection is not, however, employed in the general practice of making these shoes, nor can it in common be of any utility. See Shoeing of Oxen.

Shoe of Gold, in Commerce, an ingot used as money in China. Gold is here considered as merchandise; it is sold in regular ingots of a determined weight, which the English call shoes of gold; the largest of these weigh 10 taels, and the gold is reckoned 94 touch (that is 94 parts fine in 100), though it is really only 92 or 93. Formerly, 10 taels of silver were given for one tale of gold of the same degree of fineness; but of late, from 100 to 110 taels of silver of 94 touch have been given for 10 taels of gold of 92 or 93 touch; and sometimes from 110 to 120 taels, or even more, of Spanish dollars, reckoned at 92 touch, have been paid for 10 taels of gold. It must be observed, that when gold is exchanged for silver, its price is always valued by the 10-tale weight; and it is sold 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 taels of silver are paid for 100 tael of gold; if gold be sold at 10 above touch, the fineness being full 96, add 10 to 96; and 106 taels of silver are paid for 100 tael of gold.

We shall here observe that there is but one kind of money made in China, called cash, 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 edges, with a square hole in the middle. These pieces are commonly carried, like beads, on a string or wire. A tale of fine silver should be worth 1000 cash; but on account of their convenience for common use, their price is sometimes so much raised that only 750 cash are given for the same. See Tale.

Shoe, Horse, in Fortification, Mining, &c. See Horse-shoe.

Shoe, Horse, Head. See Horse-shoe Head. See Horse-shoe.

Shoe of the Anchor, in Sea Language, a small block of wood, convex on the back, and having a small hole sufficient to contain the point of the anchor-fluke on the fore-side. It is used to prevent the anchor from tearing or wounding the planks on the ship's bow, when ascending or descending; for which purpose the shoe slides up and down along the bow, between the fluke of the anchor and the planks, as being prefixed close to the latter by the weight of the former. Falconer.

Shoe,
SHOE

SHOEING, See Shoering the Anchor.

SHOE Blocks, are two simple blocks, cut in a solid piece transferably to each other. They are used for legs and falls of the bunt-lines, but are seldom employed.

SHOE-Hoofing, See Hooping.

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 Nord. lat. 51° 32'. E. long. 0° 45'.

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 defined to labour, are found 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 shoe for the foot, 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 instep 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 refting upon the sole. The shoes are generally of an immoderate weight and length, and every means is used to prevent the frog from resting upon the ground, by making the shoe-heels thick, broad, and strong, or raising cramps or causers 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 hoofs are deprived of that substance which was provided by nature to keep the crust extended at a proper width, and the foot is fixed as it was in a vice. And by the pressure from the weight of the body, and resiliency from the outer edges of the shoe, the hoofs are forced together, and retain that shape imprinted upon them, which is impossible ever afterwards to remove; hence a contraction of the hoofs, and of course lameness. But farther, the hoofs, as has been observed, being forced together, the crust prevails upon the processes of the coffin and extremities of the nut-bone: the frog is confined, and raised so far from the ground, that it cannot have that support upon which it ought to have: the circulation of the blood is impeded, and a wasting of the frog, and frequently of the whole foot, ensues. Hence, it is contended, proceed all those diseases 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 compression 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 hoofs are in a bad habit of body (or what is termed a greaet 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 compression, enjoys a free circulation of that fluid necessary for its nourishment, and grows broader and longer; from which extraordinary length of toe, the hoofs flumples in his going, and cuts his legs. The smaller particles of

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fand infinuate 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 pressure made upon it, is forced wider, and of consequence breaks off that part of the crust on the outside of the nails. Infinates of this kind daily occur, ininfum 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 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-rimmed 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 froths (or friction) against the ground, acquire a great degree of heat, which is communicated to the internal parts of the hoof, and is the cause of that disease in the feet so fatal to the very belt 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 so 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 causers, 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 causers of each heel, which foorn wear round and blunt; besides, they for the most part are made far too thick and long. The consequence is, that it throws the horfe forward upon the toes, and is apt to make him slip and stumble. To this cause we must likewise ascribe the frequent and sudden lamenes of horses are subject to in the legs, by twisting the ligaments of the joints, tendons, &c. It is not affirmed that causers 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 desired 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 their feet to have long feet, with narrow low heels, and supposing we observed no inconvenience to attend it, or had 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 this shoe which is made of such a form as to resemble as nearly as possible
SHOEING.

possible the natural tread and shape of the foot, must be preferable to any other. But it is extremely difficult to lay down fixed rules with respect to the proper method to be observed in treating the hoofs of different horses: it is equally difficult to lay down any certain rule for determining the precise form to be given to their shoes. This will be obvious to every judicious practitioner, from the various conftructions of their feet, from diseafe, and from other caufes that may occur; fo 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 hoofs 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 sole, otherwise it will occasion lameness; therefore it must rest entirely upon the crouft: 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 crouft upon which it is to rest, with the nails-places 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 fize 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 to let the frog rest with freedom upon the ground. The necessity of this has been already shewn. The shoe being thus formed and shaped like the foot, the surface of the crouft 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 sole, 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 stand 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 preffure often breaks the crouft, and produces a temporary lameness, perhaps a corn. But this method of shoeing horses has been followed long before Mr. Ofmer's treatize 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 favour 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 widendes 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, where it 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 hoof; and as the frog or heel is allowed to rest upon the ground, the foot enjoys the same points of support as in its natural state. It must therefore, it is supposed, be much easier for the horse in his way of going, and be a means of making him sure-footed. It is likewise evident, that, from this shoe, the hoof cannot acquire any bed form: when, at the same time, it receives every advantage that possibly could be expected from shoeing. 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 concave shoes, where the foot very much resembles that of a cat's fixed into a walnut-shell. But it is to be observed, that the hoofs of young horses, before they are shod, for the most part are wide and open at the heels, and that the crouft is sufficiently thick and strong to admit of the nails being fixed very near the extremities of each. But, as has been formerly remarked, from the constant use of concave shoes, the crouft of this part of the foot grows thinner and weaker, and the nails are fixed far too back, especially upon the inside, the horse becomes lame; to avoid this, they are placed more towards the fore part of the hoof. This causes the heels of the horse to have the greater spring upon the heels of the shoe, which is so very detrimental as to occasion lameness; whereas by using this flat form of shoe, all these inconveniences are avoided; and if the hoofs of young horses from the first time that they were shod, were continued to be constantly 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 hoofs, several farriers 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 hoofs, and this form of shoe, is preferable to that which is so generally practised. 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 this sort of shoe as it ought to be. The iron, in forming it, does not 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 foles considerably higher than the crouft, 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 too prevalent, and thought so absolutely necessary, that it is indiscriminately practised, 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 foles and frogs were allowed to remain in their full natural strength. Experience teaches us, that in very thin-soled shoes, we feel an acute pain from every sharp-pointed sole we happen to tread upon. Horses are sensible of the same thing in their feet, when their soles, &c. are pared too thin. Hence they who are prejudiced against this method, without ever reflecting upon the thin slate 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 horse’s foot in a natural state, it will be obvious, that paring away the sole, frog, &c. must be hurtful, and in reality is destroying that sub stance provided by nature for the defence of the internal parts of the foot: from such practice it must be more liable to accidents from hard bodies, such as sharp stones, nails, glases, &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 concave 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 constant use of these 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 for, 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 Mr. Moorcroft to this kind of shoe, which he calls the “feated shoe,” and which he has formed in a die, in the same 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 flat; and an inner part, sloping from the flat, and distinguished by the name of the bevel. The flat is obviously intended to support the crust in its whole extent, the bevel to lie off the sole; and this part being more or less broad, according to the kind of work proposed to be done, will give the requisite strength to the shoe. At the whole of the crust bears on the flat, it is less liable to be broken than when only a small part of it rests on the shoe. In consequence, likewise, of the crust reposing on the flat, 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 phox with the seated one, it has become wider without the horse 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 shod with the seated shoe, has retained the same size and form without the slightest alteration, as long as the seated shoe was used. By the slope or bevel in the shoe, a cavity is formed between it and the sole, sufficient to admit a picker, and to prevent preflure 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 so sanguine as to suppose that this shoe will prevent lameness in every case, there is nevertheless sufficient proof from experience to attest, 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 preflure, then we shall demonstrate that the practice is incompatible with the principle. If it be good practice for the sole to receive preflure, then the principle must be erroneous that attempts to make the shoe reft totally on the crust; and if the principle be well founded for the crust only to support the shoe, then, if the sole be in contact with the shoe, the practice must be imperfect. Except a model is taken to every horse’s foot, it is impossible for the resting-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 preflure from every part of the sole, that the feet has nevertheles been very rarely fitted the crust; and consequently the foles of all flat rods, at their connection with the crust, must receive more or less of preflure from the seat of the shoe. Where the sole is concave, this shoe will only rest on the crust; 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 preflure, even from a shoe wholly flat. He therefore recommends a shoe which has been found free from theoe 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 horse’s foot, and thus raising the frog out of the way of preflure, 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 shod, as before its application. And it is evident, that a concavity has more points of contact with pavement and other
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convex bodies than a flat or convex surface, and that the horse is consequently more secure on his legs. A shoe that is flat externally, may preserve the hoof equally well in health; but this form is not so well calculated to prevent the horse from slipping as a concavity.

And in explaining the principles and practice of shoeing, it is supposed there are two circumstances necessary to be attended to, viz. to cut the hoof and apply the shoe. Before the hoof is protected by iron, some parts require to be removed, and others preferred. This is even of more importance 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 more mischief and more enemies to the Veterinary College, than all the prejudices and calamities of groovers and farriers. The first thing to be attended to, is to take away a portion of the sole between the whole length of the bars and crust with a drawing-knife; for the heels of the sole cannot receive pressure without corns. To avoid this the sole should be made concave, so as not to be in contact with the shoe. If there be any one part of the practice of shoeing more important than the rest, it is this removal of the sole between the bars and crust. 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 crust; whereas, if the bars are removed, the shoe is supported by the crust only, and not by the solid broad basis of crust and bars united.

And it is added, that it is necessary that the sole should be cut before any other part of the hoof be removed. If the heels have been first lowered by the butteris, then possibly there may not be sufficient sole left to enable a drawing-knife to be applied without reaching the fenible 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 descend, 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 descends, 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-picker, and particularly between the bars and crust. If the sole is naturally concave, a shoe with a flat surface applied to the crust, 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 picker between the sole and shoe, then it is requisite to make either the sole or the shoe 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 crust: but if the sole 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 picker. In this case, however, the sole 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 concave surface is required. As the hoof is always growing, and as the shoe preserves it from friction, the toe of the crust requires to be cut once in about twenty-eight days. The more horn we can remove from this part, the sooner it will be proper to apply a shoe thin at the heels, without mischief to the muscles and tendons, and the horse will be less liable to trip.

And it is stated that the bars and frog should never be removed. What is ragged and detached had better be cut off with a knife by the groom than left to the farrier, who will perhaps remove some of the found parts. Where the frog is not large and projecting, the heels may be lowered by a rasp, or the butteris, for in every case we are to endeavour to bring the frog in contact with the ground. The frog must have pressure, or be deformed. Nevertheless, when the frog has been diffused for a considerable period, and become soft, it must be accustomed 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 soft and deformed, 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 their 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 shoes 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 thicknesses 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 is prominent, and the ground dry, then only the toe of the hoof requires to be shortened, and after wards protected by a short shoe made of the usual thickenes at the toe, but gradually thinner towards the heel. For a common sized 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, thrufhes, 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 so long as the wear of the hoof is not greater than the supply afforded by nature from the coroneit, 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 preferred, 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 heels 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 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 shoe, 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 feet 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 horse would be liable to injury, as well as the muscles 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 cane 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 thicknefs of the flat 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 shoes in the same proportion as the hoof grows, a thin-heeled shoe may, in a few months, be employed; and yet the horn being preferred at the heels, and cut at the toe, every time of shoeing, 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 defends at the heels we allow to remain; but subtract 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 thicknefs of the toe. In proportion as the crust from the coronet to the toe increases, and the heels decrease in depth, the back lines and muscles will be put on the stretch. And the converse of this must be equally true, that as the heels are high and the toe short, the muscles and lines 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 these simple 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 shoe, without danger of mischief to the muscles and tendons.

But in the shoeing of horses that are liable to cut, the following useful directions 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 struck in the hind leg, are the inside of the fetlock-joint, and the coronet; in the fore leg, the inside of the fetlock-joint, and immediately under the knee; which latter is called the speedy cut, from its happening only when a horse goes fast. 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 burden to which they are unaccustomed; but by degrees they acquire the method of balancing the weight, with the foot in the same direction 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 et

within the crust, nor should the crust itself be reduced in thicknefs; as both these practices tend to weaken the inner quarter, and to deform the hoof. And here it must be observed, that the outer edge of the shoe should, in all cases of found 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 horses with narrow heels, having their legs placed near together, are apt to cut when they begin to tire; and with the practice just mentioned should always be employed. Horses that turn their toes much outwardly are, of all others, most subject to cut. But in reply to the assertions of some, that this accident also happens to such horses as turn the toes much inwardly, he denies having met with a single instance of the kind. In horses of the firft description, it has been long observed, that the inner quarters of the hoof were lower than the outer, and that the fetlock-joints were nearer each other than in horses 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 passing by the supporting leg without striking the joint. Accordingly, for the next half centuries, at least, 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 questioning the truth of the principle. Nay, indeed, the reliance placed upon it has been so strong, probably from the simplicity of the reasoning on which it was founded, that in the cases 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 last 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 case which had baffled many attempts on the old plan. On the first trial the horse ceaied to cut, and has ever done it since; which can only be attributed to his having constantly worn the same kind of shoe. And other bad cases, which have occurred occasionally since that period, have been treated in the same way, and with the same success, although for a long time he 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, will 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 supposition that there exists some other cause of cutting which has hitherto been overlooked. For horses which cut their hind-legs, the shoe, at the outer heel, should be from half an inch to an inch in thicknefs, 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 thicknefs, and from which it should slope off, and end like a tip in the middle of the inner quarter. For horses which cut only in a slight degree, a shoe of the same thicknefs throughout, but reaching on the inner quarter only as far as the middle of the foot, will
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will in most instances be found sufficient. This shoe, in point of effect, would be equally proper for the fore-feet, were it not that in such horses as are used for the faddle, the fore-feet, being more charged with weight than the hind-feet, are more particularly subject to be injured, and a horse thus shod on the fore-feet might go unsafe: therefore, it is expedient to let the inner quarter of the shoe be thin, and reach to the heel; but the outer edge should be bevelled off, so as to slope inwards. The fame kind of shoe is equally well calculated to prevent the speedy cut; observing to bevel off more gradually the part which strikes, and not to put in any nails thereabouts. And here it may be proper to remark, that in found feet, the heel of the shoe should reach as far on the heel of the hoof as to admit of the angle formed by the cruff, and the bar resting fully upon it; but it should not be carried quite so far as the end of the heel of the hoof. But in order to ascertein what would happen to a horse 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 slightly the impressions of the shoes, but not to admit the feet to sink into it. Then two parallel lines 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 feet, 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 this result, 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 the feet raised on the inner quarter: whilst a horse fo shod is landing 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 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 an inch 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 instant one foot quits 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 breast. 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 contrived to bring his feet near together to preserve his balance; and in doing this, strikes the foot against the opposite fetlock. And it frequently happens, that the more the toes are turned outwards, the nearer the fetlock-joints are brought together, and the more the horse is disposed to cut. However, this is true only to a certain extent; for if this faulty position of the lower part of the leg be carried artificially beyond a given point, instead of producing an increased degree of cutting, in most instances it remedies the defect altogether. The reason of this is just 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 rests 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 farther from the supporting leg, in order to maintain the balance; and thus the foot muffles 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 crust of the hoof where the nails outer. To prevent this, it has been recommended to those who are willing to be at the expense, to have wheel 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-eighths 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 wheel 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 wheel 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 saddle-horse; they may be made higher for a draught-horse. The key or 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 wheel 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 unscrewed, when the horse is put into the stable; as the shoes 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 saddle-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 readiness, much more so than on caufeway 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 Ass and Mule. With respect to what concerns the shoeing of other animals, Mr. Clark thinks that the mule, being an animal uncommon in this country, the ass of no great value, and the ox not generally employed in labour, it is needless to say much on the subject. The shoe for the fore-feet of the mule is very similar to that which the farriers call the bar-shoe. 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 basis 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 ass, having the same shape as that of the mule, requires the same 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 business of fixing shoes upon animals of this kind, and which is constantly necessary wherever they do any sort 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 use of; being mostly 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 fixed 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 recoupe 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.

Shoenich, in Geography, a Moravian settlement in Pennsylvania, near Nazareth, begun in 1757.

Shoesharo, a town of Little Bucharia; 60 miles S.W. of Acre.

Shole. See Shou.

Shoke, a town of Syria, in the pachalic of Damascus; 22 miles S. of Antakia.

Shoolavan, a town of Hindooftan, in Madura; 14 miles W.N.W. of Madura.

Shoolavere, a town of Hindooftan, in the Carnatic; 20 miles S. of Bomrauzepolam.

Shoolcampet, a town of Hindooftan, in Coimbatore; 5 miles S.S.W. of Caroeor.

Shoods, in Rural Economy, a provincial term applied to hulls.

Sholaramboor, in Geography, a town of Hindooftan, in the province of Dindigul; 17 miles N.N.W. of Dindigul.

Shoolaramcottta, a town of Hindooftan, in the province of Dindigul; 7 miles N. of Dindigul.

Shoomshra, one of the Kurile islands, the nearest to Kamtschatka. The channel between the Lopatka and this island is 17 miles broad. The length of the island from N.E. to S.W. is 50, and the breadth 20 versts. The land is low, with moderate ridges of hills. The caffon coasts, about the middle of the island, form steep shores and rocky shelves, and are for some way into the sea fluddled 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 island trees upon the island, but merely bushes of alder, willow, and an efparier kind of pine, or Siberian cedar, on which grow little cedar-nuts. The inhabitants are not genuine Kuriles, but of Kamtschadal descent; of these 45 persons pay tribute. N. lat. 51° 25' to 52°. E. long. 156° 14'.

Shoor, a town of Hindooftan, in Lahore; 15 miles S.E. of Koolhaub.

Shoot, in Agriculture, the young branch of any sort of plant, which is afforded in one season. It also signifies a young animal of the cattle kind, in some districts.

Shoot, in the Sea Language. They lay the ballast floats, when it runs over from one side to another.

Shoote, among neat cattle, an affection of the bowel kind, with which calves are often attacked a few days after calving. The usual symptoms are, a colic or pain that is more or less violent, and is frequently very severe and dangerous, especially when it is contagious. This colic is terminated, and the calf relieved, by a discharge taking place from the bowels; though this sometimes proves fatal before the shoote appears. Secondly, a loathing and refusing of food, even previous to the discharge; which decreases and increases according to the duration and violence of the disorder. Where the discharge prevails, the beet medicine which can be administered is that of eggs and flour properly blended with oil, melted butter, and aniseed, linseed, or similar mucilaginous vegetable matters; and milk finely 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 Gunnt nnd Projectile.

Shooting of Bombs. See Bomb.

Shooting with Air. See Wind-gun.

Shooting, Malicious, in Law. See Mahim.

Shooting of Salts. It is to be observed, that the figures arising from the floating of dissolved salts are not conftantly the same, but vary according to different circumstances, such as when they happen to float more or less halftly, 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.

Shouts, Hot. See Hot.

Shout Water. See Water.

Shop-lifter, a person who, on pretence of buying goods or otherwise, takes an opportunity to steal them; and if the goods amount to the value of five shillings, though
though no person be in the shop, he is guilty of felony without benefit of clergy, by 10 & 11 W. III. c. 22.

SHOKAB, in Geography, a town of Perfia, in the province of Segelan; 30 miles W. of Meimend.

SHORAY, a town of Hindoostan, in the circar of Chandree; 22 miles N. of Trumalla.

SHORE, Jane, in Biography, 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 no less captivated with her than her person; she never made use of her influence powerfully in 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 Hasting; 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 smallest 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 Shoreditch 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 performer-trumpet, 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 harps-chord; in the exercise of which talents at home, her conquest 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 performer-trumpet, by that admirable performer the late Mr. Valentine Snow, 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 SHOR.

SHORE, or Common Shore, a corruption of sewer. See SEWER.

SHORE, in Agriculture, a fort of artificial drain or course formed in low flat lands for the purpose of freeing and relieving them from the collected surface-waters. The want of shores is now most common in waste and unreclaimed lands; but it occasionally occurs in those of other kinds, in wet seasons, to the great injury and prejudice of the prevailing crops, and the future productiveness of the land, as the lodging 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 inconvenienced 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 cleansing, from time to time, of those which have been formed at former periods; as well as for the preserving of the whole always in a suitably open state.

It is extremely probable, that a large proportion of the low flat lands of this country, which are now in a somewhat dry condition, were, in their natural state, liable to be at times covered with water. This appears to have been the case, from the compact, gelatious composition of the soil, and the flight covering of black vegetable earth which still forms the surface of them, where the work of tillage has not been performed upon them. And, from many of such low flat grass lands now lying in a tolerably dry state, from large tracts of those of the arable kind, whole fields and now barely out of the reach of water, which, in wet seasons, fill their drains and ditches to the brim, as well as from the less admirable evidence of tradition in low-lying districts, it would seem, is fairly, to be equally probable, that much industry and exertion have at former periods been employed, to free the lands of this fort in the country from the lake in which nature 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 as they have now for the most part lost their power, existence, and authority, or where they are still continued and retain them, what relates to the business of public drains and water-courses, in their management, is too often neglected and overlooked. Hence it is noticed by a late writer, that, "...relative to this important department of rural economics 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 sunk 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 benefits and advantages would necessarily result from it, in the management and improvement of lands, as well as in the increasal of the produce of the same.

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 landing inquests, 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, Sea, 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 count Marigli, into three portions, according to which, all his descriptions, in his account of the bason of the sea, are given. The first part of the shore is that tract of land to which the sea just reaches in storms 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 desert from this, which is always covered with water.
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 fluids and impregnations; and it is scarcely 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 salt 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 tartaraceous matter deposited from the water, and the colour of this whole extent of ground is usually fufky and dull, especially where there are rocks and stones, and these are covered with a fliny 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 the sea alter it a little.

Shore of Sussex, 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 Oldcastle, 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, Holywell, 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 Saxon origin. The ascent 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 steeple, which rises to a very considerable height, has rather a handsome appearance. In the old church were a variety of monuments and brasses in memory of persons of distinguished rank; among whom were the countesses of Welforland (daughter to Edward, duke of Buckingham), who died in 1553; Eleanor, countess of Rutland, who died in 155; and two sons of the said countess of Rutland, but none of those in the new church possess any interest. This parish abounds with alms-houses, established either by public cities 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 disolution. According to the parliamentary returns of 1811, this parish contained 765 houses and 43,030 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 Fishergate, rape of Bramber, and county of Sussex, England, is situated upon the coast of the English Channel, at the dillance 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, but 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 1255, 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 hadqueried formed part of a society, called the Christian club, the ostensible object of which was only a cloak to cover its real one, the letting the borough to fall to the highest bidder. In consequence of these affections, 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. An act was accordingly passed soon afterwards, by which 60 persons were disfranchised, and the right of voting was declared to belong to every freeholder, above 21 years of age, "who shall have, within the rape of Bramber, a freehold of the clear yearly value of forty shillings, and in such persons as by the usage of the borough have, or shall hereafter have, a right to vote at such elections." By this extension of the elective franchise, the number of voters has increased from about 200 to 1200 persons.

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 Carmelite or White Friars, founded by Sir John Mowbray, kn.; as also an hospital dedicated to St. James. It is chiefly remarkable, however, for having been built upon the spot where Ellis, the Saxon, landed, with supplies from Germany in aid of his countrymen, Hengist and Horfa. According to the parliamentary returns of 1811, the parish contains 168 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. Shoobler, 1815.

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 Stromloe, with a good harbour, called Bros. N. lat. 61° 40'. E. long. 11° 3'.

Shore, in Mineralogy. See Shore.

Shorling and Morling, in our Old Writers, words used to distinguish fells of sheep; shorling being the fells after the fleeces are shorn off the sheep's back; and morling the fells flaid off after they die or are killed. In some parts of England they are termed by a shorling, a sheep whole
whole fleece is shorn off; and by a morling, a sheep that dies.

SHORN VELVET. See Velvet.

SHORT, 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. "Memoir on the Natural History of Medicinal Waters," 1725. "A Dissertation on Tea," 1730. "Natural History of the Mineral Waters of Yorkshire, Lincolnshire, and Derbyshire," 1733. "A General Chronological History of the Air, Weather, Seafsons, Meteors, &c. for the Space of 250 Years," 1740. "Discourses on Tea, Sugar, Milk, made Wines, Spirits, Punch, Tobacco, &c. &c." 1749. "New Observations, Natural, Moral, Civil, Political, and Medical, on Bills of Mortality," 1750. See Eloy, Dict. Hill. and the Works of Short.

SHORT, James, an eminent optician, was born at Edinburgh in the year 1710. At the age of ten he lost his parents, and being left in a state of indigence, he was admitted into Heriot's Hospital, where he soon shewed 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 shewed 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 fitted to his talents, and from this period he devoted his whole time to mathematical and mechanical pursuits. He was pupil to the celebrated Mac Laurin, 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 professor observed, by attending to the figure of his specula, he was enabled to give them larger apertures, and to carry them to greater perfection, than had ever been done before him.

In 1756 Mr. Short 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 Orkney islands, where he was employed in making a survey of that part of Scotland. On his return to London he established himself as an optician, 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 1200L. This was the noblest instrument of the kind that had ever been constructed, and has probably not been surpassed, unless by the grand telescopes manufactured by Dr. Herschel.

Mr. Short was accustomed to visit the place of his nativity once every two or three years during his residence in London, and in the year 1766 he paid his last visit to Scotland. He died in June 1768, after a very short illness, when he was in the 58th 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 Accent, in Grammar. See Accent.

SHORT Crooks, in Agriculture, are a sort of crooks, which are formed of bent pieces of wood of the oak or elm kind, and so contrived as to be fixed on the horse's back, the ends or crooks turning up, so as to secure 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 are termed, which are made of for carrying heafn-corn, hay, faggot, hallett, flat, and flag-stones. They are a relic of the old mode of carrying loads in hilly districts. Single-horfe carts would probably answer the purpose in a far better way. See Cart.

SHORT Grass, in Gardening, a term applied to the pieces of gras which are kept in a continually mown, short, close flate, as on lawns, and in pleasure-grounds, or other situations about country residences. The portions of mown or short gras about feats and houses of the above fort in the modern improved modes of laying out pleasure-grounds, are mostly much more confined in their limits than was formerly the cafe; 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 lofs be sustained.

Where pieces of short gras are, however, formed, and to be kept in order, it will be necessary to roll, mow, and sweep up the grasy litter in a clean neat manner from them once or oftener in the course of the week during the spring feasan, and frequently at other times. The refuse litter, thus procured, may be employed for different garden purposes, where it cannot be converted to better ufe. See Lawn and Pleasure-Ground.

It is moiily in too dirty a flate to be applied as food for any fort of cattle flock.

SHORT Grazs Scythe, that fort of tool of this kind which is employed in moving short grass. Scythes for this ufe should be rather short, and laid in the fhaft with the edges low, in order that the gras may be cut in a close neat manner, without leaving any fcythe ridges or bulks, as they are usually termed. The fwarts or fcythe cafles, in performing this fort of moving, are commonly made narrow, in the intention, that the gras may be well and levelly cut out of the hulks or parts under the fwarts, and by such means have a more neat and even appearance. See Scythe.

SHORT Smalls, in Agriculture, a fort of oat, which is fo named on account of its remarkable fhortneas. It is much grown in the county of Ellif, and is a thick, full, weighty fort, that succeeds well on moft lands of the more dry kind. See Oats.

SHORT Sail, in a Man of War, are the fame with fighting fails, being the fore-fail, main-fail, and fore-top-fail, which are all that are used in fight, left the relit should be fired and spoiled; besides the trouble of managing them when a ship gives chase to another.

If a chafe flews a disposition to fight, they fly the chafe frigs into her short fells, i.e. puts out her colours in the poop, her flag at the main-top, and her streamers or pendants at the yard's arms; furls her spirt-fail, peeks her mizen, and flings her main-yard.

To shorten Sail. See Sail.
SHORTFORD, q. d. fore-cloes, an ancient custom in the city of Exeter, when the lord of the fee cannot be answered rent due to him out of his tenement, and no diltrees can be levied for the fame. The lord is then to come to the tenement, and there take a stone, or some other dead thing, off the tenement, and bring it before the mayor and bailiff, and thus he may do even quarter-days successively, and if on the twentieth quarter-day the lord is not satisfied his rent and arrears, then the tenement shall be adjudged to the lord to hold the same 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 arrears: 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 demeane as of fee, which is done accordingly, so that the lord hath from thenceforth the said tenement, with the appurrances, to him and his heirs.

SHORT-JOINTED, in the Manege. A horse is said to be short-jointed, that has a short pattern; when this joint, or the pattern, is too short, the horse is subject to have his forelegs from the knee to the cornet all in a straight line. Commonly short-jointed horses do not manage so well as the long-jointed; but out of the manege, the short-jointed are the best for labour or fatigue, especially those of the farm breed.

SHORT-SIGHTEDNESS, Myopia, a defect in the conformation of the eye, wherein the crystalline, &c., being too convex, the rays reflected from different objects are refracted too much, and made to converge too soon, so as to unite before they reach the retina, by which means vision is rendered dim and confused. See Myopia.

A learned author thinks it probable, that out of so great a number of short-sighted persons as are daily to be met with, few are born so, 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 sorts of conformatons, that ill by often looking through glasses of all sorts of figures, and by reading, writing, or working with spectacles of several degrees of convexity; or whatever be the powers by which the eye conforms itself to distinct vision, they may possibly grow weak, or lose their extent one way or other, for want of variety of exercise. It seems an opinion without foundation, to think that such an exercise of the eyes can anywise 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 Ophthalmographia, of a person upwards of seventy years old, who had used spectacles for ten years, and yet by catching cold, he suddenly became so short-sighted, that he could not distinguish objects three feet off, and after the cold and delusion were cured, he continued to read the smallest print without spectacles 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 immerse himself, and has ever since used a concave glass for many years.

It is commonly thought that short-sightedness wears off in old age, on account of the eye becoming flatter; but the learned doctor questions 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, because they can see more of it at a view. That it is customary with them not to look at the person they converse with, because they cannot well see the motion of his eyes and features, and are therefore attentive to his words only. That they see more distinctly, and somewhat farther off, by a strong light than by a weak one; because a strong light causes a contraction of the pupil, and consequently of the pencils, both here and at the retina, which lessens their mixture, and consequently the apparent confusion; and, therefore, to see more distinctly, they almost close their eye-lids, for which reason they were anciently called myopes. Smith's Optics, vol. ii. Rem. p. 10. &c.

Dr. Jurin observes, that persons who are much and long accustomed to view objects at small distances, as students in general, watch-makers, gravers, painters in miniature, &c. see better at small distances, and not so well at great distances, as the rest of mankind. The reason is, that in the eye, as well as in other parts, the muscles, by continuous exercise, are enabled to contract themselves with more strength, and by diffuse are brought to less strength. Hence, in the persons before-mentioned, the greater muscular ring of the eye contracts more easily and strongly, and the cornea more readily obeys the contraction of the ring, whence they see better at small distances. And the cornea, by being thus often and long bent into a greater convexity, does by degrees lose something of its elasticity, so as to return to its natural elasticity, when the muscular ring ceases to act upon it. This is one cause of their not seeing so well at great distances: also the ligamentum ciliaris, being seldom employed to lessen the convexity of the capilla, does by degrees become less capable of performing that office: and the capilla being seldom drawn out, and put into tension, must lose something of its diftensible quality, so as less easily to comply with the action of the ligament. And this is another cause of their not seeing so well at great distances. Jurin, Essay on diff. and indict. Vision.

The ordinary remedy for short-sightedness is a concave lens, held before the eye, which making the rays diverge, or at least diminishing much of their convergency, makes amends for the too great convexity of the crystalline.

Dr. Hook suggests another remedy. Finding that many short-sighted persons are but little helped by concaves, he recommends a convex glass, placed between the object and the eye, by means of which the object may be made to appear at a greater 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 shall contemplate the picture of the object in the same manner as 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 best way, in this case, will be, for the person to learn to do it upside down. For difficult 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 seen in their natural posture.

SHOSTACK, in Commerce, a money of account in Poland and Hungary. In Hungary, a shottack is 2 imperial florin, or 6 kreutzers; an imperial florin, or kayer florin, is 2 potturats, 3 kreutzers, or 12 pennings; a potturat is 6 pennings, and a kreutzer 4 pennings. A Hungarian florin is worth 2 kreutzers in Upper Hungary; but 2½ kreutzers in Lower Hungary: thus, 5 florins in Upper Hungary, or 6 florins in Lower Hungary, = 1 kayer florin. A rixdollor of account is worth 1½ imperial florin, 15 Hungarian florin, 15 shottacks, 30 imperial florin, or 90 kreutzers. An imperial florin is 10 shottacks, or 20 imperial florin, and a Hungarian florin, 8¾ shottacks.
8½ shotacks, or 17½ imperial grofchen; thus, 7 florins of the empire = 8 Hungarian florins.

In Poland, the florin of 30 grofchen or grosz, each of which is divided into 18 pfenings, contains 2½ shotacks, 90 shillings, or 270 pfenings. A shotack is worth 12 groschen, or 36 pfenings; a grofchen, 2 pfenings; a shilling, 3 pfenings. Kelly's Cambist.

SHOT, INDIAN, in Botany. See CANNA.

SHOT, in the Military Art, includes all sorts of ball or bullets for fire-arms, from the cannon to the pistol. See BULLET, CANNON, &c.

Thee 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 masts, sails, &c.

SHOT, Cafer, Chain, Grape, Langrel, Random, Star, and Trundle, see the respective articles. See also Fire-Arms.

SHOT, for fouling, is otherwise called hail, by reason of its figure and size.

The method of casting it is as follows: the lead being melted, flared, and skimmed, a quantity of powdered yellow orpinment is stirred in it, as much as will lie on a shilling, to twelve or fifteen pounds of lead; the whole being well flared, the orpinment will flame.

To judge whether there be orpinment 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 orpinment enough, and the degree of heat 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 lop 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, Fresh. See Fresh Shot.

SHOT, Hip. See Hip Shot.

SHOT, Water. See Water Shot.

SHOT of a Cable, or Ship-board, is the splicing of two cables together, that a ship may ride safer 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 in, after they have drank above a shilling.

SHOTS, in Agriculture, a term provincially applied to young flaro-fwine.

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; 50 miles in length, and about 12 in breadth. The word commonly signifies the sea-shore, or the banks of some lake or river; but the meaning here is somewhat varied, and denotes the borders or area rather of such a plain, as, according to the seasons of the year, is either covered with salt, or overflowed with water. Several parts of the Shott consist of a light oozy foil, which, after sudden rains, or the overflows of the adjacent rivers, are changed into so 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 quite contrary direction, we have no fewer than five, and those very considerable streams, which empty themselves from the northward into the Shott; 106 miles S.W. of Conflantina.

SHOTTEN HERRINGS. See HERRING.

SHOTTEN, Blood. See Blood-Shotten.

SHOTTSOOD, in Geography, a town of America, in New Jersey, on the Rariton; 4 miles E. of Brunswick.

SHOVEL, Sir Cloudesley, in Biography, a British naval hero, was born about the year 1650, of parents in rather humble circumstances, but who having 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 his 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 Ready 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, defining separation for the evils already fulfilled, and security for the time to come. The Dey, despising his youth, treated him with disrespect, and sent him back with an equivocal answer. Mr. Shovel, on his return, proved that he had not been an unoblivious 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 he bore with apparent submission, and made use of it as an excuse for remaining longer on shore; and on his return he afforded the admiral, that it was very practicable to burn all the ships in the harbour. Sir John immediately appointed him to the enterprize, 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 full 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 captain Shovel, as well as very agreeable to his way of thinking; for being in almost every engagement during the reign of William, he became conspicuous, and made his rife in the service as quick as it was possible to be effected. He was in the battle of Bantry-Bay, in the Edgar, a third-rate, and 
large was the fend Scilly, fir Cloudefley Shovel employed in conveying the king and his army into Ireland. William, for his good conduct on this occasion, appointed him rear-admiral of the blue, and delivered to him the commission with his own hands.

In the following year fir Cloudefley 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 Russel 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 from the chance 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 publick things, they were 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 as safe for the nation, and more so for themselves, than any other they could take." On this occasion fir Cloudefley 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 fir Cloudefley 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 bombard 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 fir George Rooke, to bring home the spoil of the Spanish and French fleet. He arrived on the 16th of October, and carried off whatever could possibly be brought home, burnt the ref, 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 set sail with ten ships of the line, five frigates, four fire-ships, a flag, and a yacht, for England. On the 22d 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 stood away under courser, 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 fir George Byng, in the Royal Anne, saved himself, having one of the rocks under her main chains. Several others run the most imminent risks; but the admirals' ship, and some more, perished with all aboard. How this accident happened has never been properly accounted for. The body of fir Cloudefley Shovel was thrown ashore the next day upon the island of Scilly, where, falling into the hands of some fishermen, he was stripped and buried. Among their plunder was an emerald ring of great value, which, being thrown about, made a great noise all over the island, and led to the discovery of the body. This was now taken up, and conveyed to London, when it was interred with great solemnity in Westminster Abbey. To his memory an expensive monument of white marble was erected, by direction of his majesty, on which were the following inscriptions: "Sir Cloudefley 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 deservedly 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 mitres 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 trusted to for managing the busines.

Shovel, Draining, a sort of tool of this nature, frequently employed for the purpose of clearing out the loose crumby earthly materials from the bottom parts of drains. It is formed with a crooked handle, the edges of the shovel part 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 slopping so much as would otherwise be the case, in performing the work. There are different constructions of this implement made use of, in managing busines of this fort.

A scoop is likewise sometimes made use of, both with and without this implement, for the purpose of scooping up and clearing out all the crumbs, loose mould, and other similar materials, from the bottom parts of drains, before they are laid or filled with spray, brushwood, or any other substance, in order that they may be quite clear and free of any sort of obstruction. The tool is formed in a crooked, scoop-like manner at the head, and of different shapes, sizes, and breadths, according to the nature of the drains and openings in which it is to be employed; being, in working, drawn or pulled through the bottoms of the cuts or drains.
The handle has also occasionally a crooked form, in order to ease the workman in using it.

**SHOVEL, Paring**, that sort of tool of this kind, which is employed in some places for paring off the fward or turf 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 fwovel 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 broad angular point, which, with its sides, are constantly kept very sharp and keen for cutting; on the left hand, or land side of the tool, a sharp wing, comb, or coulter, rise up in an oblique manner, to cut and divide the flice part from the whole ground. This, however, in consequence of the toughness of the surface, and the impediments presented by the roots of furze, flags, heather, and other similiar matters, is not unfrequently dispensed with; the slice being rent or torn off by the workman from the side of the whole ground, while it is cut up and separated from the earth below. When a foot or fifteen inches of the slice rises upon the handle of the shovel, it is separated from the uncet part of the surface by a sudden effort or exertion with the tool, and by a turn of it it is whelmed or laid over the mould side upwards. Where the flate and circumstances of the surface will permit, as by not being too much loaded and encumbered with the above forts of plants, the effort of separating the cut from the uncet fward may in all cases be more lengthened, by having the slice, which is next to be parred, 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 slice to be parred from the ground is indeed found indispensably necessary, as where the ground is of such a moory 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 fort of delay in the business. This fort of shovel may be seen at fig. 9, in the plate of paring ploughs.

**SHOVEL, Spit**, an useful tool for some small purposes. It is that fort which is often employed in setting small roots or plants, as offe of the cultivated furflon, and some others of a similiar nature.

**SHOVELER, in Ornithology.** See Broad-beaked Duck.

**SHOVELING, in Agriculture,** a term used in Ireland to signify the throwing the mould of furrows, in cleaning them out, over the rides.

**SHOULDER, Humerus, in Anatomy.** See Extremities.

**SHOULDER, Fracture of,** in Surgery. See Fracture.

**SHOULDER, Luxation of.** See Luxation.

**SHOULDER-Blade, in Anatomy,** a bone of the shouder, of a triangular form, covering the hind part of the ribs, called by anatomists the Scapula and Omoplate. See Extremities.

**SHOULDER-Bone.** See Extremities.

**SHOULDER, in the Mange,** 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 bouquet, over-againist the middle of the fonceau or chaperon, and forms another arch under the bouquet. The shoulder of a branch calls a greater or lesser circumference, according as it is designed to fortify or weaken the branch. See BRIDLE, BANQUET, and BRANCHES.

**SHOULDER-Pigged Horses, called in French chevilles,** are such as have their shouders groundy, fliff, and almost without motion. A horse charged with shouders, is one that has thick, Sony, and heavy shouders.

**SHOULDER of a Bajion, in Fortification,** is where the face and the flank meet.

**SHOULDER-DRAIN, in Agriculture,** a sort of under drain, constructed with a shouder on each side of the cut or opening, so that some sort of strong subsance may be laid over it, and form an opening or drain for the water below. See Drain.

**SHOULDER, in Block-Making,** a projection made upon the surface of blocks, pins, &c. by reducing one part to a lets subsance.

**SHOULDER-Block,** a large sngle block, left neary square at the lower end, or arfe of the block, and cut sloping in the direction of the fheave. Shoulder-blocks are used on the lower yard-arms, to lead in the topfail-sheet, and on the topfail-yards, to lead in the top-gallant-fheets; and by means of the shoulder they are kept upright, and prevent the fheets jumbling between the block and the yard: they are also used at the lower outer end of the boomkins, to lead in the fore-tacks.

**SHOULDER-of-Mutton Sail,** a triangular sail, similar to the lateen sail; but attached to a mail instead of a yard.

**SHOULDERING, in Fortification.** See EPAULEMENT.

**SHOULDERING-Piece,** in Building. See Bracket.

**SHOULDER-KNOTS.** See EPAULETTES.

**SHOULDER-PITCH,** in Farriery, is a diseafe in a horfe, when the pitch or point of the shouder is displaced, which makes the horfe halt downright.

**SHOULDER-SPLAIT, or SHOULDER-TORN,** is a hurt which befalls a horfe by some dangerous slip, by which the shouder is parted from the hread.

**SHOULDER-WRENCH,** is a strain in the shouder.

**SHOUT, Clamor, in Antiquity,** was frequently used on ecclelciatical, civil, and military occasions, as a sign of approbation, and sometimes of indignation. Thus as Cicero, in an assembly of the people, was expoling the arrogance of L. Antony, who had had the impudence to cause himself to be inerited the patron of the Romans, the people, on hearing this, raised a shout to shew 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 fenfes, hearing and seeing, by which fear is raised in the mind, it may be proper to make ufe 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 perfon by his name before they let them to the pile. See BURIAL.
SHOWEL, in Agriculture, a term applied to a blind for a cow's eyes.

SHOWER, a cloud resolv'd 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 flowers of blood, mentioned by Galenius; a brimstone flower, mentioned by Wormius; flowers of frogs, mentioned by Pliny, and even by Dr. Plott; a flower of millet-fed in Sicilia, mentioned in the Ephemer. German.; flowers of offices, frequent in the Archipelago; a flower of wheat, in Wiltshire; a flower of witlings, mentioned in Philolog. Transact. The natural reasons of many of which may be seen under Rain.

SHOWOOR, in Geography, a town of Hindooftan, in Mylore, where, in 1790, a bloody battle was fought between the British and Tipoo, and in which the latter was defeated; 15 miles S. of Sattimugulam.

SHOWS, or SHAWS, in Agriculture, a term applied to the haulm or tops of potatoes. See Potatoes and SOLANUM.

SHRAHEEN, in Geography, a mountain of Ireland, in the county of Mayo; 11 miles N.E. of Castlebar.

SHRAVEY LAND, in Agriculture, a term used in some districts, as that 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 slipped away, and laid bare the soil on the South Down, are sometimes called thraves. 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 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 mole and the snake kind.

It has two long fore-teeth, as all the mole kind have: but these are not single, 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 distinct teeth; and the anterior long teeth are not separated from the rest by any gap or space, as in the mole kind, but make one continued series with the others. The upper jaw in this creature is longer than the under, and the teeth sharp and serrated, some with two, some with three points, and these so small, that they might easily not be seen, 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 dry grounds, in old walls and holes in the earth; near hay-ricks, dung-hills, and necessary houses; it lives on corn, insects, 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 sight 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 short; its claws are long and whitish, and its feet short. Ray and Pennant.

SHREWSBURY, in Geography, the Water, Sorex fodiens of Pallas, is much larger than the common mouse; its length from nose to tail being 3½ inches; its tail two inches; the upper part of the head and the neck 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 lost in England till the year 1768, when it was discovered in the Lincolnshire fens; it burrows in the banks near the water, and is said to swim under water; it is called in some places the blind mouse, on account of the smallness of its eyes; and it chirrups like a grasshopper. Pennant.

SHREWSBURY, in Geography, an ancient and market-town in the hundred of the same name, and county of Salop, or Shropshire, England, is situated on two hills, pinulated 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 nine parishes of St. Giles and Holy Cross, St. Chad, St. Mary, St. Julian, St. Alkmund, and Meole-Brace, which united, contain 3299 houses, and 16,666 inhabitants. It must be remarked, however, that some of these parishes extend a short way into the country. The liberties of Shrewsbury comprise six other parishes, four townships, and two chapels.

Origin and Historical Events.—Although no doubt can be entertained of the high antiquity of Shrewsbury, it being frequently mentioned by our earliest historians, there is no authentic record of its origin. Probable conjecture, however, has ascribed that event to the fifth century, when the Britons were forced by the Saxons to abandon all the country to the eastward of the river Severn. It is supposed that, after the destruction of the Roman Uriconium, the fortifications of which enabled the poleflora for a time to check the progress of their enemies, that they established themselves on the site of Shrewsbury, on account of the natural security afforded by its lofty and peninsular position. At that period this spot was called the Pengweyne hill, whence the town received the appellation of Pengwern, to which Powis was subsequently added, when it had become the capital of Powiland, and the seat of its princes, whole palace occupied the same ground with the old church of St. Chad. Here the Britons maintained themselves for several centuries, notwithstanding the repeated efforts of the Mercian Saxons to dispossess 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 subdued by Edward I. of England.

The Saxons, having obtained possession of this ancient capital, changed its name from Pengwern to Scrubbibryg, or Scrubbcbyri, which words have nearly the same signification, viz. "the head of the elder groves." Instead of levelling it with the ground, as was their custom when they seized upon any British town, they seem to have protected it with care, and probably even increased its opulence and extent. In the reign of Alfred it was numbered among the principal cities in his dominions: and in that of Edward the Elder...
Elder it had the privilege of a mint. In 1066, king Ethelred kept his Christmas here; 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 infurped greatly; as in the reign of Edward the Confessor, its houses only amounted to 252 in number. Posterity to the Conquest, it was beleaguered upon Roger de Montgomery, who was created earl of Shrewsbury, Arundel, and Chichele; and appears from Domesday hook to have then paid 26s. in taxes to the king and sheriff. Earl Roger, on acquiring possession of this city, (for so it was styled 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 1067, Owen Gwynedd, prince of Wales, assaulted it with formidable a force, that the conqueror deemed it advisable to repel the invasion in person. He accordingly marched hither from York, rallied the forces, and overthrew the Welsh with prodigious slaughter. Shrewsbury was again besieged in the reign of Henry I., in consequence of his having defeated Robert, son to Earl Roger, having united his forces to those of the rebellious barons; and it was probably only faved 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 foreign war. During the wars between Stephen and the empress Matilda 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 un generously 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 possessions. In the reign of king John, the royal council assembled here to confer the better means of checking the inroads of the Welsh; when the prince of Powis 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 marchers, 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 fallen 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 factional barons, who had joined their arms to those of prince Llewellyn. The rebel Simon de Montfort, earl of Leicester, likewise seized upon this town; but it soon reverted to the king; and in 1257, 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 hither the courts of exchequer and king's bench, that he might the more easily accomplish his favourite object, the subjugation of Wales.

During the rebellion which the infatuated attachment of Edward II. to the Spencer family gave rise to, the king was received at Shrewsbury with great military parade, and a tournament was held here, attended by the knights and followers of the marches. Afterwards, when Edward was deprived of his liberty and throne by his queen, and her paramour, Roger Mortimer; Edmund Fitz-Alan, earl of Arundel, who had been faithful to his allegiance, was feized 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 20th 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, found distinguished himself in the field, and the gallant Hotspur fell, after performing, in conjunction with his rival Douglas, the most brilliant acts of prowess.

Throughout the whole of that eventful period, marked by the communications of the rival houses of York and Lancaster, the inhabitants of Shrewsbury zealously 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 consequence of these circumstances, Shrewsbury was greatly favoured by that monarch, and was frequently visited by him during 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 king came hither, 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 soldiers with sufficient vigour, they became negligent and debauched. The parliamentary officers, colonel Mitton and Bowyer, being informed of the state of the garrison, made several attempts to purify 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, Worcesters, Chester, and Flint, was destroyed in the bud.

In Cromwell's lifetime, 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
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 peninsular 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 meadow, 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 Augustinian friars of the adjoining convent were probably wont to exhibit the ancient sacred dramas called mysteries, or Whitfiun 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 but indifferently paved. The houses are extremely mixed in their architectural character, exhibiting a strange contrariety of ancient and modern buildings. This circumstance is in part to be attributed to the happy freedom which Shrewsbury has enjoyed, from those general conflagrations which have occasionally devastated 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, serjeants-at-law, town-clerk, 24 aldermen, 43 aldermen, or common councilmen, two chamberlains, a serjeant-at-law, judges at assize, &c. Four general quarter-juries 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 charter includes 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 its earliest establishment. They are chosen by the inhabiting burgesses, who have been legally admitted 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 courts, 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 power. 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 grass-plot in which, the newly elected knights of the shire have been girt with their swords 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 pattern, 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 restored to on account of the fine views which it commands. This castle was defended by ramparts of stone thrown across the peninsulas, from the castle to the river, on each side. One of them was formed by Robert de Balezigne, 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 them 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 stands on the Welsh bridge. The Town-hall is a modern structure, finished in 1786. It was designed by Mr. Haycock, a native of the town, and exhibits a handsomè stone 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 massive 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 supported pointed arches. St. Chad's church is of modern erection, having been built between 1750 and 1752, 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 festivals 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 refuted 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 rifes 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 interconnection.
Shrewsbury.

derfection. The chancel, choir, &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 Jesus in a deep sleep. The spire of this church rises 217 feet above the summit of the tower, upon which it rears. 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 a rope flung from thence to the opposite side of the river from that on which the church stands. The parochial 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 subintellectual edifice, rebuilt in 1759, on account of the ruinous 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 hospital 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 bequests. The house is plain but respectable building of brick, with a large portico in front. The house of industry was originally a foundling 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 six 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 sheriff probably had his gaol in former times. Its situation is at once beautiful and salubrious, and though it cannot boast much elegance of exterior appearance, it is spacious and airy, and possesses every convenience requisite for its different purposes. In front is a free-stone arched gateway, containing a butt 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 which stands a statue of Richard, duke of York, removed from the Well bridge in 1791. Adjoining this building is a conduit, which supplies a great part of the town with water. The Market-croft is a strong structure of brick and stone, having a refectory over it. The old crofts was destroyed in 1707. The Theatres, according to Phillips, the old historian of the town, is part of the palace formerly belonging to one of the later 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 Earl, 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 rate of commercial advancement Shrewsbury and the county at large now enjoy. The Welsh bridge consists of five elegant arches, about 260 feet in aggregate length, 30 feet high, and 30 broad. Adjoining to it is a quay, faced with stone, and accompanied 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 200 feet span and 40 high from the low-water mark: and the two on each side 35 feet wide and 20 high. The breadth between the ballustrades 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 stood in the suburb that still bears its name. It was founded, or, as some have it, re-founded and endowed by Roger de Montgomery, and a nobleman named Warin, who filled it with monks of the Benedictine order. These having subsequently obtained possession of the relics of St. Winefrid, their abbey became the favourite 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 disolution, consisted of an abbot, 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 obtrude 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 bower 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 an 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's. The other reli-
gious houses here were, a convent of Augustine 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. Befides these, there were chapels dedicated respectively to St. Michael, St. Nicholas, St. Catherine, St. Blaise, and St. Mary Magdalen.

Shrewsbury contains several ancient private structures, which would claim notice, did the limits of our article permit of a commensurate extension. One of them, ill 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 natures of Shrewsbury, heides 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, Battelfield, where the battle was fought; and Haughton 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 owes 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, stated by Dugdale at $125l. 13s. 7d. and by Speed at $28d. 12s. 6d. 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. Rylands.

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 in summer by genteel company from Philadelphia and New York, for health and pleasure; 79 miles N.E. of Philadelphia.—Also, a township of America, in Rutland county, Vermont, between Clarendon on the W., and Saltash on the E., containing 900 inhabitants.—Also, a township of York county, Pennsylvania, containing 1702 inhabitants.—Also, a township in Worcestershire county, Massachusetts, incorporated in 1727, and containing 1210 inhabitants; 6 miles E. of Worcesters.—Also, 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'.

SHRIKE, in Ornithology, an English name for several species of the Lanius; which see.

SHRILLA, in Geography, a town of Africa, in Luda-mar; 38 miles E.S.E. of Benown.

SHRIMP, in Natural History, is the Cancer Crangon of Linneus; which see.

This shell-fish inhabits the sandy shores of Britain in vast quantities, and is reckoned the most delicious of the genus. Some writers have elabated it under the genus of Squilla.

The white shrimp, or cancer squilla, is the prawn. (See Cancer Squilla.) It inhabits the coast of Kent. (a)

By 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 ferinium, a desk, or cabinet, a cafe to hold the relics of some saint.

SHRITE, in Ornithology. See MISSEL-BIRD.

SHROFF, 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 Chester, a detached part of Flintshire, and by Denbighshire; and on the W. by the county of Shropshire, 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 890,000 acres, or about a 45th part of England and Wales united. In shape it approaches to that of an oval, 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 36,553, and its population at 104,209 persons, of whom 99,842 were males, and 8,467 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 Cornavii, whose respective territories were bounded by the Severn. The Ordovices, who appear to have been a most warlike and enterprising people, joined with the Silures, under the renowned Caractacus, to defend their country. Among the hills of Shropshire, that great chiefman for a time successfully strove against the overwhelming tide of Roman conquest; and here, several antiquities 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 Caesariensis, and seems to have been held in undisturbed 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 constituted part of the kingdom of Powiiland, 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 Merian 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 less degree than most other counties. During the reign of Edward the Conqueror, 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 bequeathed to Roger de Montgomery, a relation of the conqueror; but the inroads of the Welsh frequently disturbed him in the enjoyment of his splendid acquisitions. In 1067 they laid siege to Shrewsbury, the seat of his baronial 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 disposition, however, only served to increase the warlike spirit of the Welsh; and William, finding himself foiled in his repeated attempts to reduce those high-spirited foes by submision by open combat, adopted a more politic mode of warfare. He inflicted grunts to certain of his favourites of all the lands they should be able to conquer from the Welsh; and endeavoured to divide and weaken the Welsh border obtained themselves, by promitting a confirmation of all the rights and privileges to fuch of them as would simply acknowledge the sovereignty of the English crown. Hence appears to have originated the feignories and jurisdictions of the lord marches, whose power was even more arbitrary and despotic than that of the monarch himself. They constructed and repaired fortresses at their pleasure, and garrisoned them with fiders of their own. They likewise built towns, and exerced 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 contentsions for the crown between the houses of York and Lancaster, Shropshire was occasionally the scene of military conflicts, of which the most celebrated was the battle of Shrewsbury. When the civil war broke out in the 17th century, this county was peculiarly distinguished for its loyalty; but except the taking of the county-town by the parliamentary forces, no tranfaction of peculiar interest happened within its limits throughout that unfortunate era.

General Aspect, Soil, and Climate.—Shropshire presents 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 lefs various. In the hundred of Offwerty, a deep loam and gravelly soil prevail; and in those of North Bradford and East Burmley, a light or sandy loam. Pinhill 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 course partakes of the character of its surface and soil. On the eastern side of the county, where the land is warm and flat, harvest frequently commences a fortnight sooner than near the middle of the county, where the vales are extensive, but the surface lefs 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 stilt. The easterly winds prevail moft in spring, and those from the west in autumn; but the easterly winds are the moft regular; those from the west blowing for a series of months five or six perhaps) long and frequent, and then for nearly a similar period less often and less violent. The climate may be said of the wet and dry seasons in this 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, after bounding the county for several miles, enters it near Melverley, and flows on in an irregular serpentine channel to Shrewsbury, which it nearly encircles. At this town it turns towards the north, but soon again weeps to the southward, passing by Wroxeter, Madeley, and Bridgnorth, to Bewdley, where it enters Worcestershire. Its course within Shropshire is estimated at nearly seventy miles in length, throughout the whole of which, with a few navigable for barges, trows, wherries, and boats, and is abundantly supplied with fith of various denominations. The contributory streams to this great river, belonging to the county, are the Camlet, the Vyrnyw, the Morda-Brook, the Perry, the Mecole-Brook, the Rea, the Tern, the Bell-Brook, the Cund-Brook, the Worf, the Marbrook, and the Bore-Brook, all of them considerable waters. Those of most importance, which do not join the Severn, are the Morles, which falls into the Dee, the Teme, the Shelbrook, the Elf-Brook, the Weever, the Clun, the Ony, 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 116 acres of ground.

Minerals.—Shropshire is well supplied with minerals. The mines of lead-ore, on the western side of the county, are extremely producive, 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, Lilleghall, Wrockwardine, Wombridge, Stirsley, Dawley, Little Wenlock, Madeley, Barrow, Bonthall, and Broseley. 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. Iron-stone, as is usually the case, accompanies the coal strata, as well as lime-stone, which is quarried in various places, but particularly at Liddlehall, Torth-y-Wain, and Llanymynech, and in the parishes of Cardifon and Alberbury. This county further contains abundance of building-stone, and ises for covering roofs. At Pitchford, about seven miles S.E. from Shrewsbury, is a red sand-stone, approaching the surface in many places, which exudes a mineral pitch. This from this rock is extracted an oil, known by the name of Betton's Britifh oil. Mr. Arthur Aikin is preparings an interting ejection on the mineralogical stratification of this county.

State of Property, &c.—The extent of edates in this county is very various. While the posessions 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 edates of all inferior sizes. The number of freeholders entitled to vote amount to above 3000; and the total rental of the county, tithes inclusive, to about 900,000l. There is much copyhold tenure, but of easier cullm and 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 cullums of the greater number are still preferred and acted upon. In the manors of Ford, Cundover, Wem, and Lop-
pington, the lands descend to the youngest son; and in the
manors of Cardigan and Stretton, (where the eldest son suc-
cceeds,) 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, pease, turnips, and potatoes; hops,
hemp, flax, and cabbages, are only raised in small quan-
tities. The growth of hay and the improvement of pature
lands are rather neglected branches of Shropshire agricul-
ture; but on the borders of the Severn, and in the vicinity
of several of the lesser streams, there are many excellent
tracts of meadow land, which produce grases in great luxu-
riance, without the aid of any other manure than what is
deposited by the floods. The grases most common in
the county are the following: the sweet-scented vernal
grases, Timothy gras, meadow box-tail, and some species
of the agroins; but the latter flower too late to be of much
use for cultivation. Several varieties of the poa and fentua
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 beides,
in this county, many large tracts of coppice-wood, and se-
veral 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 wattle lands, Shropshire is comparatively free. Al-
most all the lands in cultivation are inclosed; and the com-
mons are every day decreasing, so that few of any great
extent remain, except that of Mort, near Bridgenorth,
which measures five miles in length, and nearly three in
breadth; and the high lands between Church-Stretton and
Bishop’s-Castle, and from Clun to the borders of Radnor-
shire, which are solely occupied as sheep-walks, and perhaps
could not be better employed. There are several large
moles, and many smaller ones, in Shropshire. The chief
district of moor-land is that in the vicinity 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 pro-
per 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 assemblage of coal and iron works; the Ketley
canal, which joins that of the Shropshire; the Shrewsury
canal; and the Ellesmere Navigation, which forms in itself
a fylem 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 Stafford-shire
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 communi-
cation 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
coarse earthen vessels, are made at Broseley, which is likewise
noted for the manufacture of excellent tobacco-pipes. At
Caulkey, in the same neighbourhood, is a china manufac-
ture 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 Wedgwood 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 Shrew-
bury, in flannels and Welsh webs, which are bought in large
quantities at the markets of Pool and Ofwell, 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 Division and Government.—Shro-
shire, like every other county in England, is governed by
a lord lieutenant and cultus rotulorum, a high sheriff, and
a number of justices of the peace, besides the magistrates of
the privileged towns. It is divided into fifteen hundreds, or
districts, answering to that denomination; namely, Ofwell,
Pennington, Pennhill, North and South Bradford, Brim-bridge,
the liberty of Shrewsbury, the franchises of Wenlock, and
the hundreds of Stottesden, Ford, Chirbury, Cnndon, Mun-
slow, Overy, Purlow, and the honour of Clun. These again
are subdivided into 259 parishes, part of which are
within the diocease of Lichfield and Coventry, and part
within those of Hereford and St. Asaph.

Parliamentary Representation and Chief Towns.—Shro-
shire sends twelve members to parliament, two knights of
the shire, and two burgesses for each of the boroughs of Shrew-
bury, Ludlow, Bridgnorth, 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 Corbets, and colonel Forester.
The market-towns in the county are, Church-Stretton, Cleo-
bury-Mortimer, Ellesmere, Hales-Owen, Madeley, New-
port, Wen, Great-Wenlock, Ofwell, Whitchurch, and
Wellington.

Antiquities.—Shropshire contains a great many objects of
antiquarian interest. The chief Roman stations within its
limits were Uriconium, now Wroxeter, Mediolanum, near
Drayton, and Rutunium, near Wen. Antiquaries differ
respecting the precise position of the two last, but with re-
gard to the former, there is little doubt but it was a chief-
city of the Cornavii, founded and fortified by the Romans.
Walling-street enters the county on the east, between Crack-
ley-wood and Welton, and pails through it in a bending
line to Leintwardine, 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, Bridgnorth,
Clun, and Red Castle, and the abbies of Shrewsbury, Haugh-
mond, Buildwas, Wenlock, and Hales-Owen, several priories,
and a great number of curious churches. The most remark-
able encampments are those of Bury Ditches and the Walls,
and at Purlow, Basford Gate, and Hawkitone. A General
View of the Agriculture of Shropshire, by Joseph Plym-
ley, M.A. Archdeacon of Salop, 8vo. 1803. Beauties of
England and Wales, vol. xiii. by J. Nightingale and Ralph
Ryland, 8vo. 1811.

SHROUD, from the Saxon freond, a shelter, or cover, is
used to denote the drefs of the dead. This is required by
fate to be made of sheep’s wool only. See Burial.

If any one, in taking up a dead body, steals the freond,
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 feasting, that is, in confessing their sins to the priest, in order to a more devout keeping of the ensuing Lent fast.

Shrove-Tuesday is the day next before the first of Lent.

SHROWING 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 prevalent use.

Such trees the husbandmen find much preferable to coppice, as they need no fence to inclose them; because they stand in no danger from the brownings 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 flopped three or four years; and then it must be done either at the beginning of the spring, or the end of autumn.

Tho' of the harder sorts 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 best shrowed in the spring. The stamps left should always be cut off, and smooth, in order to call the water off, and prevent its sinking in, and rotting the tree.

SHROWS, or Shrubs, in Sea Language, are great ropes in a ship, which go up on both sides of all masts, except the bowspirt.

The shrubs 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 sort of noose or collar to fix upon the main-head.

They are fastened below by chains to the ship's sides, and aloft, over the head of the mast; their pennants, fore-tackle, and swivellers, being first put under them; and they are served there, to prevent their falling the mast. The top-mast shrubs 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 Puttocks.

The shrubs, as well as the falls, are denominated from the mast to which they belong. Thus they are the main, fore, and mizen shrubs, the main-topmast, fore-topmast, or mizen-topmast shrubs, and main-top-gallant, fore-top-gallant, or mizen-top-gallant shrubs.

The number of shrubs by which a mast is fastened, as well as the size of the rope of which they are formed, is always in proportion to the size of the mast, and the weight of the fall it is intended to carry. The two fore-mast shrubs, on the starboard and larboard side of the ship, are always fitted first upon the main-head; and then the second on the starboard, and the second on the larboard, and so on till the whole number is fixed.

The intention of this arrangement is to brace the yards with greater facility, when the falls are clove-hauled, which could not be performed without great difficulty, if the fore-mast shrubs were laid fitted on the main-head, because the angle which they would make with the mast would then be greatly increased. Falconer.

Bowspirt shrubs are those which support the bowspirt. Bumkin shrubs are those which support the bumkin. Puttock shrubs are those which connect the efforts of the topmast shrubs with the lower shrubs. Bentinnick shrubs are additional shrubs to support the masts in heavy gales. Preventer shrubs are similar to Bentinnick shrubs, and are used in bad weather to ease the lower rigging.

The terms are, cafe the shrubs; that is, flacken them. Set taught the shrubs; that is, fasten them fast. See Shrubs Trucks. See Trucks. See Shrubs Trucks. See Shrubs.
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-seats, 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 favour, which is the superiority of their shelter and shade.

It is thought, also, that the cypresses are 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 cases, as at Foxley and Yoxal Lodge.

And the holly, it is suggested, should be planted still more than any other shrub, in particular cases; as no other is capable of affording and producing such an excellent and diversified effect in wooded scenery, as is exemplified in some forest situations.

The ivy is capable, it is said, of answering three important uses, and of course deserving of more frequent growth. These are the varying of the items 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 similar rural purposes; the producing of variety in different forts of buildings; and the giving of ornament and utility to works of the country kind.

In the frill of these intentsions, in different cases, 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 interlardingly different by these means, as well as old and ugly trees of different forts.

In the second use, where cottages, ruins, irregularly formed buildings, old houses, and other similar structures, are to be varied, partially concealed, and rendered different in their external appearance, but which cannot be cheaply enough 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 expence 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 late kind, dikes, and fence 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. Mortared and unmortared 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-coast, when joined with the elder. It should, in all cases, be carefully planted, either by fets or young seedlings, which last is by much the readiest mode of raising it 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, 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 sprays or small twigs and foliage, that with the smaller and more delicate branches and flowers should conjoinly be chosen for putting out with other shrubs; the other, which is of much larger growth, is well suited for poor 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, fland 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 all shrubs require to have the earth or foil 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 over-run with low plants of the moss kind.

In all cases, 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 clays, the knife or shears, however, are very seldom to be applied, except for the removal of the delroyed parts, which are conjoinly to be carefully taken away.

SHRUB, Fruit, that sort 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 sorts are various, as the gooseberry, the currant, the rasperry, and some others, cultivated in garden situations; and the blackberry or barberry, and a few other kinds, in some of the shrubbery. Shrubs of this description, in most cases, require careful attention in cutting, managing, and keeping the ground in proper order, by due cultivation, and the proper use of suitable manure. See Small Fruits, and Standard Fruit Trees.

In planting them, those of the garden sort are most properly and usefully put out in situations by themselves, and not in the usual mode, on the sides or borders of the different cultivated compartments of the garden ground. Those which produce ornamental, 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 cases.

SHRUBS, Stealing of. See Larceny. Wilfully spoiling or destroying them is a species of that malicious mischievous, which subjects the offender to pecuniary penalties for the first two offences, and for the third, if it be committed in the day-time, and even be the fifth 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 seats, and other similar contrivances 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 reverse having been so frequently the case, their tardy insipidity has been justly reproved by some, as Mr. Knight, in the following line, &c.

"Curle on the shrubbery's insipid scenes."

It is supposed 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 sake, and such views of external objects as can be produced from them, or as are deserving of attention. In designing and forming shrubberies, therefore, keeping the above in view, these 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 defirable, unless in such parts as, by way of utility or contrast, are preferred in a flat of umbrosity.

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 cases 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 case 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 supposed, 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 pavilions, 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 pailure should be allowed to gradually encroach and spread itself among the shrubs and flower plants, until at last it wholly covers the surface. After this, the shrubry group becomes rough and picturesque; the flower plants, still continuing to grow among the shrubs, will, it is supposed, be productive of exactly what is seen to happen in natural groups; with this elegant difference, that in place of nettles, thistles, and such coarse Gros weeds, which, however, it is remarked, are as good to the painter as the finest flower plants, there will be had the Narcissus, faxifrage, faponaria, and others, which are quite in character with the rest of the pleasure-ground, and thrive among pailure. It is suggested, that in planting the shrubs in such groups, the great art consists in putting them in irregularly; for 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, however, said to be a plan or manner of distribution, which has never been put in practice; as whatever the form 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 when digging is no longer attended to, till these of the shrubs are thinned out, but the whole left a formless clump of vegetation, an appearance, it is observed, as different from the irregular group-thickets of nature, as a green ballock is from a rocky precipice. It is stated, however, that the groups of this nature, or rather those masses of formal shapes which are placed in particular situations, such as ovals in the fronts of small villas, or baskett-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 confiningly in a cultivated state. Their outlines or boundaries may, it is supposed, be properly formed, according to circumstances, either of elegant masonry, wood, baskett-work, or of plants of the flower kind, such as thrift, the daily, 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 their 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 situations, as in the public squares of the metropolis, &c. Baskett-work shrubbery groups have not unfrequently, it is remarked, a very pretty effect when covered with moss. Others which are unconnected among themselves, and which have forms that are rather unuitable to the nature of the situations in which they are formed, are likewise productive of variety. In all cases, 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 necessary to be had recourse to, but with a greater attention to the production of variety and effect. These are to be accomplished by such...
fuch means as have been already fuggelled, and by giving
them a more natural conformity, as well as by the introduc-
tion of greater diversity in the shrubs, trees, and other farts
of plants that are made ufes in the formation of them. It
is indeed observed, that one of the moft effectual means of
rendering rural fenes still more interefting than they com-
monly are, is by introducing a more extensive variety of
shrubs than is ufually employed, a vast number of which
are capable of anfwering the purpofe. They are not, how-
ever, to be planted in fuch situations in the common in-
difcriminate manner, but with much regard to the effect
which they are to produce. In fhort, it is concluded, that it
is in the shrubbery, or thefe parts of pleasure-gounds
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 pic-
turefe view improvement blend themselves together in produc-
ting thofe happy effects which fof much intereft the feelings
and fancy.

SHRUBBY-Howk-Weed, in Agriculture, a plant of the
shrubby weed kind, which is often troublesome and injurious
in woods and plantations. See Hieracium, and Weeds.

SHRULE, in Geography, a river of the county of
Tyrole, Ireland, which joins the Moyle near New Town
Stewart. There are also feveral rafhes of this name in
Ireland, but none called from a town now extifiting, except
Shrule in the county of Mayo, on the borders of the county
of Galway; 106 miles N. by W. from Dublin.

SHUKA, a powerful tribe or kabyle in the province of
Sufe, in the southern division of the empire of Morocco.
inhabited by Shellucks, amounting in number to 350,000.

SHURIF, a fmall low ifland 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.
fide of Halifax harbour, and difcharges itself into Coba-
quid bay, receiving in its course the Slewink andiais
rivers. The large lake of the fame name lies on the E. fide
of the land that leads from Halifax to Windsor, and about
7 miles from it, and 121 from Halifax.

SHUK, in Agriculture, provincially a flock, or twelve
sheaves of corn fet up together in the harveft field.

SHUD, in Rural Economy, a word fometimes provincially
used to feign fheafed.

SHUG, in Agriculture, a term used to imply the fhaking
of any thing, as hay, &c.

SHUGGINGS, a word fignifying that which is fheaf or
fcattered, as grain at harveft, &c.

SHUHUSHU, in Geography, a village of the pahalic
of Bagdad, one day's fial from Korma, and fited on the
bank of the Euphrates. It is as large as Samavat (which
fee), but much more flourishing; for the Euphrates, which
is navigable, even in the drieff feafon, for boats of con-
iderable burthen as far up as this place (where the effects
of the tide are too felt), enables the inhabitants to carry on
a trifling trade with Baffora. Shuhushu is a great mart
for borlcs, and is famed for the richnefs of the cloves raised
in its vicinity.

SHUK, in Agriculture, a term fometimes provincially ap-
plied to a bulk or shell.

SHUKER, in Geography, a town of Thibet; 42 miles
S. of Gangotre.

SHULA, or Shuli, in Mythology. See Sula.

SHUMAN, in Geography, a town of Grand Bucharia;
30 miles W. of Valiherd.

SHUMBERG, a town of Ifria; 5 miles N.N.E. of
Pedena.

SHUME, or Ashume, a violent hot wind of Africa,
or, as they are called, Ondas, which, in the intermediate
journeys between several parts of the Defart or Sahara, oc-
casions great incofience and diftrefs to travellers. It
sometimes wholly exhales the water carried in skins by
the camels for the ufe of the passengers and drivers: on which
occasions the Arabs and people of Soudan affirm, that 500
dollars have been given for a draught of water, and that 10
or 20 are commonly given, when a partial fubfipation has
occurred. In 1805, a caravan proceeding from Tombuctoo
to Taiflet was disappointed in not finding water at one of
the ufual watering-places, when, as it was faid, all the perfonns
belonging to it, 2000 in number, defides 1800 camels,
perifhed by thirst. The intense heat of the fun, aided by
the vehement and parching wind that drives the loofe fand
along the boundles plains, gives to the Defart the ap-
pearance of a fea, the drifting fands refeembling exactly the
waves of the fea, and hence aptly denominated by the Arabs
"el Bahar billa mia," a fea without water. During the
prevailing of this wind, it is impoffible to live in the upper
habitants of the houfes; fo that the inhabitants retire to
erraneous 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 loathfome and hot, and
has scarcely time to cool before it becomes tainted. The
walls of the bed-chambers, being of stone, are moftened
by throwing upon them buckefts of water, in order to render
the rooms habitable towards the night; and fo great is their
heat, that in doing this, the effect is fimilar to that which is
produced by cafting water on hot iron. Mr. Jackfon fays
that he has felt the fhume 20 leagues out at fea. When in N.
l. lat. 30°. W. long. 12° 30', a quantity of land fell on the
deck. He adds, that he never found any extreme incofience
from the fhume N. of the province of Sufe, although at
Mogodor it is fometimes felt, but not fo fervently, during
three days.

The Akkaabahs, or accumulated caravans, which erois
the great defart of Sahara, and conflit of feveral hundred
loafed camels, accompanied by the Arabs who let them to
the merchants for transporting their merchandise to Fez,
Morocco, &c. are fometimes obliged fuddently to frike
their tents, and proceed on their journey, when the fhume
rises and drifts the loofe fand along the plains, which atches
to every fixed objeft in its courfe, and foon buries it. We
fhall here add, that the guides of thefe accumulated car-
avans were being enabled by the two pointers to acfertain
the polar flar, fler their courfe with crefible precifion, and
that they often prefer travelling in the night to endurining
the fuffocating heat of the fcorching meridian fun. When
the Akkaabah reaches Akka, the firft flation on this fide of
the Defart, and fitated on its confines, in Lower Sufe, which
is a part of Bledulgerid, the camels and gufes are dif-
charged, and others are there hired to proceed to Fez, Mo-
rocco, Teredant, Taiflet, and other places. The Akka-
bahs perform the travels of the Defart, including their jo-
ourments at El-wahs, or Oafes, in about 130 days. Pro-
ceding from the city of Fez, they go at the rate of 35
miles an hour, and travel seven hours a day: they reach
Weflinno, Tatta, or Akka, in 18 days, where they remain
a month, as a grand accumulated Akkaabah proceeds from
the latter place. In going from Akka to Tagaafi, they
employ 16 days, fojourning here 15 days more to replen-
fh their camels; then they proceed to the Oafes and well of
Taudya, which they reach in seven days; and after dwelling
there 15 days, they proceed to Tombuctoo, which they
reach the fith day, making a journey of 54 days actual
travelling, and of 75 days' repofe; being altogether, from Fez
Rennell in favour of his opinion are, 1st, the similarity of
name, and the situation, which agrees better with the
distance between Sardis and Sufa, mentioned in the tablets of
Ariflagoras, than that of Shuflter; 2dly, the legend of
the prophet Daniel, whole coffin was found at Shus; and
3dly, that Sufa ought to be placed on a river, which has
its source in Media. Dr. Vincent, in reply, says, that the
similarity of name is a corroborating circumstance, when
we are sure of our position. But till the position be ascer-
tained, it is only a presumptive proof, and often fallacious;
and that Shufter approaches still nearer than Shus to Shussian,
which is its title in Scripture, and Shufian differs not from
Sufa, but by the invention of a dot in the letter Sebin. To
the legendary tradition of the tomb of Daniel, little more
relative is due, as the learned doctor conceives, than to the
legends of the church of Rome and the Mahomedan tra-
ditions. Sufa, he adds, was on the river Euileus; Shuflter
is more ancient than Shus; Sufiana, the name of the
province, approaches nearer to Shufian; and Kuzialtan, its
modern appellation, derived from the mountains which
surround it, is evidently connected with the Kihi, Kufi,
and Kofli of the Greeks. Nearhus failed up to Sufa, with-
out entering the Shat-ul-Arab, which he would not have done,
if that city had stood on the Kerah; and when Alexander de-
scended the Euileus, he sent his disabled ships through the cut
of the Hafar, into the Shat-ul-Arab; and, finally, a strong
reason for placing Sufa at Shufter occurs in Ebn Hakul,
who says, that there is not in all Kuzialtan any mountain,
except at Shufter, Jondi Shapour, and Ardz; and as the
castle of Sufa is represented by historians as a strong place,
it is reasonable to suppose that it stood upon a hill. Mr.
Kinneir, in his "Geographical Memoir on the Persian
Empire," has examined with critical skill and great
courteous 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 Shuflter
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 entirely 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 wilder-
sens, infested by lions, hyenas, and other beasts of prey.

SHU

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...
Sabla, are uninhabited, and consequently almost wholly uncultivated, and covered with brush-wood, the resort of lions, wild bears, and other animals. Morals are common. The Chab country is watered by three rivers, viz. 1. the Karoon, fupposed by some geographers to be the ancient Choapaces, but Kinneir disputes their identity; it rises 22 furlongs S.W. of Ifpahan, and after receiving many tributary streams in the mountains of Laurilfan, flows through the city of Shuffer to the village of Bundakeel, eight furlongs to the S. of that city, where it meets the Abzal; pursuings thea a fowther course, as far as Sabla, N. lat. 30° 32', and 30 miles E. of Bailoro, it divides itself into two branches, one of which discharges itself into the sea at Goban, and the other, affuming the name of Hafar, separates, after a course of 14 miles, into two branches, one of which passes through an artificial canal, three miles in length, into the Shat-ul-Arab, and the other enters the sea by the name of the Bannahir. 2dly. The Tab, which fee; and the 3d is the Jerahi, or ancient Pattigiris, which descends from the mountains behind Bebahin, in the province of Fars, and paffing 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 divided in various directions for the purpose of agriculture; and the water afterwards is loft, or occasions the vall morales in the vicinity of modern Dorak. The principal towns in the district of Chab Sheikh are, Dorak or Felahi, Ahwaz, Endian, Mahboor, Goban, and Jerahi, whence the river, so called, derives its name. The revenues of the Chab Sheikh amount to five lacs of piafiers, or about 50,000 florins a-year; and he can bring into the field 5000 horse, and 20,000 foot.

The territories attached to the government of Shuffer confitute the fairest portion of Susiana. 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 hufbandman 100 or even 200 fold, and was rich in its productions of cotton, fugar, rice, and grain, is now, for the greatft part, a forfaken waste. The only indications to the contrary occur between Bundakeel, Dezphoul, the vicinity of Hawezaa, and the vale of Ram Hormuz. From the Abzal to the Tigris, and the river Gyndes, on the western fide, and from the banks of the Karoon to thofe of the Shat-ul-Arab, all is dreary and defolate, and on the E. fide of Shuffer 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 Shuffer, his authority is hardly acknowledged by the wandering tribes, both Perian and Arabian, of Kuridftan. Of the four great rivers which embellish and ftrillize the dittrict of Shuffer, Karoon defferves the firit mention. Next in magnitude is the Abzal, which has two fources, one in the Shutter Koh, near Booroojerd, and the other in the mountains of Laurilfan: these form a junction N. of Dezphoul, and after paffing under the walls of that city, empty themselves, after a winding course, into the Karoon, at Bundakeel. The third river is the Karaf, or Hawezaa river, called by the Turks the Karafu, which is formed by the junction of many streams in the province of Ardalan, in Kuridftan: it runs through the plain of Kermanhaw, meeting the Kazawur and the Gamafu. The Karafu, increafed in magnitude by tributary streams, flows with a furious course towards Kuridftan, and fupplied with an accifion of water, it paffes on the W. of the ruins of Shus to the city of Hawezaa, and enters the Shat-ul-Arab, about twenty miles below Korna. The fourth river is that fupposed by Mr. Kinneir to be the ancient Gyndes, which proceeds from an unknown source in the mountains of Laurilfan, and joins the Tigris between Koot and Korna.

Shuffer, the capital of Kuziftan, and the residence of a Beglerbeg, is situated in N. lat. 32°. E. long. 48° 59', at the foot of the mountains of Bundariari, on an eminence commanding the rapid course of the Karoon, across which is a bridge of one arch, upwards of eighty feet high, from the fummit of which the Perians often throw themselves into the water, without the flight of injury. On the welfern fide it is defended by the river, and on the other fide by the old fience 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 Perians and Arabianis, exceeds 15,000 souls; and it has a considerable manufacture of woolen fllufs, which are exported to Bafiora, in return for the Indian commodities brought from thence. This city is generally believed to be the ancient Sofa; but fome approved geographers entertain a different opinion. (See Sufus.) Shus, in the old Perian language, means pleasing, or delightful, and Shuffer fill more delightful; and the name is said to be given to this city by Sapor, the fon of Artaxeres 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 extent, and no inconfiderable magnitude. The castle, dyke, and bridge, are moft worthy of notice. The castle occupies a small hill at the welfern extremity of the town, commanding a fine view of the river, mountains, and adjoining country. This fortress is, on two fides, defended by a ditch, now almoft 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 furdals and fubterraneous aqueducts, through which the water fill 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 assigned it. This dyke is confructed of 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 Meerza, governor of Kermanhaw, and its beneficial effects are already experienced. The artificial canal, occasioned by the construction of this dyke, difembogues, after a long winding course, into the Dezphoul, half a mile from Bundakeel. Near the canal is a bridge, built of hewn fline, consisting of 32 arches, 28 of which are yet entire. The city of Shuffer is so remarkable for its fatality, as to be the continual refort of invids from the surrounding territories. In summer the heats are excessive from nine in the morning to the fame hour at night, when the air is refreshed 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 springs temperate and delightful. Shuffer affords excellent springs. Kinneir's Geog. Mem. of the Perian Empire.

SHUT in Land. See LAND.

SHUTESBURY, in Geography, a township of America, in Hampshire county, Massachusettts, on the E. side of Connecticut river; 90 miles W. by N. from Bolton, containing 939 inhabitants.

SHUTTING, in Anchor-Making, denotes joining or welding one piece of iron to another.
SHUTTING-UP, in Rural Economy, a term applied to
woods and plantations, which signifies the inclosing and
securing them from the injuries which are done to them
by neat cattle and other sorts of live-flock getting into them,
and the keeping of them secure and safe for a certain period of
time before they are cut over and converted to use in their
different intentions. See Wood.

It also implies the removing of live-flock from the
patters and other grazed lands, for the purpose of closing
them in the view of having the former of a more full, suit-
able, and better growth or bite, as it is called, and the
latter more productive of grazs for hay. See Meadow,
and Pasteure.

SHUTTLE, in the Manufatures, 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
fluffs, cloths, linen, 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 of chamber of the shuttle; in which is inclosed the
spool, which is a part of the thread defined for the woof;
and this is wound on a little tube of paper, ruff, or other
matter.

The ribbon-weaver's shuttle is very different from that
of most other weavers, though it serves for the same pur-
pose: it is of box, fix or seven inches long, one broad,
and as much deep; flood with iron at both ends, which terminate
in points, and are a little crooked, the one towards the right,
and the other towards the left, representing the figure of an
circle horizontally placed.

SHUTTLE, in Inland Navigation, a term expressing a small
fluece, paddle, &c.

SHUTTLEWORTH, Obadiah, in Biography, or-
granit of St. Michael's church, Cornhill, was elected, on the
resignation of Harte, for St. Dione'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 Featling.
His brothers were excellent performers on the violin, and
employed in all the city concerts. But Obadiah is almost a
single instance of the fame 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 folio stops previous to his final fugue
on the full organ.

SHWAN-PAN, the name of a Chinesce instrument, com-
pofed of a number of wires, with beads upon them, which
they move backwards and forwards, and which serves to affill
them in their computations. See Anacus.

SHWAYEDONG, in Geography, a small but neat town
of the Birman empire, on the Irawaddy, containing about
300 houses, ranged in a regular street; each dwelling
having a small garden, fenced with a bamboo railing. Its
two monasteries and a few small temples did not engage
the particular notice of Col. Symes and his companions; but
the tall and wide-spread trees that overshadowed them
were objects of pleasing contemplation. Symes's Embassy

SHY, in Agriculture, a provincial term, signifying high-
melted or head-argong, in the manner of wild colts, &c.

SHYAMULA, in Mythology, a name of Parvati, the
confort of the Hindoo deity Siva. It means with a blue
body; and is, with many other names of similar derivation,
given to that goddes, and to Vishnu, Krishna, and Rama,
who are describ'd and represent'd of "hyacinthine hue."
Among these names are Syama, Shyamala, &c.

SI, in Geography, a town of China, of the third rank, in
Ho-nan; 50 miles N.W. of Kowang.

St. or Sia, a town of China, of the second rank, in
Chan-fi. N. lat. 36° 40' E. long. 116° 31'.

S1, in Music, a name in singing, given by the French to
the sharp 7th of the key of C, to preclude the embarrassment of
the mutations in folvation. (See HEXACHORD, and Mu-
tations.) 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;
but 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 principants in singing 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 B♭, or 4th of A, it still retains the name of
re.

Malcolm, in the year 1721, was the first who openly cen-
tered the hexachords, which Dr. Pepusch, in 1731, defended
with some warmth, by giving the best and clearest explana-
tion of their use and importance, not only in singing but
composition, in regulating the answers to fugues. Foucha,
Padre Martini, Sala, and the most respectable Italian and
German theorists, still adhere to the folivation which has
produced so many great composers and fingers during the
two last centuries. We have given our opinion fully on the
subject in the article Serra, a Roman master, who proposed
a new method of naming the intervals in cultivating the
voice. See Serra.

The original introduction of this syllable is attributed by
Merfennus 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 Eriacus Putzcaus of Dort, who lived about the
year 1580. M. Bourdect ascribes the introduction of this
syllable into the scale to a Cordeliers, 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 singing-maister at Paris, about the
year 1676; and Bonet inclines to think, that the honour of
the invention might be due to the Cordeliers, but that the merit
of reviving it is to be ascribed to Metru. Bourdect in-
tributes, that though the use of the syllable fi is much ap-
proved
proved of by the French musicians; yet in Italy they disdain to make use of it, as being the invention of a Frenchman. Hawkins's Hist. of Music, vol. i. p. 435.

The French are not yet agreed to whom they are obliged for the syllable $\beta$; some say it was Nevers, some Le Mairé, and other claimants are mentioned by Rouleau; but not being quite satisfied with its utility, we shall below no pains in verifying the claims of an imperfect invention.

S. Actio, in Lavis, 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 Persia, in the province of Segeltan, or Seiftan.

SIABISCH, a river of Russia, which runs into the Abakan, near Bankalova, in the government of Kolyvan.

SIADY, a town of Samogitia, seated on a lake; 33 miles N. N. W. of Miedniki.

SIAGNE, 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.

SIKA, in Geography, a town of Japan, in the island of Ximo; 12 miles W. of Tafiero.

SIA-KOH, a mountain of Persia, 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 Hindoostan, in Cochin; 30 miles N. E. of Cranganore.

SIALISMUS, formed from $\sigma\alpha\lambda\sigma$, saliva, a word used by the ancients to express a discharge of saliva, brought on by the holding hot things in the mouth; and by us for a salivaition by mercury.

SIALO, in Geography, a town on the E. coast of the island of Sibu. N. lat. 5° 53'. E. long. 123° 30'.

SIALOCHI, a term used by the ancients to express such persons as had a plentiful discharge of saliva, by whatever means. Hippocrates uses it for a person having a quinsy, who discharges a very large quantity of saliva. Others express by it persons, whose mouths naturally abound with a bitter saliva; and others, such persons as, from having a very large tongue, spit into people's faces while talking with them.

SIALAGOGUES, in Medicine, from $\sigma\alpha\lambda\sigma$, saliva, and $\gamma\nu\zeta$, I excite, comprehend all such medicines as increase the flow of saliva.

The sublubtes 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 saliva 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 salutary 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 saliva 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 malacitories 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 sublubtes are reforted to for this purpose, and chiefly the warm and acrid vegetables; indeed every sublubt 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 imperatoria more acrid; and the pyrethrum more acrid still, and therefore more commonly employed. Other sublubtes 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 pollute, that is capable of exciting a flow of saliva when taken internally, is mercury. In its crude and simple Rate of quicksilver, however, it is perfectly inert, and exerts no influence whatever upon the living body, until it is oxidised, or combined with other materials. Its operation then, as Dr. Cullen has ably demonstrated, is not, as was formerly supposed, 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 stimulant effect upon the vascular system, and especially upon the various excretories of it. When blood is drawn from a perfon under the full influence of mercury, it exhibits no appearance of any diminution of confluence; 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 exhibited. In this disease, indeed, as well as in 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 pretext 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 supposed 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. Farther experience, however, while it disproved the antirenal powers 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.

SIALUSSEIB, in Geography, a town of the Arabian Irak, on the Euphrates; 8 miles E. of Sura.

SIAM, a country of Afa, the name of which is of uncertain origin; but probably derived from the Portugeuse, in whose orthography Siem and Siaö are the same; so that Siam, or Siang, might be preferable, as Loubere has suggested, to Siam; and the Portugeuse writers in Latin call the natives "Stones." The Siamese style themselves "Tai," or freemen, and their country "Meuang Tai," or the kingdom of freemen. The Portugeuse might possibly derive the name Siam from intercourse with the Pegueze. "Sian," however, is the oriental term. Before the recent extension and encroachments of the Birman 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 possessions may remain to the south of Tanaferim; and on the eastern side of that Cherifonne, Ligor may
may mark the boundary. On the west, a chain of mountains divides Siam, as formerly, from Pegu; but the northern province of Yunnan seems to belong to the Birmans, who extended their territory, in this part, to the river May-kang; and the limits may perhaps (says Pinkerton) be a small ridge running E. and W. above the river Anan. To the S. and E. the ancient boundaries are fixed; the ocean, and a chain of mountains, dividing Siam from Laos and Cambodia; so that, according to the ancient description of this kingdom, it may be considered as a large vale between two ridges of mountains. The northern boundaries, as defined by Loubere, evince that Siam has lost little in that quarter. His city Chiamai is probably Zamee, fifteen days' journey beyond the Siamee frontier. The northern limit is therefore at 19°, and not at 22°, as he erroneously states its latitude; and therefore the length of the kingdom may be about 10°, or near 700 British miles, and about one-half of this not above 70 miles in medial breadth. Or its admeasurement may be more accurately fixed from about 11° of N. lat. to 19°; being in length of about 550 British miles, by a breadth of 240.

This kingdom is divided into ten provinces, viz. Supthisa, Bancok, Porcelon, Pipili, Camphine, Rappri, Tanaferim, Ligor, Cambouri, and Concacea, each of which has its governor respectively. Of these provinces we have the following short notices. Bancok is situated above seven leagues from the sea, and in the Siamee language is called Fon. Its environs are embellished with delicious gardens that furnish the natives with fruit, which is their chief nourishment. See BANCOK.

Tanaferim is a province abounding in rice and fruit-trees; it has a safe and commodious harbour, admitting vessels of all nations; and in this province the people find more ample resources of subsistence than in the other parts of the monarchy. (See TANASEERM.) Cambouri, on the frontiers of Pegu, carries a considerable trade in the commodity called by the French eagle-wood, elephants' teeth, and horns of the rhinoceros. The finest varnish is also procured from this province. Ligor affords a kind of tin, called by the French celain, the celain of the Portugueze. (See LIGOR.)Porcelon was formerly a distinct sovereignty, and produces dyeing woods and precious gums.

The capital city of the kingdom has been called Siam, by the ignorance of Portugueze navigators. In the native language the name approaches to the European pronunciation of Yuthia, or Juthia; it is situated on an isle formed by the river Menam or Meniam. Its walls in Loubere's time were extensive; but not above a sixth part was inhabited. Its condition, since it was delivered from the Birman conquest in 1756, has not been derelied. The royal palace was on the north, and on the east there was a caufeway, affording the only free passage by land. Different quarters were inhabited by the Chinee, Japanee, Cochinchinee, Portugueze, and Malacca. The temples, pyramids, and royal palaces seem to have been much inferior in all respects to those of the Birmans. See JUTHIA.

The other chief towns in the Siamee dominions are Bancok, at the mouth of the Meniam, Ogmo, and others on the eastern coast of the gulf of Siam. On the western, D'Anville marks Cham, Cinii, and others as far as Ligor. Along the banks of the great river are Louvo and Poriclous, with others of inferior note. Louvo was a royal residence for a considerable part of the year. In general, these towns were only collections of hovels, sometimes surrounded with a wooden blockade, and rarely with a brick wall. In the south-west, Tanaferim and Merchul may be regarded as polleiffions belonging to the Birman empire, and the remaining fragment of the Siamee territory in that quarter presents no considerable town; though villages appear in Junkeylon and some of the other isles. Kemptner, in an account of his voyage to Japan in 1690, describes two remarkable edifices near the capital: the first is a famous pyramid, and called Puka Thon, erected for the commemoration of a victory obtained, on the spot where it stands to the N.W., over the king of Pegu. This magnificent structure is enclosed by a wall, and is 120 feet high, varying in form at its different stages, and terminating in a slender spire; the second edifice consists of two squares to the east of the city, surrounded by a wall, and separated by a channel of the river. These squares contain many temples, convents, chapels, and columns, particularly the temple of Berkam, with a grand gate ornamented with statues and various carvings; the other decorations appear by Kemptner's account to have been exquisite.

Our principal sources of information with regard to Siam are the publications of La Loubere, who went as ambassador from Louis XIV. to the king of Siam, and those of the French missionaries, of which, that from the papers of the bishop of Tabraca by Turpin, in 1771, is the most important. According to the account of the latter writer, the people of Laos and Pegu have established a considerable colony in Siam, since their countries were ravaged by the Birmans. Here are also many Malays, and the ancient kings had a guard of Japanese, which exhibits, in a striking point of view, the intercourse that subsisted among oriental nations.

With regard to the history of Siam, we shall content ourselves with observing, that previously to the Portuguese discoveries, this country was unknown to Europeans. According to Loubere's account, the first king of the Siamee commenced his reign in the year 1300 of their epoch, or about 756 years after the Christian era. Since the Portuguese discovery, their wars with Pegu, and occasional usurpations of the throne, constitute the principal topics of their history. In 1568 the Peguee king declared war on account of two white elephants, which the Siamee refused to surrender; and after prodigious slaughter on both sides, Siam became tributary to Pegu; but about the year 1626, raja Raji delivered his crown from this servitude. In 1680, Phacson, 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 decapitation 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 Portugueze discovery, or the year 1546, many of whom were precipitated from the throne on account of their depopulus. 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 Cochinchina. The Siamee 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, languidified five years under the Peguee domination. Having lost by death their
their king, queen, and most of their princes, they lamented their humiliation and servitude, and anxiously fought 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 feudatory tyrants whom the Peguene 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 Martaban and Tavil, the new monarch received information of the riches of Siam, and formed the design of its conquest. He began by sending 30 ships to pillage the cities of Merghi and Ta-naferrim, 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 pusillanimous multitude. The Burman sovereign, being at the distance of three days' march from Yuthia, the capital, died in consequence of an abscess. The suburbs, 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 Siamese capital; the youngling of his sons having assumed the sceptre, found himself under the necessity of regaining his own kingdom, in order to stifle any revolt. The Siamese sovereign, however, having rashly pronounced a sentence of death against the favourite 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 insecurity, upon the report that the new prince of the Birmans had been dethroned upon his return to Ava; and that his elder brother, who had succeeded, had no wish to make conquests. This pacific monarch dying suddenly, a pretence was made of war was afforded by the affianced which the Siamese had given to a rebel Birman governor. In January 1765, the Birmans attacked Merghi and took it; and then proceeded to Tanaferin, 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 faved themselves from death or slavery by dispersion into forests, where they participated the food of wild beasts. The Siamese, threatened with speedy and total destruction, reunited their forces; but though they fought with ardour, their fanguinary defeat subjected their country to the power of their conquerors. The fields, ravaged by the confuming flames, presented 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 Mouchou. The Siamese, on their part, attempted to fortify the capital, and earnestly solicited the affianced of two English vessels which happened to arrive. The captain of one of them confessed to defend the capital, on condition of being supplied with cannon and ammunition: but the jealous Siamese informed that he should first lodge his merchandise in the public magazine. With this condition he complied, and going on board his ship, harried 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 fix Chinefe 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 treafury. Upon his retreat, the Birman, finding nooppofition,spread universal deforation, and configned even their temples to the flames. Instead of recurring to arms, the superfluous monarch and his miniflers repofed their whole confidence in their magicians. A Siamefe prince, indeed, who had been banifhed to Ceylon, railed a little army, and returned to the affianced of his couniry; but the diftracted court of Siam fent forces to oppofe their deliverer. Many of the Siamese, forcibly provoked by this conduct, joined the Birman, who in March 1766 again advanced, after having been repulfed by the English captain, to within two leagues of the capital. In September 1766, the Birman feized a high tower, at the di- fame of about a quarter of a mile from the city, and railed a battery of cannon, which gave them an absolute command of the river. In this state of urgent danger, 6000 Chinefs were charged with the defence of the Dutch factory, and of a large adjacent temple. The Birman, in confequence of previous skirmishes and a fubsequent affault, feized on five considerable temples, which they converted into fortresses; but in another affault they were compelled to retire. The Siamese officers, eager to secure the magazines of grain, as a future refeurce, produced an immediate famine; which, followed by a contagious disorder or pestilence, occasioned the most dreadful devastation. The Dutch factory was in vain defend by the Portuguefe and Chinefe; and after a siege of eight days, it was taken and reduced to ashes. The whole Chrif- taium quarter of the city shared the fame fate; and the virgins were obliged to marry the firft young men that prefented themselves, in order to be protected by the matrimonial tire, which the Birman reverenced. The Birman, demanding an unconditional surrender, affaulted 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 foidiers. The golden idols were melted; and the victors, finding that their avarice had been facrificed to their fury, recurred to acts of violation and cruelty. The great officers of the kingdom were loaden with irons, and condemned to the galleries. The king, attempting to escape, was maffacred at the gate of his palace. When nothing remained for thefe conquerors to deftoy, they refumed their march to Pegu, accompanied, among other captives, with the remaining princes and princes of the royal blood of Siam. In June the Birman quitted Siam, after having burnt the town of Michoug, soon after its construction. When the Birman evacuated their conquer, the Siamese flued from their forests, and superflitiously directed their first rage against their gods, for having abandoned them to a defeuctive enemy. Availing themselves of the wealth which accrued from the fluates, filled by superflitious perfons with gold and fliver, who expected to find them when they re- visited this world, they proceeded to elect a leader; and Phaiba-Thae, 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 Birman in vain attempted to renew their incursions into the Siamese terri- tory: they were repulfed, and afterwards obliged to turn their arms against the Chinefe, 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 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 Birman empire itself will fall into confusion, and be dismembered.

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 Birman. That the religion of the Siamese is the same with that of the Birman, and derived from the same origin as that of the Hindus, there seems to be sufficient evidence. Sommone-Codam, mentioned by Loubere as the chief idol of Siam, is interpreted by competent judges to be the same with the Boodel of Hindoostan. The sacred language called Bal is of the same origin; the most esteemed book feems to be the Vinae, and the precepts of morality are chiefly five; viz. not to kill, not to steal, not to commit uncleanness, 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 Talapoins. Their laws are said to be in high reputation all over the East; and it is not certain, whether, like those of the Birman, they are of Hindoo, or of indigenous origin. Their system of legislation is represented by all writers on this country, as extremely severe in its functions; death or mutilation being punishments of unimportant offences. The Siamese imitate the Chinefe in their festival of the dead; and in some other of their rites. The government of Siam is despotic, and the sovereign, as among the Birman, 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 Birman empire more than fourteen millions, as some have stated, the Siamese dominions may probably be peopled by about eight millions. However, Loubere affirms us in his time, that from actual enumeration, there were only found, of men, women, and children, 1,900,000. Loubere says that the Siamese had no army, except a few royal guards; but Mandello; 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 Birman; and naval engagements frequently occur. The revenues of this sovereignty are of uncertain computation. Mandello describes them as 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 junkleyon, 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 part of Indian commerce. If we had any apprehension that the Birman would become dangerous to our possessions in Bengal, our alliance with Siam might be highly serviceable. In a merely commercial point of view, it may be difficult to preserve the friendship of both the Birman 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 strict alliances with the more eastern states of exterior India, as a common defence against the growing preponderance of the Birman.

As to the manners and customs of the Siamese, as they have embraced a branch of Hindoo faith, they are rather Hindoo than Chinefe; though its situation is central between the vast countries of China and Hindooistan. Loubere has given a detailed account of the Siamese manners. The females are under few restraints, and marry at an early age, and are past parturition at forty. Marriages are conducted by female mediators, and a priest or magician 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 sacred. Polygamy is allowed, more from affection than any other motive; and one wife is always acknowledged as supreme. Royal marriages, from considerations of pride, are sometimes incestuous; nor does a king hesitate to elope with his own sister. Divorce is seldom practiced; but the rich may chuse a more compliant wife without disdaining the former. Few women become nuns, till they are advanced in years. The Siamese funerals resemble those of the Chinefe. On this occasion, the Talapoin sing hymns in the Bal 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 the Boodel inspires the Siamese with horror at the effusion of blood. The houfe is 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 perfumes, the Siamese are rather small, but well made. The figure of the countenance, says Kamper, both of men and women, has less of the oval than of the lozenge form, being broad, and raised at the top of the cheeks; 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 sublim is commonly completely yellow. Their cheeks are hollow; mouths very large, with thick pale lips, and teeth blackened by art; the complexion coarle, 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 Birman, and to approach rather to the Tartar or Chinefe features.

The dress of the Siamese is slight, clothes being rendered almost unnecessary by the warmth of the climate. A muffin shirt, with wide sleeves, and a kind of short drawers, are almost the only garments of the rich, a mantle being added in winter, and a high conie cap upon the head. The women use a scarf instead of the skirt, and the petticoat is of painted calico; but with this slight dress they are extremely modil.

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 indolent, they are ingenious, and some of their manufactures deserve praise; nevertheless, the ruinous and depopulous avarice of the government crushes industry by the uncertainty of property. They are little skilled in the fabrication 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 trifling traffic.

The language of the Siamese, called "THAY," according to Dr. Leyden's account of it (Asiaitic 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 dramatists 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 numerals, as well as some of its terms, coincide, but these are not very numerous.

It borrows words freely from the Bali, but contrasts and disguises more the terms which it adopts, than either the Ruk'heng or the Barma. In its finely modulated intonations of sound, in its expression of the rank of the speaker, by the simple pronouns which he uses, in the copiousness of the language of civility, 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 Barma or Ruk'heng. Its construction is simple and artificial, 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 case which it governs. When two substantives come together, the last of them is for the most part supposed to be in the genitive. This idiom is confonant to the Malayu, though not to the Barma or Ruk'heng, in which, as in English, the first substantive has a possessive signification. Thus, the phrase, a man's head, is expressed in Barma and Ruk'heng, by lu-k'haung, which is literally man-head; but, in Siamese, it is kwa-thon, and in Malayu, kapala orang, both of which are literally head-man. A similar difference occurs in the position of the accusative with an active verb, which cafe in Barma and Malayu generally precedes the verb, as tumming cha, literally rice eat; but in Siamese follows it, as ken kau, literally eat rice, which corresponds to the Malayu, makan-nap. The adjective generally follows the substantive, 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 clafs, is mentioned, the generic, or more general name of the genus to which it belongs, is repeated 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 parji, literally where go, but in Siamese, tai hnei, go where. The Siamese composition is also, like that of the Barma, 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 approaches more nearly to the Chinefe mode of recitation, and becomes a kind of chant, which different Brahmins altered Dr. Leyden is very similar to the mode of chanting the Samaveda.

The THAY coincides occasionally, even in simple terms, both with the Barma and Malayu; but these terms bear to 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 Bali; though it not only has a general semblance 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 shar, variously accented; excepting the vocalic ru and lu, which are only variations of the r and l consonants.

The confonants are thirty-seven in number, and are not arranged by the series of five, like the Deva-nagari and Bali, but the first series, ka, consists of seven letters; the second series, cha, of six; the third series, ta or da, of six; 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 fourteen or more accentuations, and by thirty-five or more complex ones. The letters ka, nga, ta, or da, na, ma, ba or pa, are also final confonants. Hence it is easy to perceive the near approximation of the Siamese to the delicacy of the Chinefe accentuation; while in other respects, the alphabet is considerably more perfect, than in the Mandarin or Court language of the Chinefe, which has neither the same variety of confonants, nor admits so many, in the close of a syllable. The Siamese pronunciation, even of confonants, 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 confonant; but from the total suspension of the voice in pronouncing syllables which terminate in a confonant, no aspiration can be pronounced after them; ma and ba, tya and chya, are often difficult to be distinguished in pronunciation, as are ya and ja, kyé and chyé, 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 Siamese literature, was the learned Gervaife, but his labours have never been published. The learned 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 Dissertatium," 1767. It is inferior to Loubere's alphabet in accuracy, though it contains a greater number of compound characters. Loubere's alphabet contains three forms of the ja, corresponding to the Nagari; but the ja and ja la, 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 Cheritras, 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 prerogatives 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 composition, and frequently introduces several of them in the same manner as is frequently done in Brij'hi, Punjabi, and Sik'h compositions. The most frequent measure, however, among the Thay, as among the Ruk'hong and Barma, seems to be that determined rap, which consists of four long syllables, but admits occasionally of one or more intercalary short ones: the Jâni, which consists of five syllables, the Chô-bang of six, the Pat'tamang of seven, the Jefauta 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 consisted in cloths imported from Hindooftan, and various articles from China; in exports of jewelled, gold, benjoin, lacca, wax, tin, lead, &c. and particularly deer-skins, of which more than 150,000 were fold annually to the Japanese. Rice was also exported in great quantities to the Asiatic islands. The king was a ruinous policy, the chief merchant, and had factors in most of the neighbouring countries. The royal trade consisted in cotton cloths, tin, ivory, salt-petre, rack, and skins fold to the Dutch. A late writer informs us, that the productions of this country are prodigious quantities of grain, cotton, benzamin; sandal, aquello, and Japan woods; antimony, tin, lead, iron, load-tones, gold, and silver; sapphires, emeralds, agates, crystal; marble, and tambac. Siam, in respect of fertility, loco-position, and productive labour, possesses commercial advantages of the same 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 our's, but it is almost as warm as a French summer. The little summer is their spring; 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 wates 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. Less insidious 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 lize and inundations of the Meinam, confine with the rich and picturesque vegetation of the forets, illuminated at night with crowds of brilliant fireflies, to impress strangers with admiration and delight.

The soil towards the mountains is parched and infertile; but on the slopes of the river confines, like that of Egypt, of a very rich and pure mould, in which a pebble can scarcely be found; and the country would be a terrestrial paradise, if its government were not so despotic as to be justly reckoned far inferior to that of their neighbours the Birmans. Rice of excellent quality is the chief product of their agriculture; wheat is not unknown; peas and other vegetables abound; and maize is confined to their gardens. The fertility of Siam depends in a great degree, like that of Egypt on the Nile, on their grand river Meinam, and its contributory streams; for an account of which, see MEINAM.

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. To its extensive ranges of mountains, including the kingdom on the east and west, we have already referred. A small ridge also passes from east to west, not far north of Yuthia, called by Loubere Taramamon. 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 fragacity and beauty; and those of a white colour are treated by the Siamese with a kind of adoration, as they believe the soul of such is royal. Wild boars, tigers, and monkeys, are numerous. The reports of the mineralogy of Siam are various. Mandello, or rather his translator Wiequefort, 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, cirelions, 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 chiefly wrought by the Siamese were those of tin and lead. The tin, called "calin" by the Portugueze, was sold throughout the Indies; but it was soft and ill refined. Near Louvo was a mountain of load-tones, and another of inferior quality in Junkfionlon; which see. Pinkerton'sGeog. 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 found 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 rebecc, or violin with three brass strings.

Their copper trumpets very much resemble, in tone, the cornets with which the peafants of France call their cows. Their flutes are not much sweeter. They make likewise a kind of cornet with small bells, which are lively, and not disagreeable, when not accompanied by their iron drum, which is made by every one that is not accustomed to its noisy harshness. 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 buffaloe'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 JUTHIA, 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.

SIAMODEL, a town of Hindooftan, in the Carnatic; 13 miles N. of Nellore.

SIAMPA. See CHIAMPLA.
SIA, S. of Cio, a town of Africa, in Melinda.
SICANAS, a town of South America, in the province of Tucuman; 30 miles E.S.E. of St. Salvador de Jugui.
SIANDUPADA, a town of Hindooftan, in Myfore; 13 miles S.W. of Bangalore.
SIANELLY, a town of Hindooftan, in Myfore; 13 miles S.W. of Bangalore.
SIANG, a city of China, of the second rank, in Quang-fi. N. lat. 23° 58'. E. long. 109° 08'.
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-techa.
SIANG-TAN, a town of China, of the third rank, in Cban-fi; 20 miles S.E. of Tsing.
SIANG-YANG, a town of Corea; 28 miles N.N.W. of San-pou.
SIANG-YANG, a city of China, of the first rank, in Hou-quang, on the river Han. N. lat. 32° 5'. E. long. 111° 39'.
SIANG-YN, a town of China, of the third rank, in Hou-quang, on the Heng river; 27 miles N.N.W. of Tcheng-techa.
SIANKE, or SYNKE, in Natural History, a name given by the people of some parts of the East Indies to the Caryophyllus, or clove-hipace. The people of the Moluccas, according to Garcias, call it change, which is only a small difference of pronunciation. The Turks and Persians call the same spice 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 arch, 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. 20° 44'. E. long. 125° 5'.
SIAO-CHAN, a town of China, of the third rank, in Tche-kiang; 17 miles N.W. of Chiao-king.
SIAO-HE-CHAN, a small island near the coast of China. N. lat. 37° 54'. E. long. 120° 34'.
SIAO-HO-TCHAN, a town of Chinefe Tartary. N. lat. 41° 43'. E. long. 121° 42'.
SIAO-NON-HOTUN, a town of Chinefe Tartary. N. lat. 41° 24'. E. long. 126° 53'.
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° 41'.
SIARA, a small town of Braili, and capital of a district or captaincy of the same name, so called from a river which rises in the mountains, and discharges itself into the ocean in S. lat. 5° 30'. The captaincy 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 haven, 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 barges. This district abounds in cotton, fugar, tobacco, and Braili wood, the usual food of the country. The trade of the town, consisting chiefly of fugar and tobacco, is incomconsiderable. S. lat. 3° 15'. W. long. 39° 46'.
SIARDEHUI, a town of Hindooftan, in the Carnatic; 8 miles N.E. of Uedgeserry.
SIARMAN, a town of Peruia, in the province of Ma-
SIB

25. t. 6. f. 1. Scotch Cinquefoil: Petiv. Herb. Brit. t. 41. f. 7.)—Leaves 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 mouldering mucaceous soil, flowering in June and July. The root is perennial and woody, throwing out many short, spreading, leafy, herbaceous, round, downy stems, which are slightly branched, and procumbent, except sometimes at their flowering extremities. Leaves on long stalks, whose base bears a pair of oblong, acute filipula, like those of a rofe; their leaflets three, on short partial stalks, 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. that Plukkenet's t. 212. f. 3, cited by Linnaeus, and recently copied by Pursh, belongs rather to the Pentaphylloides pubescent; nor does this figure, in essential points, resemble our Sibbaldia.


3. S. alata. Large-flowered Sibbaldia. Linn. Suppl. 191. 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 flowers are but 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 neither the sepals nor at one time Pallas himself, thought this plant a variety.

SIBBENDS, or SIVVENS, in Medicine, an infectious disease, of a chronic nature, somewhat resembling lycophyll, prevalent in the western parts of Scotland. It is said to be too denominated from the appearance of a fungous exudation from some of the cutaneous foetor, not unlike a raspberry; the word filben, or fevin, being the Highland appellation for a wild raspberry. Whence it has also been sometimes confounded with the yaw, a disease of the Highland climates, brought from Africa, and so denominated by the Negroes from the same fruit. See FRAMBOISE and YAW.

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 filben among the people of Ayrshire, which was afterwards published by the Philosophical Society of Edinburgh. (See Essays and Observations Physical and Literary, vol. iii. 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 ascertained, according to Dr. Paterson, that it was introduced into Ayrshire, 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, sometimes at different times; sometimes abating so much, both in virulence and frequency of occurrence, 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 soon discovered to be a formidable disease, resembling in character the venereal disease, and to be propagated extensively by its contagion, insomuch that, as Dr. Gilchrist expresses it, "great are the perplexity and diffrets, the suppuration 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 incurable venereal, 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 filben is almost always begins with an inflammation of the throat, fist on the uvula and velum pendulum of the palate, and afterwards on the tonsils, of a dark red colour, which is succeeded in one or two days, and sometimes so late as to end, 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 floghs, upon the roof of the mouth, and inside the cheeks and lips, which commonly fills itself also at the corners of the mouth, in a small rising of the skin, of a pearl or whey-colour; upon which part also a small fungous excrecence often appears, not unlike a raspberry, which changes to a scab, and is a pretty sure sign of the disease, although there be no aphthae 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 absorption of the poison, and a series of secondary symptoms appears. In some, and especially in adult persons, dark red spots, or sometimes fungous excrecences, arise about the anus and perineum, which gradually increase and ulcerate. But the most common appearances are eruptions of a pustular 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 size, 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, exhibiting a most intolerable and peculiar stench. In some children, indeed, the whole scalp has gauged, and the ears have nearly fallen off. Smaller ulcers have also formed on the breast and face, covered with a purulent flogh, remaining inert, without pain or inflammation, and seldom increasing in size.

In other cases, where the primary symptoms have been moderate,
SIBBENS.

moderate, and have subsided, the secondary symptoms, affecting the skin superficially, assume different forms. The whole surface of the body, Dr. Gilchriff says, has been observed to be mottled, of a dusky copper colour, or a dirty hue, as the discolorations of the skin in this disease 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 film covering 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 cluster, or clusters, 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. Scabous eruptions are often met with on the scalp, forehead, inside of the thighs, groins, and parts contiguous; where frequently small hardnecsses, rising just within the skin, excite a very troublesome itching. Besides the inflammation and excrences about the fundament already noticed, other appearances of the disease present themselves on the breast, shoulders, and elsewhere, especially a sort of herpes exudens, or spreading tetter, healing in one part, while it breaks out in another adjoining, and leaving a great deformity of the skin, after it cicatrizes. In a few cases, an eruption of tubercles occurs upon the face, rather numerous, and in figure and size 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 cases they have spread thickly over the whole body, and suppurred, not unlike the confluent small-pox, and have even proved fatal, as the swelling subsided; but in others, when not so numerous, they gradually decay, without coming to suppuration. In some persons there is a swelling of the surface, without any appearance of tubercles; in which case, the cuticle exfoliates from time to time in fine white reticulated flakes, as often as it is renewed. In other cases, 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 disease assumes still greater malignity, larger boils appear dispersed 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 scarcely bear- ing the mildest applications. Their edges are hard and ragged, their size various, and their appearance very malignant; so that Dr. Gilchriff says, when viewed finely, 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 disease to which they belong.

There is one symptom, not yet particularly described, but from which the disease takes its name, which remains to be mentioned. An itchy tetter, or a sort of ring-worm, breaks out in a circular form, which either spontaneously, or from being scratched, becomes raw and excreted, and does not scab, but continues to ooze out an ichorous hu-
pipe in soaking. When the body is warm, and the pores open, the tender skin of the lips and mouth is most disposed to receive the infection, which the heat, in labouring, will render more active and apt to be communicated. A girl, who had the thral to a great degree, at this season, spread the disease through a whole parish, where it was not formerly known."

Contagions of this sort are not usually communicable by effluvia; 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 infectious!" implying, however, his want of positive evidence on the subject. But Dr. Paterfon afferts, that "it is perfectly ascertained, that the breath of people, labouring under the sore throat, is loaded with infection, and communicates the disease, without the contact of ulcers." 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 poison, operating first locally, and afterwards constitutionally, and 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: whence several writers, and apparently Dr. Gilchrist among the rest, have deemed it a modification of syphilis. It was soon discovered, says this writer, "to be of the venereal kind, or the soul disease." Dr. Paterfon, 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 lues 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 blisters 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 deglutition, and its never appearing in a primary form on the genital, 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, that, of all the preparations of mercury, the corrosive sublimate, or oxymuriate, is the most 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 serve, according to Dr. Paterfon's suggestion, from the fibbens being a more superficial or cutaneous affection than syphilis. Dr. Gilchrist, however, considers it better to adopt the ordinary course of mercury, though not carried to the extent of high salivation, for the purpose of infusing regularity by means of confinement, without which, he says, it often fails, and the symptoms returned, rendering another course of medicine necessary. Experience shows, he says, that the disease is proof against all light administrations 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 eradicated by a regular course of medicine, judiciously adapted to the several degrees and circumstances of the malady.

As the extensive propagation of the disease in Scotland was ascribable to the uncleanly practices which prevailed among the lower classes of the people, such as using the same utensils in eating and drinking, passing the same pipe from mouth to mouth, sleeping in the same bed, using the same towel, &c.; so the most effectual check to the progress of the malady was to be expected from a system of prevention, which consisted in adopting a more decent and cleanly proceeding. Dr. Gilchrist recommended the persons employed in harvest-work, each to carry with him a dith, cup, knife, spoon, and a cloth to wipe them with, that all the party might not eat with the same utensils, and transfer contagion to one another. He also strenuously urged the impropriety of admitting that common familiarity, which every one claims by custom to kins 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.

SIBBIKITTIN, in Geography, a town of Africa, in Neola. N. lat. 12° 38'. W. long. 11° 35'.
SIBBO, a town of Sweden, in the province of Nyland; 10 miles S.W. of Borgo.
SIBBOLETH. See Shibeboleh.
SIBBUL, in Geography, a town of Africa, in the country of Barca; 25 miles W. of Augela.
SIBDA, in Ancient Geography, a town of Asia Minor, in Caria; one of the six towns which Alexander the Great placed in dependence on that of Halicarnassus.
SIBELLA, in Geography, a mountain of Calabria; 9 miles E.S.E. of St. Severna.
SIBENEN, a river of Switzerland, which runs into the Kander, 4 miles W. of Spiez.
SIBENTAAL, a town of Austria; 8 miles W. of St. Polten.
SIBERIA, or, as it is sometimes denominated, Asiatic Russia, is that part of the immense territory of the Russian empire, which lies to the E. of the Ural chain of mountains, by which the empire is interjected from N. to S. and thus divided into two parts, differing from each other both as to dimensions and quality. Siberia is described as a flat tract of land of considerable extent, declining imperceptibly towards the Frozen ocean, and by equally gentle gradations rising towards the south; where at last it forms a great chain of mountains, constituting the boundary of Russia on the side of China. The large portion of the habitable globe, now distinguished by the appellation of Asiatic Russia, extends from about the 37th degree E. longitude to more than 150° or 160° W. long.; and assuming the degree in this high northern latitude at 50 miles, the length may be computed at 4590 geographical miles. The greatest breadth from the cape of Cevro Vollochini, called in some maps Taimara, to the Altai mountains S. of the sea of Baikal, may be estimated at 28°, or 1680 geographical miles. In British miles the length, at a gross computation, may be
Slated 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 104 millions of square miles, comprehending within itself several kingdoms, taken by roving Kozaks (Colfacks) 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 farther eastern boundary is that of Asia, and the seas of Kamtchatka and Ochotók, and the northern is the Arctic ocean. On the W. the frontiers correspond with those between Asia and Europe, and the southern limits may be slanted more or less 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 Caspian, or desert of Tiflin, and the eastern shore of the river Ob, to its source in the Altaiian mountains, where it meets the vassal empire of China, and proceeds among that chain to the sources of the Onon, where it includes a considerable region called Dauris, extending about 200 miles in breadth, to the south of the mountains called Yablónoy; the limit between Russia and Chinese 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 Techuks in that part which is opposite to America, supposed to have migrated from that continent, in their persons and customs are different from those of the Asiatic tribes. Next to the Techuks, most remotely north, are the Yukaghs, a branch of the Yakuts, and further west the Samoyedes. South of the Techuks are the Koriaks, and further south the Kamtchadalas, who are a distinct people, and speak a different language. The Lamutes are a branch of the Mandhires or Tungus, who are widely diffused between the Yenisei and Amur, and the southern tribes, ruled by a khan, conquered China in the 17th century. The Ostiaks, and other tribes of Samoyedes, have penetratedconsiderably to the S. between the Yenisei and the Irtisch, and are followed by various tribes of the Monguls, as the Kalmucks, Burats, &c. and of those of the Tartars or Huns, as the Teluts, Kurgufes, and others. The radically different languages amount to seven, independently of many dialects and mixtures.

The vast extent of northern Asia was first known by the name of Sibir, or Siberia; but the appellation is gradually passing into disuse. When the Monguls established 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 Tiumen, about 180 miles S.W. of Tobolsk; but they afterwards removed to the eastern shore of the Irtisch, and there founded the city of Iker near Tobolsk. This new residence was also called Sibir, of unknown etymology, and the name of the city passed to the Mongul principality. Although this is doubted by Coxe, Pallas says that the ruins of Sibir are still visible 23 versts from Tobolsk, and that it gave name to the rivulet Sibirka, 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 diffused over the half of Asia. The principality established by the Monguls under Shebunin in 1242 in the western part of Siberia, around Tobolsk and the river Tura, from which it has been sometimes called Tura, has been already mentioned. The actual conquest of Siberia commenced in the reign of Ivan Vassiliievitk 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 1558 added to his titles that of lord of Sibir, or Siberia. Yarmak, a Collack chief, being driven, by the Rusillian conquests in the south, to take refuge, with 6000 or 7000 of his followers, near the river Kama, afterwards marched down the Ural chain, defeated the Tartar Kutchun, khan of Sibir, and pressed forwards to the Tobol and the Irtisch, and also to the Ob, and in this astonishing expedition, subdued Tartars, Vogules, and Oltiaks. Finding it impossible to maintain and complete his conquests with his small army, he surrendered them in 1558, by a formal capitulation, to the tzar Ivan Vassiliievitch, who nobly rewarded 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 Donnikol 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 Sibir in 1621, and at Tobolsk, where he resided, he drew up a narrative of the conquest. About the middle of the 17th century the Russians had extended east as far as the river Amur; but Kamtchatcha was not finally reduced till the year 1711. Behring and other navigators afterwards proceeded to discover the other extreme parts of Asia. In his first voyage of 1728, Behring coasted 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 visited in 1745; and in the reign of the empress Catharine II. other important discoveries followed, which were completed by captain Cook. In the south the Mongul kingdom of Kazan was subdued in 1552, and that of Astrakhan 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 Argoon to the mountain Sabystantab, near the conflux of two rivers with the Yenisei; the boundary being thus ascertained between the Russians and the Monguls subjected to China. The trade with China has been conducted at Zuruchait, on the river Argoon, N. lat. 55° E. long. 170°, and at Kichta, about 90 miles S. of the sea of Baikal, N. lat. 51° E. long. 168°. 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 lakes, particularly near the river Yenisei, representing rude sculpture human faces, camels, horses with lances, and other objects. Here are also found, besides human bones, those of horses and oxen, with fragments of pottery and ornaments of dews. The most singular ancient monument in Siberia is found on the river Ahakan, not far from Tomsk, 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 vassals of the sultan of Sibir. But the religious sentiments of the Chinese are the most prevalent; particularly among the Tartars, Finns, Samoyedes, Ostiaks, Mandhirs, Burats, and Tunguses;
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gues; and they have been adopted by the Koriaks, Tchucks, and people of the eastern isles. On the eastern coast of the sea of Baikal is the rock of the Schamans, an idol of a peculiar shape: whilst the Schamanists admit one chief infernal deity and his subalterns, authors of evil, they 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 sublmal spirits. See Schamans.

The archiepiscopal see of Tobolsk is the metropolis of the Russian Aia in the north, and that of Altarakhan in the south. There is another see, that of Irkutsk and Nerhinfs, 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 Kolivam, Nerhinfs, Yakutsk, and Ochotsk. In the S.W. is the government of Caucasus, 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 Asiatic Russia vary with the numerous tribes by whom it is peopled. The Tartars are the most numerous; next to these in importance are the Monguls, one tribe of whom, viz. the Kalmucks, are found to the W. of the Caspian, while the others, called Burats, Torgats, &c. are chiefly round the sea of Baikal. Further to the east are the Mandhurs or Tungusas. See these denominations respectively.

The languages of all the original nations of Asiatic Russia are radically different; and among the Tungusas, Monguls, and Tartars, there are some traces of literature, and not a few MSS. in their several languages.

The principal city of Asiatic Russia is Altarakhan, which see. Azof (which see) derives its importance chiefly from its being a fortified port. The chief towns on the Asiatic side of the Volga, are Samara and Stauropol. At the mouth of the river Urals, & Jaik, stands Guriief; but the chief place after Altarakhan is Orenburgh, founded in the year 1740, and the seat of a considerable trade with the tribes on the E. of the Caspian. Beyond the Ural chain the first city that occurs is Tobolsk; which see. 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 Tomisk. Farther to the E. the towns become of less consequence. On the river Yenisei is a small town of the same name, and another called Sayanik. On the river Angara stands Irkutsk, supposed to contain 12,000 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 see.

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 nankeen. That with the Kirgusses consists in exchanging Russian woollen cloths, iron, and household articles, for horses, cattle, sheep, and beautiful flocks.

On the Black sea there is some commerce with Turkey, the exports being furs, kaviar, iron, linen, &c. and the imports wine, fruit, coffee, milks, rice. In the trade on the Caspian the exports are the same, and the return chiefly silk. The principal Russian harbours are Altarakhan, Guriief, and Kiliari, near the mouth of the Terek, but the belt haven is Baku, belonging to the Persians. The Tartars, on the eall of the Caspian, bring the products of their country and of Bucharas, as cotton-furs, furfls, hides, and rhabarb; but the chief article is raw flilk from Shirvan and Ghilan, on the W. of the Caspian.

In Asiatic Russia the climate extends from the vine at the bottom of the Caucasus, to the solitary lichen on the rocks of the Arctie ocean. Through the greater part of Siberia, the most southern frontier being about 50°, and the northern ascending 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, untempered by the gales of the Atlantic. To the S. of the sea 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 incrase 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, or the province around Nerhinfs; and the numerous towns on the Amur exhibit the great superiority of what is called Chinese Tartary, which is comparatively a fertile and temperate region. The change of the feasons is very rapid; the long winter is almost instantaneously succeeded by a warm spring; and the quicksets 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 delimitative 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 morafles covered with moss, which would be absolutely impassible, 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 so wide a continent. Towards the S. there are vall forests of pine, fir, larch, and other trees, among which is a kind of mulberry, which might thrive in many climates that are now delimitative of it. The sublme 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 grow in southern Siberia. In some parts flax grows wild, and hemp is prepared from the nettle. Wood is found in Siberia, and fashion near the Caucasus. The belt rhabarb abounds on the banks of the Ural or Jaik, in the southern districts watered by the Yenisei, and in the mountains of Daouria. But it is not possible that agriculture should flourish while the peafany are flaves, and fold with the foil. Nevertheless, an intelligent traveller was surprized at the abundance of buck-wheat, 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 hauibois, 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 1,500 British miles in course; the Yenisei, about 1,750; and Lena, 1,570. To these we may add the Irtilf, the Angara, the Selenga, the Yaik, &c. The lakes of this country are numerous. The most considerable in the north of Siberia is that of Piaznikof; that of Baikal, described under that article; a large lake between the rivers Ob and the Irrilf, 170 miles long, divided by an island into two parts, called the lakes of Tchang and Soumi.
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 Altyn, called by the Russians Teletako. The mountains are the Uralian, the Altaian, Bogdo Alim, or the Almighty mountain, Sinina-Sekpa, Schlangeberg, which is the richest in minerals, the Sayanick mountains, the mountains of Nerhink or Russian Daoria, the chain of Stanvooi or mountains of Ochotchik, and Caucasus. For the fleapes of Russia, see Steppe.

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 office of the horse, the cow, and the sheep; the dog, Kamtschatka, which are used for carriage; the horse, which is found wild, a species of As, the urus or bilon, the argali or wild sheep, the ibex or rock-goat, large stags, the musk or civet, and wild boar; wolves, foxes, and bears; the fable, several kinds of hares, the catter 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 Nerhink, discovered in 1704, are principally of lead, mixed with silver and gold; and those of Kolyvan, chiefly in the Schlangeberg, or mountain of serpent, so called by the Germans, began to be wrought in 1748. The gold mines of Berefot are the chief in the empire; those of Kolyvan and Nerhink being denominated silver mines. Besides the copper mines in the Uralian mountains, there are some in those of Altai. But the iron mines of Russia are of the most solid and lapping importance, particularly those which supply the numerous foundries of the Uralian mountains. Rock-salt is chiefly found near the Iek, not far from Orenburg; Coal is scarcely known; but sulphur, alum, mal amniconic, vitriol, nitre and natron, are abundant. Siberia possesses a variety of gems, particularly in the mountain Adunfollo, near the river Argon, in the province of Nerhink or Daoria. 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 Adunfollo, and in greater perfection in the gems mines of Mourfintsey, near Catherinburg, along with the chrysolite. Red garnets abound near the sea of Baikal. The ruby-coloured schorl has been discovered in the Uralian mountains. The greenSIBIBOLOO, in Geography, a town of Africa, in the latitude of Mason, the government of which is a republic, or rather an oligarchy; 40 miles N.E. of Kamalia. SIBIL-EL-MULSIH, a town of Arabia, in the province of Hedja; 120 miles N.W. of Mecca. SIBILI, a town of Africa, in the kingdom of Bambara; 25 miles N.E. of Sego. SIBILIAKOVA, a town of Russia, in the government of Tobolik, on the Irtisch; 28 miles N. of Tar. SIBIRIXOA, a town of New Mexico, in the province of Cinaloa; 45 miles N.W. of Cinaloa. SIBINBAS, a town of Hindooftan, in Bengal; 10 miles E.N.E. of Kihenagur. N. lat. 23° 25'. E. long. 88° 50'.

SIBOOCKO, a town on the E. coast of the island of Borneo. N. lat. 4° 24'. E. long. 117° 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 SABARDI, in Ancient Geography, a place which terminated the land of promive towards the north. Ezekiel says (xlvii. 16.) that this city was between the confines of Hamoth and Damaucus, probably the same which Abulheda calls Houren, a village of the country of Emir, or Hamoth, S.E. of that city. SIBSIB, in Zoology, an animal of the empire of Morocco, abounding in the mountains of the province of Sufa; of an intermediate species between the cat and the fquirrel; somewhat similar to the ichneumon in form, but not half its size; it inhabits the Atlas, and lives in holes, among the flowers and caverns of the mountains; it has brown hair, and a beautiful tail, resembling that of a fquirrel, about the length of its body. The Shellufakes 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 stone, or flat

The islands belonging to Asiatic Russia may be distributed into the Aleutian, Andrenovian, and Kurilian groups, with the Fox isles, which extend to the promontory of Alaka in North America. See these articles respectively. For further particulars respecting Siberia or Asiatic Russia, see RUSSIA. See also Cooke's Russian Discoveries; Cooke's Russ. Emp.; and Pinkerton's Geog. vol. ii.

SIBERIAN Kozaks, or Cofuck, a branch of the Don, so called by the Germans, who, intimidated, in the year 1577, a considerable army, and got together a fleet of ships to chastise these audacious robbers. These robbers, 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 some as much superior to the common black oat as the Poland fort is to others. It has the advantages of being capable of being found with safety in December, and of being fit to cut as soon as 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 straw is said to make excellent fodder for live-flock of the next cattle kind.

SIBIVOLOO, in Geography, a town of Africa, in the latitude of Manding, the government of which is a republic, or rather an oligarchy; 40 miles N.E. of Kamalia. SIBIL-EL-MULSIH, a town of Arabia, in the province of Hedja; 120 miles N.W. of Mecca. SIBILI, a town of Africa, in the kingdom of Bambara; 25 miles N.E. of Sego. SIBILIAKOVA, a town of Russia, in the government of Tobolik, on the Irtisch; 28 miles N. of Tar. SIBIRIXOA, a town of New Mexico, in the province of Cinaloa; 45 miles N.W. of Cinaloa. SIBINBAS, a town of Hindooftan, in Bengal; 10 miles E.N.E. of Kihenagur. N. lat. 23° 25'. E. long. 88° 50'.
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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 that it is said to resembach 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. Humphry 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 whence he was removed to the school at Lincoln. In due time he entered at Lincoln college, Oxford; but upon obtaining the Radcliffe 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 imbibed 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 considerable time at Montpellier, where he formed an intimacy with the amiable Brouillonet, (see PAPYRUS,) collected many plants of that country, and communicated to the Académie 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 SHERARD, and SIBTHORP.) It was perhaps the last service he expected from it, for he was a favourite son, and had besides an ample independence of his own in prospect, from the estate of his mother, who was his father's second wife. These expectations, and his academical 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 he ever, to his last hour, disposed to shrink 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 sold, by private contract, to the writer of this article. The professor was commendably desirous of adding so 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, just then formed, between the parties concerned, which continued increasing during their joint lives.

Dr. Sibthorp passed a portion of the year 1784 at Gottingen, 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 Jacquin, father and son; studied with peculiar care the celebrated manuscript of Dioscorides, which has so long been preserved in the imperial library; and procured a most excellent draughtsman, Mr. Ferdinand Bauer, to be the companion of his expedition. On the 6th of March, 1786, they set out together from Vienna, and passed through Carniola to Trieste, Venice, Bologna, Florence, Rome, and Naples, examining every thing that was curious, and keeping an exact record of their botanical observations. After viewing the celebrated environs of Naples, they failed from thence early in May, and touching at Melfina, as well as at the isle of Mikon, they proceeded to Crete. Here, in the month of June, our botanical adventurers were welcomed by Flora in her gayest attire. The snowy covering of the Sphacete mountains was withdrawing, and a tribe of lovely little blossoms were just peeping through the veil.

Having narrowly escaped shipwreck, in returning to Mikon 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 folk of Shera and Harfeqquq, proceeded by land to Burfa, climbed the Bithynian Olympus, 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 Bujukerdi, March 5, the plants found in flower were almost entirely the same as are met with, at the same season, in England. Dr. Sibthorp's residence at Constantinople, or in the neighbouring isle of Karke, proved favourable to his investigations of the flies and birds of those regions, by which he was enabled to throw much light on the writings of ancient naturalists.

On the 14th of March, 1787, having joined company with captain Emery and Mr. Hawkins, Dr. Sibthorp and his draughtsman failed 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 Fauna and Flora of that island. The former consists of 18 Mammalia, 85 Birds, 19 Amphibia, and 100 Fishes; the latter comprehends 616 species of plants. The particular stations, domestic and medical tisues, 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 same method is pursued, in a subtile part of this journal, respecting 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 isles. 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 Graecae comprihes about 850 plants. "This," 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 Parmaus, on the steep precipices of Delphi, the empurled mountain of Hymettus, the Pentele, the lower hills about the Pirus, the olive grounds about Athens, and the fertile plains of Boeotia. 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 bashaws, and the plague at Larissa, rendered my project impracticable." Of the Mammalia of 4 N Greece,
Greece, 37 are enumerated, with their modern names, 25 reptiles and 82 birds. All these catalogues were greatly augmented by frequent observations, in which the number of species, collected from an investigation of all Dr. Sibthorp's manuscripts and specimens for the materials of the Prodrumus Florae Graeciae, 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 to the mountains of 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 Brindisi, 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 university, gradually receded 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 Limnean and Bankian herbariums, for the removal of his difficulties; all together filled up his leisure hours. He was ever where welcome 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 Limnean Society, founded in 1788. In the spring of the year last mentioned, the writer of this, with Sir Joseph Banks and Mr. Dryander, passed 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, wanted at this truly attic entertainment. But the greater these acquisitions, the less was their possessor satisfied 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 he was placed, a few years after his return, in very affluent circumstances; 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. Lifdon, ambassador 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 fatigues of the journey, which had brought on a bilious fever. He soon recovered his health at Constan
tinople, 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 Argyraí, who had known the Danish traveller Forskall, and who possessed some works of Linnaeus.

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 8th of September. Palling down the Hellepont, on the 12th, with a light but favourable breeze, they anchored at Koom Cale, in the Troad, spent two days in examining the plains of Troy, and then proceeded to the isles of Imbras and Lemnos. On the 25th they anchored at mount Athos, and passed 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 descants 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 the 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 7th of October, and on the 17th landed at Skiatho. From hence, on the 11th, they proceeded down the strait of Negropont, and on the 13th passed under the bridge of five arches, which connects that island with the mainland of Greece. On the 15th, at noon, they entered the harbour of the Pyrrus, 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 streets of the Cephissus, the heights of Helicon and Parnassus 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 furnished Dr. Sibthorp with an ample and splendid herbarium, of the plants of that island, with their modern Greek names; nor did the winter pass unprofitably or unpleasantly in this fecular spot; where neither agreeable society, nor copious information relative to our learned travellers' various objects, was wanting. The fea 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 somewhat 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 poetical Narcissus, decorated in profusion the banks of the Alpheus. The barbarian horse, under whose charge they were obliged to travel, had taile enough to collect nosegays of these flowers. The oaks of the Arcadian mountains presented them with the true ancient Mifeltoe, Loranthus europæus, which fill serve to make birdlime; whilst our Mifeltoe, Pifium album, in Greece grows only on the Silver Fir. May not this circumstance account for the old preference of such Mifeltoe as grows on the oak, among the ancient Britons, and consequentlv help us to trace the origin of their superstitious to Greece? (See Druids.) The Jay, still called by its ancient

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ancient name Kexa, which is generally taken for the Magpie, was feeding among these oaks; and the Water Ouzel, Sturnus Cinclus, flying along the rocky sides of the alpine rivulets of Arcadia, prefixed itself to Dr. Sibthorp's collection, as probably the White Blackbird, which Ariosto says is peculiar to the neighbourhood of Mount Cyllene. In vain did our classical travellers look for the beauty of Arcadian shepherdesse, or liften for the pipe of the sylvan swain. Figures emaciated, and features furrowed, with poverty, labour and care, were all that they met with. The vermin of the Pachas court, with other vermin, who presume to call themselves Christian bishopps, and whole places are all bought of the Turks, devour the substance 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 lions, which Paulusiana describes as the work of the Cyclops; and near it the reputed tomb of Agamemnon, a circular building, formed of immense masses of stone, placed with such geometrical precision, though without mortar, that one who had given way, that it forms the tomb, is described to Dr. Sibthorp as the largest stone he ever saw employed in any structure. A number of fragments of vases, like those commonly called Etruscan, lay among the ruins of Mycenæ. At Hermione, now called Caltris, in the Argolic peninsula, famous for the purple dye newly prepared there, a vast pile of the shells from which that dye was obtained, and still denominated Perpbyri, served to ascertain the species, which is Murex trunculus of Linnaeus, figured by Fabricius Columba in his rare and learned work, de Purpura, under the name of Purpura nostra vio- lacea. (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 escort 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 craggy 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 degrancy. 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 Maira, though governed by a Bey, is under the control of eight subordinate, 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 billy, and lately defenced. Taygetus, the highest mountain in the Morea, and almost rivaling Paros, 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 danel, still called aupa, 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 purge. This proved Euphorbia Apias, to which the very fame properties are attributed by Dioscorides.

From Cardamoula the travellers were escorted by the dependant of this hospitable Grecian chief, along a precipitous road, to Miltia, 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 surveying from the summit of a neighbouring precipice the ruins of Melissia, with the rich plains watered by the Panipes, and bounded by the hills of Laconia, Dr. Sibthorp and Mr. Hawkins hastened to Corone, where a Venetian vessel waited to convey them to Zante, which place they reached on the 29th of April. Here Dr. Sibthorp parted from the faithful companion of his tour, whom he was desirous 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 1st of May, experienced a most tedious voyage of twenty-four days to Otranto, though five days are the most usual time for that passage. He touched at the isand of Cephalonia, and next at Preverfa, on the Grecian shore, where being detained by a contrary wind, he employed the 7th of May in visiting the ruins of Nicopolis. The weather was unfavourable, and Dr. Sibthorp here caught a feverish cold, 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 isand of Fanno, 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 cast anchor in the port of Otranto 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. Thence he passed through Germany and Holland to England. Of the precise time of his arrival we find no mention. It was in the autumn of 1795, and his few succeeding months were chiefly marked by the progress of an unconquerable disease, for which the climates of Devonshire and Bath were, as usual, reforted to in vain. He died at Bath, February 8th, 1796, 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 12th, 1796, he gives a freehold estate in Oxfordshire to the university of Oxford, for the purpose of first publishing his Flora Graeci, in 4to folio volumes, with 100 coloured plates in each, and a Prodromus of the same work, in 8vo. without plates. His executors, the honourable Thomas Wenman, 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 present 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 difficulties of such as were new, and all critical remarks, have fallen to the lot of the editor, who has also revised the references.
ferences to Dioscorides, and, with Mr. Hawkins's help, corrected the modern Greek names, which last were necessarily taken down but incompletely, from many iliterate and imperfect authors, on the spot. When these publications are finished, the annual sum of 300l. is to be paid to a profess of 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 defined to purchase books for the professor; and the whole of the tellator'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. Roberton of Stockwell, whose ill-made will was set 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 difpofed 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 epenmed a more fortunate measure. S.

SIBTHORPIA, 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 Epistles ad Hallerum. In this he modestly expresses a wish that he were equal to the task before him. However imperfect his claims to botanical celebrity, his fon has conferred more honour on the above name than either of them could derive from it; see the preceding article.—Linn. Gen. 320. Schreb. 418. Willd. Sp. Pl. v. 3. 340. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 667. Prodr. Fl. Græc. Sibth. v. i. 439. Ait. Hort. Kew. v. 4. 51. Jaff. 99. Lamarck Illust. t. 555. Géran. t. 55.—Clas and order, Didynamia Angioferma. Nat. Ord. Perf. Nat. Pediculatæ. Jull.

Gen. Ch. Cal. Periánth inferior, of one leaf, turbinate, in five deep, ovar., spreading, slightly unequal, permanent segments. Cor.: of one petal, bell-shaped, in five deep rounded segments; the three uppermost largest, equal to the calyx; two lower ones shorter, and less coloured. Stams. Filaments four, awl-shaped, not half the length of the corolla, scarce visibly unequal, spreading, two at each side, opposite to its lateral stigmas; anthers roundish, two-lobed. Pet. Germen superior, roundish, compressed; ryle 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. Seeds: few, roundish-oblong, convex on one side, flat on the other, inferted into a globose central receptacle.


1. S. europaea. Sibthorpsia, or Cornish Money-wort.
of their enterprise, and who lived, according to Eusebius, not in the time of the Trojan war, as Varro believes, but under the reign of Romulus; Samian, called, according to Suidas, Pitto, or Perfusion, and according to Eusebius, Erikeph; Cumæan, named Amalaeth by some authors, and by others Demophilus or Hierophylus, who is said to have offered to Tarquin the Elder a collection of Sibylline verses, in nine books; Hellepontic or Troyad, born at Marpeus, near the town of Gorgis, in Troas, who lived, according to Heraclides, in the time of Cyrus and Solon; Phrygien, who gave her oracles at Ancrea, the place of her residence; and Tiburtine, named Albunea, and honoured as a divinity in the vicinity of the river Anio. Of these, the most celebrated are, the Erythrean, Delphic, and Cumæan Sibyls.

Some modern authors, without regarding the authority of Varro, or that of the other ancients, are for uniting 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 she uttered her oracles. She first published her predictions in the city of Erythrea, the place of her nativity; then rambled about the world, and closed her life at Cumæ, 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 constellation Virgo a bright star, which the Persians called Sambula, denoting, in their language, a serpent, or an ear of corn; and remarks, that the Persians, who were fond of judicial astrology, looked on the sign of the Virgin as having a greater power than all the other celestial 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 persons, who were reputed to have a particular fore-knowledge of futurity, and whose predictions, carefully collected, were consulted upon important occasions. The Perian 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 possible veneration for the Sibyls; and if they did not always regard them as divinities, they at least reputed them of a middle nature between gods and men; and some of them received divine honours. Laetanius says, with confidence, that the Tiburtine Sibyl was worshipped as a goddess at Thibur. Some of them also had temples. Julius Martyn mentions that of the Sibyl of Cumæ, 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 Templum Sacertos," Æn. 1. 6. We may here add, that the inhabitants of Gorgis, in the Leisyr 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 infinite care; and nothing of moment was undertaken without consulting them. Tarquin first committed them to the custody of two patrician priests, instituted for that purpose. (See Duumviri Sacrum.) How, when, or by whom this collection was made, are circumstances which authentic history has not ascertained. It is not likely that the Sibyls prophesied in verse, for lest that they themselves kept their predictions, and digested them into 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 these verses in nine books, or three according to Pliny; and that she demanded for them 300 pieces of gold; that when the prince refused to give that sum, she threw three of them into the fire, and asked the fame sum for the remaining six, which being refused, she turned three more, and perfisted in asking the same sum for those that were left; at length the king, fearing that she would burn the other three, gave her the sum which she demanded. Although this story has very much the air of a romance, it is attested 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 set on fire, and burnt down to the ground, these books were burnt with it. This happened in the year before Chrîst 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, unuit 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 defrayed a great multitude of copies which were brought in. Tiberius caused many more to be burnt, and preserved 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. 399, issued an order for destroying them; in pursuance of which, Stilicho burnt all these prophetic writings, and demolished the temple of Apollo, in which they were reposed. Nevertheless, there is still preserved, 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 130; 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 Julius Martyn, 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 ancients; and that the most ancient

Christian
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 deferred; for Dr. Lardner says, that he is well satisfied that the Sibyline veris quoted by them are the forgery of some Christian. The ancient Sibylline veris did not recommend the worship of the one God, condemning all manner of idolatry, as those do which are cited by Julian, Theophilus, and Clement. It must be owned, however, that Clement calls the Sibyl a prophetess, and seems to quote her veris 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 these Sibylline veris till they were found out, or rather forged, by some Christian, and then incanunently and imprudently recommended by others. Julian Martyr seems to have been the first Christian writer who quoted the collection now existing of Sibylline oracles, or any Sibylline veris 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 similar 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, 8c. Lardner's Credib. of the Gospel Hist. vol. iv. book i. cap. 29, or Works, vol. ii.

**SICABA**, in Geography, a town on the north-west coast of the island of Negroes. N. lat. 11° 26'. E. long. 123° 2'.

**SICAE**, in Ancient Geography, a town of Thrace, called in the time of Steph. Byz. Julitianae. — Alfo, a town of Asia, in Cilicia. — Alfo, the name of a place in the vicinity of the town of Alexandria.

**SICAL**, or **SISAT**, in Geography, a town of Mexico, on the north coast of the province of Yucatan; 60 miles N.W. of Merida.

**SICAMINUM**, in Ancient Geography. See **CAIPHA**.

**SICAN**, in Geography, a town of Peruia, in Khoraffan; 15 miles S.W. of Zauzan.

**SICANDERAB**, a town of Hindoostan, in Doob; 36 miles W.N.W. of Pattiany.

**SICANE**, in Ancient Geography, a town of Spain. Steph. Byz. — Alfo, a river of Sicily, which ran near Agrigentum.

**SICANUS**, a town of Spain, according to Ptolemy.

**SICAPHA**, a town of Africa Proper, being one of those which were situated between the two Syrtis. Ptol.

**SICARD**, **CLAUDE**, in Biography, a Jesuit missionary, was born at Aubergne, near Marleilles, in 1677. He entered into the society of Jesus in the year 1699, and for several 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 des Millions de la Compagnie de Jefus dans les Levant," in which are likewise published his "Plan of a Work on Egypt, ancient and modern," and "A Differtation on the Passage of the Red Sea, and Journey of the Israelites."

**SICARIO**, in Ancient History, affilains of Judea, who went about the country for the accomplishment of their nefarious purposes, with short swords concealed under their clothes. Josephus has described them in the most odious colours. Eleazar, he says, the chief man among them, was a descendant of Judas, who had perfidled not a few of the Jews not to enrol themselves, when Cyrenius the censor was sent into Judea. For then the Sicarii conspired against all who were willing to submit to the Romans. They treated all such as public enemies. But other pretences were proffed, 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 affilains, 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 paffing unpunifhed, the robbers afterwards attended the feats with no fome concern, and carrying, as before, swords under their clothes, and mixing with the multitudes, killed several people, and whom they reckoned their enemies, and fome whom they were hired by others to deflroy. This they did, not only in other parts of the city, but within the bounds of the temple itself. Joseph. De Bell. Jud. l. vii. c. 8. § 1-5.

**SICASICA**, or **CICASICA**, in Geography, a town of South America, and chief place of a jurisdiction of the fame name, in the government of Buenos Ayres, 240 miles in extent; 40 miles N.N.W. of Oruero.

**SICAYAP POINT**, a cape on the north-west coast of Mindanao. N. lat. 8°. E. long. 123° 32'.

**SICCA**, a town on the north coast of the island of Sumbatra. N. lat. 1° 32'. E. long. 110° 40'.

**SICCA**, a town, in the island of Sumatra. N. lat. 35° 68'. E. long. 13° 53'.

**SICACOLLOM**, a city of Hindoostan, in the cir- cock of Conadipally, on the Kilkhan; 35 miles S.S.W. of Ellorc.

**SICCAPILLY**, a town of Hindoostan, in Myfore; 25 miles N.N.W. of Chinda Balabaram.

**SICCA-VENERE**, KEFF, in Ancient Geography, a town of Africa, situated about five leagues S.W. of Lusibus 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, a word used by some writers to express that uncainis at the stomach, and lodging of food, which women are often afflicted 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 Jenoa Antiquities. The Hellenistic Jews give this name to any intoxicating liquor. St. Chrysostom, Theodore, and Theophilus of Antioch, who were Syrians, and who therefore ought to know the significance and nature of sicera, allow us, that it properly signifies palm-wine.

Pliny acknowledges, that the wine of the palm-tree was very well known through all the East, and that it was made by taking a buffet of the dates of the palm-tree, and throwing them into three gallons of water; then squeeving 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.

SICHAR, in Ancient Geography. See the next article.

SICHEM, or SHECHM, called also NEopolis, Sicar, or Sychar, and Mahaneth, a town of Judea, in the tribe of Ephraim, which took up the south side 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 here. (Gen. xlvii. 2.) Near the same city was Jacob's well or fountain, at which Jesus discourse 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 Kohath, the first of the Levites; and it was appointed to be one of the cities of refuge. (Josh. xxiv. 1.) It was at Sichem that Joshua assembled the tribes of Israel (Josh. xxiv. 1), to renew the 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 ruin of Samaria by Shalmanezer, Sichem was the capital of the Samaritans; and Jophesus says (Antiq. lib. xi. cap. 8.), that it was in the time of Alexander the Great. It was distant, according to Eusebius and Jerom, 10 or 12 miles from Shiloh, 40 from Jerusalem, and 52 from Jericho. Jerom says, that Paul 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 Pocas, who wrote in the twelfth century. Sichem or Sichar is now Napluo, or Nabul; which see.

SICHEM, or SHECHM, in Geography, a town of France, in the department of the Dyle, on the Domm; 30 miles N.E. of Bruxelles.

SICHERFREUTH, a town of Germany, in the principality of Bayreuth; 3 miles S.E. of Bayreuth.

SICILL. See SICILLI.

SICILLIAN, a river of Russia, which runs into the Ochotkoi sea, N. lat. 50° 28'. E. long. 152° 14'.

SICHIIOU-LI-HOTUN, a town of Corea, in the sea of Japan. N. lat. 42° 20'. E. long. 135° 29'.

SICHOW, a town of Bohemia, in the circle of Bohelin; 3 miles N.N.W. of Turnau.

SICTELEN, See SUCHTELEN.

SICHU, a town of Mexico, in the province of Mechoacan; 120 miles N.N.E. of Mechoacan.—Also, a town of Mexico, in the province of Guadalou, 150 miles W.S.W. of Panuco.

SICIGNANO, a town of Naples, in Principato Citra; 10 miles W. of Cagnano.

SICILIAN Mefasures, Silk, and Veffers. See the Subtainties.

SICILIANA, in Botany, a name given by Donouzeus, and some other authors, to the great arthrofeum, called tufion, and park-leaves.

SICILIANA, a pastoral movement in a flow jing-time of . The character of this movement requires a point to the third note of almost every triplet. Nothing is more pleasing than the Sicilian strains of great masters. Handel hardly ever fails rendering them characteristically, touching, and pleasing; such as "He shall feed his Flock like a Shepherd;" "Let me wander not unseen," &c.

SICILIANE, or PASTORALE, a kind of simple rural music, refounding in Chrismas time through all quarters of Naples, and executed by Abruzeze or Calabrian shepherds, upon a species of bag-pipes, called in Abruzzo zampane, and ciarameli 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 boldness of their own genius inspires. The boys learn of their fathers to play upon this instrument, as the means of subsistence. The waits, still 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 drachms 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 170 British miles in length, and 70 in medial breadth. Swinburne reckons its greatest length at 210 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 between the promontories of Pelorus in Sicily and the Lode di Volpe, or Foxes' Tail, in Calabria, is nearly a mile. Many of the ancient historians and poets have stated that this island was 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 agro Brutio adnexa." To the fame purpose Virgil (Aen. i. iii. v. 414) says:

"Hae loca vi quondam, et valls convulsus ruina
Diluvii ferunt, cum protinus utraque Tellus
Una fortis. Venit medio vi pontus et undis
Helpefum feculo latus abfcidit."

Sibus Italicus details this event more at large (lib. xiv.):

"Autem pars magna jacet Trinacria Tellus
Ut femel expugnata nata, et vallatibus undis
Acceptid frete curulis propilia tradente,
Namque per occultum carca vi turbinis olim
Impactum Pelagus lacera viridex terrae
Difidet, et medio primum arva profundo,
Cum populus pariter convultas tranquillit urbes."

Claudian affirms poetically,

"Trinacria quondam Italici pars fuit."

Pliny,
Pliny, Strabo, Diodorus, and many others, both historians and philosophers, are of the same sentiments, and pretend that the Ærata on the opposite sides of the Ærata agree perfectly; and some imagine, that this separation is recorded in the name given to Rhegium, a town of Brutium.

With regard to the breadth of the Ærata that separates Sicily from Italy, Silius fays, ubi supra:

"Sed spatium, quod diversaùm constricta terre,
Latras fama elt (sic arcta intervenit unda),
E: mutatius voluerunt transeunte cantho."

And some persons have even affirmed, that not only the crowning 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:

1. Eryx, near the sea and Drepanum, celebrated for a temple of Venus; Cratas, towards the north, in which are the fountains of the Eleutherus and Himera, and those of Hypa, which flows towards the south; the Gemelli colls, more southerly than the chain of Cratas, in which is the source of the Camicus, and of other rivers; the Nebrodes, northwards and east of the preceding; Maro, still more to the east; the Herae, from south to north, between the sources of the Himera to the west, and those of Simathus to the east; and also the famous mount Ætna; which fee.

Among the rivers of Sicily noticed by the ancients, we may enumerate, on the eastern coast, the Simathus, which rises west of Ætna, and south of the town called Engyum, runs towards the south-east, receiving in its course the Chryfas, and discharges itself into the sea near to and north of Murgentium; and the Mela, south of the preceding, and running in a straight direction from west to east; and on the southern coast, the Himera, which has its source in mount Artemus, in the environs of Enna, and flows into the sea at Phθgia; and the Hypa, which proceeding from the interior of the island, flowed into the sea near to and east of Selinus.

The principal places in ancient Sicily are enumerated and briefly described under their proper names in different parts of the Cyclopædia.

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 Leltrygons. It was afterwards called Sicana and Sicily, from the names of its possessors. The Phaenicians 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 Ærone of the Doric order; and, in the progress of time, they shared the government of it with the Carthaginians. These new conquerors, who about 510 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 Mamertins 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 successfu 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 setting 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 those 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 sunk into neglect; the arts were no longer held in estimation; and talents disappeared on the access 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 preserved them from both civil and foreign foes, except in two instances of a servile war. But the incapacity 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 200 years. In 1038 George Maniaces 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 value of some Norman troops, with success. Maniaces recompensed them with ingratitude; and by his conduct allowed the Minilmen 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 1072, as Swinburne says, surrendered the rich prize; though others say, that they lost the possession of it A.D. 1048. Robert ceded it to his brother Roger, who assumed the title of great earl of Sicily. This first sovereign fayed the sceptre with wisdom and glory, and defervely ranks among the greatest charac-
ters in history. He was succeeded by his son Simon, who, after a short reign, made way for a second son called Roger, the first king; who, in 1127, joined to his Sicilian dominions the whole inheritance of Robert Guiscard, and assumed the regal title. Roger, it is said, was named king of Sicily by the pope, A.D. 1130. During his reign, Sicily enjoyed profound peace. The reign of his son William I, who ascended the throne in 1154, was a period of war and confusion. During the reign of Frederick I, a German, the Saracens, who had revolted, were removed to Puglia, 400 years after the conquest of Sicily, by their ancestors. The Norman line continued till their kingdom was subdued by Henry VI. emperor of Germany. After the battle of Benevento, Sicily submitted to Charles of Anjou, a prince of the French line, A.D. 1266, and having endured quietly for a considerable time oppression and wanton cruelty, at length determined to emancipate itself from its tyranny. Accordingly an insurrection took place in 1282, and after the Sicilian vassals, the insurgents offered their crown to Peter I, king of Aragon, who accepted and defended it against all the efforts of his antagonist, and the thunders of the Vatican.

On the death of Alphonso the Magnificent, who succeeded his father Ferdinand I of Castile, Naples was added to his other dominions; and after his decease in 1458, the history of Sicily becomes interesting. At the peace of Utrecht, Sicily was ceded to Victor, duke of Savoy, who soon after was compelled by the emperor Charles VI. to relinquish it, and accept Sardinia as an equivalent.

For further particulars relating to the history of Sicily, we refer to Naples.

The climate of Sicily is very hot; the thermometer at Palermo varying in June and July from 73° to 86°, and when the fierce 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 shade is refreshing. The appearance of winter is only seen in the snow that falls on the summit of Mount Etna. (See that article.) Although the island, in many parts of it, the aspect of a rock, the soil is singularly fertile, but it is not now cultivated as it was formerly, when it was reckoned the granary of Rome. The crops of wheat are still so abundant, notwithstanding the opprobrium of the government, as not only to supply the wants of its own inhabitants, but to afford a large surplus for exportation; and if this island enjoyed the blessing 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, says Brydone, 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 several years past, or, at least, to all such as were not able to pay most exorbitantly 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 contributed 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 granaries are so contrived, by excluding the air and keeping the grain dry, as to preserve it for many years. Large quantities of barley and pulse grow in Sicily, but very little oats or millet. Canary-bird feed is exported to a large amount, and is almost peculiar to this island. Large quantities of oil are exported from places on the north side of the island. Wine and brandy are exported in great abundance; and the wines are very various. The fisheries, also, are very productive, and great quantities of tunny, anchovies, and sardines, are fished, and sent from the vicinity of the places where they are caught.

The art of manufacturing silk, and of the management of the silk worms that produce it, was established here by Roger, king of Sicily, and it was communicated from hence to the western countries of Europe.

Silk is considered as the second great source of riches to Sicily, corn being undoubtedly the first: a quantity of silk, equal in value to a million of ducats (187,500l.) is annually exported. Palermo and Messina alone lend it out; a considerable quantity of the materials is manufactured in both places; but Palermo, which employs nine hundred looms, exports very little, most of its silks being used at home. Messina employs twelve hundred looms, and Catania rather more. In the Messine manufactures a variety of silks is made, but the silk is seldom well made, dyed, or matched, and the work is apt to prove hard and to rub. Most of it goes to the Levant.

A large quantity of barilla is shipped from the southern coast. The white and heavy felt is produced at Trapani. This island also furnishes licorice, hare and rabbit-skins, rags, sulphur, &c. for exportation.

Soda is a commodity of which they have an ample supply, and they every year lend great quantities of it to the glass-works at Venice. They have likewise a considerable trade in liquors, rice, figs, raisins, and currants, the bulk of which grow among the distinguished volcanoes of the Lipari islands.

Their honey, which is gathered three months in the year, viz. July, August, and October, is very highly flavoured, and in some parts of the island superior to that of Minorca.

Although sugar is now no article of Sicilian commerce, enough is made for home consumption; and the sugar-cane is said to thrive very much in several parts of the island. It is said, that towards the north of Sicily they find the shell-fish that yields a kind of wax, of which gloves and stockings are made. Their plantations of oranges, of which 2000 chests are shipped annually from Messina, lemons, bergamots, almonds, &c. afford no inconsiderable branch of commerce. The pistachio-nut is likewise much cultivated; their manna and alum are likewise very profitable. The cantharides fly, which is found on several trees of Etna, is also a Sicilian commodity. These cantharides are said to be preferable to those of Spain. Sicily abounds with mineral springs of both hot and cold water; some of which throw up an oil that is applicable to various purposes. The marble of Sicily would afford a great source of opulence, if there were any encouragement to work the quarries; and they have also other stones that are serviceable in a variety of ways.

It would, however, be endless to give an account of all the various commodities and curious productions of this island; Etna alone affords a greater number than many of the most extensive kingdoms, and it is the epitome of the whole earth in its fossil and mineral climate, than in the variety of its productions. Besides the corn, the wine, the oil, the silk, the spice, and delicious fruits of its lower region,—the beautiful forests, the flocks, the game, the tar, the cork, the honey, of its second,—the snow and ice of its third; it affords from its caverns a variety of mineral and other productions; cinabary, mercury, sulphur, alum, nitre, and vitriol; so that this wonderful mountain at the same time produces every necessary, and every luxury of life.

Its first region covers its tables with all the delicacies that the earth produces; its second supplies them with game, cheese, butter, honey; and not only furnishes wood of every kind
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 confines 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 buxomity of other places on the coast confines solely in shipping corn, wine, salt, &c. Trapani, on account of its famous salt-panes 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 40,000 ecclesiastics, and 110,000 inhabitants of Palermo. In 1615 it contained 1,107,234; in 1595, 488,500, without reckoning the inhabitants of Palermo or Messina. When Mr. Brydone visited the island in the year 1770, he says that the inhabitants, by the last enumeration, amounted to 1,123,163, 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 Demona, 313 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 braccio ecclesiastico: 58 princes, 27 dukes, 37 marquises, 27 counts, 1 viscount, and 79 barons, form the militaire; and the demaniale consists of 43 representatives of free towns. Out of each braccio 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 archbishops and seven bishops.

The following tables shew the coins, weights, and measures of Sicily.

**Tables of Sicilian Coins.**

**Gold Coins.**

1. Piece of 6 ducats, or double ounce.
2. Piece of three do. or onza.
4. Piece of one ditto and a half.

**Silver Coins.**

- Scudo, equal to 12 taris.
- Ducat - 10.
- Mezzo scudo - 6.
- Terzo di scudo - 4.
- Piece of three tari - 3.
- Of two tari, equal to the tari of Naples.
- Of one tari, equal to the carlini of Naples.

**Bronze Cents.**

- Grano, equal to six Neapolitan calli, or half a grano.
- Mezzo-grano, equal to three calli of Naples.

Other subdivisions are seldom met with.

- The ounce, or onza is equal to 3 ducats, or 30 taris.
- The scudo - 12 taris.
- The ducat - 10 taris.
- The tari - 20 grano.
- The grano - 6 piccoli.

Accompts are kept in onza, tari, and grano. As an average, the ducat is worth forty-five pence English money.

**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 trapezi.

   This cantaro is equal to 1714 pounds avoidupois weight.

2. Common.
   - 1 Cantaro contains 100 rotoli.
   - 1 Rotolo - 30 ounces.

   This cantaro is equal to 178 pounds weight avoidupois.

**Dry Measure.**

- 1 Salma generale contains 16 tomoli—equal to 26 Wincheller bushels, used in measuring wheat.

- 2 Salma a la groffa contains 16 tomoli—equal to 24 Wincheller bushels, used for barley, beans, &c.

**Liquid Measure.**

- 1 Califis weighs 18 pounds avoidupois.

**Wine.**

- 1 Salma contains 8 quartari.
- 1 Quart contains 12 quartari.

**Lineal Measure.**

- 12 Oncia make 1 palmo, equal to 10 inches 3 lines.
- 8 Palmi make 1 canna, equal to 6 feet 8 inches.

Besides the obligations which the Romans had to the Etruscans and Greeks for their tale 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 state of Greece which produced men of more eminence in all the arts and sciences than Sicily, which was a part of Magna Grecia, and which having 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 tyrants of government with which they were oppressed. Fabricius gives a lift of seventy Sicilians who have been celebrated in antiquity for learning and genius, among whom we find the well-known names of Æclitus, Diocorus Siculus, Empedocles, Gorgias, Euclid, Archimedes, Epicharmus, 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 tale to admire and adopt the Greek arts. And the president Monteflequin remarks, with respect to the military art, that one of the chief causes of the Roman grandeur, was their method...
method of abandoning their ancient customs, and adopting those of the people whom they had vanquished, whenever they found them superior to their own.

SICIMA, in Ancient Geography, a town of Palestine, in Samaria, according to Josephus.

SICINOS, or PHELEGANDROS, the name of one of the Cyclades islands; situated S.E. of Siphnos, E. of Melos, and W. of Ios, and very near it.

SICION, in Geography, a small island in the Indian sea, near the coast of Africa. S. lat. 12° 35'.

SICK HERRINGS. See HERRING.


SICKHERY, in Geography, a town of Hindoostan, in the circuit of Gohud; 5 miles N. of Lahaar.—Also, a town of Hindoostan, in the circuit of Gohud; 10 miles S.E. of Kooch.

SICKLE, in Agriculture, a toothed hook, with which corn is reaped.

There is considerable variety in the construction of the tools which are employed for this purpose in different places; and which, in some, are denominated sickles, but in others hooks. Some of them are also used in one part of the country, and some in another, being wholly unknown in others.

The common sickle is a fork of semicircular piece of wrought iron faced with steel, which in general is from about twenty to thirty inches in length, and about half an inch in breadth, having a sharp toothed-edge cut in the filed 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 introduced through the standing corn in the act of reaping. The Farnese sickle, 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 five inches long, edged with fifteen teeth in every inch, and in the span 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 finest-edged sickle, or reap-hook, has a shape and length which are much the same as those in the common sickle, only a little broader; but the edge is smooth or sharp and without teeth.

The bagging or bagging sickle 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 fickle-hook is also another tool of this nature, which is made use of in some districts. It is only toothed from about the middle to the point end, by which the waste of grain in cutting is said to be prevented.

By much the most ancient of these tools is the common fickle, 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 even feebly known or employed in the counties of Devon, Cornwall, and Somerset, and many other places in the more western districts of the kingdom, having long since given place to the hooks, the reaon of which seems to be the greater ease of performing the work by them, as is commonly supposed, but by no means proved. The fickle is by far the most frugal and economical tool for accomplishing the work with, as causing the least loss of grain. Trials made with the fickle and the reap-hook, have indeed shown that the latter tool is more expeditious, but at the same time that the loss of grain is far greater, being estimated at not less than five-sixths of the whole in scattered corn.

This difference is supposed to be produced by the hook having a sharp smooth edge, which cuts the stems, as it is put into the standing corn, before it is gathered into the left hand of the workman; while the fickle having a fine-toothed edge inclining towards the heel part, as has been already seen, does not cut the straw as it is put into the standing crop. Thus, though the hook will execute the work with greater facility, where the workman takes care to have the same buckle, the mode will probably be to have recourse to the fickle-hook, by means of which, from the manner of it being edged, it will much prevent the above enormous loss of corn which is caused in other ways of doing the business.

It is necessary for the farmer to be aware of this difference in the use of the different tools of the fickle kind, as at the hooks are fast introducing themselves into the eastern and even the northern parts of the kingdom, as well as into Ireland, where they were formerly unknown, and prevails much in many other places.

In the above district of Furnes, the reaping is wholly and most excellently performed by means of the fickle. At an easy rate of working, three men, it is said, with this tool, will cut a customary acre of fix yards and a half to the pole or perch, of long, light, slender corn, bind, and flout the fame in the course of a day, or less than twelve hours; and five men with these tools will perform the fame quantity of work in a field of the strongest corn, when laid and much entangled. By hard labour from light to dark, three men with this sort of tool will reap, bind, and flout above a customary acre of any kind of grain. See Harvesting and Reaping of Corn.

Sickle-Fix. See FALK.

Sickle-Wort, in Botany. See Coronilla.

SICKLUPEN, in Geography, a town of Prussia, in the province of Siamland; 5 miles N. of Tilkat.

SICKNESS. See Disease.

Sickness, Falling. See Epilepsy.

Sickness, Green. See Chlorosis.

Sickness, Sweating. See Sweating Sicknes.

SICKREE, in Geography, a town of Bengal; 26 miles W.N.W. of Ramgur.

SICLOS, a town of Hungary, having a castle on a mountain, in which the emperor Sigismund was imprisoned; 64 miles S.E. of Canificha.

SICLYGULLY, a town of Bengal; 15 miles N. of Rajenial.

SICON, a town of the island of Cuba; 125 miles W.S.W. of Havanna.

SICUB, or Sicup, in Natural History, a name given by the inhabitants of the Philippine islands to a species of hawk, of the birds of their common hawk, or hawk, which is somewhat larger than our sparrow-hawk. This bird is very elegantly variegated all over its body with yellow, white, and black. See Layin.

SICULI, 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 cantons, the occupants of which were afterwards known under the name of Opici. The Siculi fell into Italy, and gave it their name. This event is said to have taken place, according to Hellanicus of Lesbos, 80 years b.f the siege of Troy, or 1364 years B.C. according to the chronology of Titurel. The name of Siculi, which comprehended all the people who diffused themselves from the Tiber to the eastern
extremity of Italy, the country occupied by the Liburni excepted, was gradually abolished by the separate leagues and disjunctions of the Sabines, Latins, Samnites, Omantrians, 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 other 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 Swinburne. On the wall of his apartment he found notice of a thesis to be maintained in the school of Girgenti by a native of Siculiana: in which he undertakes to prove, "that the Copernican system is absurd, and contradictory to Holy Writ, from which it is evident, that the earth stands still, and the sun moves round it, like the tail 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 Cimbric peninsula, according to Ptolemy.

SICULOTÆ, a people of Dalmatia, who, according to Ptolemy, were divided into 24 deurice.

SICUM, a town of Illyria, on the coast of Dalmatia, between Scardona and Salone, according to Ptolemy and Pliny. The latter says, that the emperor Claudius sent his famous order there to the Emperor Maximinus, and the emperor had a body of men, of which the Emperor Claudius sent his order to them, and they were called by his own name. Accordingly it was not one of the nobilest 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 Morea, under the new name of "Bafficca," though it has been near for the last two centuries reduced to a heap of ruins, containing only three Turkish, and about as many leaning walls. 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, are described by Sir George Wheeler, Vox.

After the death of Zephyrillus, the last king of Sicily, 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 Aegyptians swayed the sceptre nine years succedently, and Charidemus, the last of them, continued in it 18 years. After this hierarchy had lasted 32 years, the Heracleidae, who were at that time returned from Peloponnesus, became masters of it, or, according to Paulianus, the kingdom was incorporated with the Dore, and became subject to that of Argos, the next kingdom to that of Sicily in respect of antiquity. Anc. Un. Hist. vol. v.

SICYONE, a word used by Hippocrates to express colocyth, and by others for a species of hard-shelled gourd, in the shape of a pear, and by some for a cupping-glass.

SICYONIUM 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 *ficoonum simplex*. This was composed of two ounces of the root of the wild cucumber, boiled several hours in a pint of oil. The second oil was called *compound ficoonum*, and was made of the root of the same plant, with 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.

SICYONII, among the Romans, were shoes of a more delicate

Gen. Ch. Male. Cal. Perianth of one leaf, bell-shaped, with five small awl-shaped petals. Cor. bell-shaped, in five deep ovate segments, united to the calyx. Stam. Filaments three, awl-shaped, short, connected at the base; anthers two on each of five filaments, one on the third. 

Female on the same plant. Cal. Perianth as in the male, superior, deciduous. Cor. as in the male. Pet. German inferior, ovate; style cylindrical; stigma tumid, three-crested. Peric. Berry ovate, belted with spines, of one cell. Seed solitary, nearly ovate.


Female, Calyx superior, with five teeth. Corolla in five deep segments. Style three-crested. Berry with one seed.

1. *S. angulata*. Angular Single-seeded Cucumber; or Chocho Vine. Linn. Sp. Pl. 1439. Wildl. n. 1. Att. n. 1. Pursh n. 1. (Bryonioides flore et fructu minore; Dill. Ell. 88. t. 51. f. 59.) Cucumis bryonioides bifinagrarica, fructu parvo, glorum calyce maturico; Pluck. Phyt. t. 26. f. 4. C. canadensis monopomeros, fructu echinato; Herb. Parad. t. 133; ibid. p. 108. Bryonioides canadensis, &c.—Leaves five-angled, minutely toothed, heart-shaped, with an obtuse finus, at the base.—On the banks of the Mississippi, from Canada to Carolina, flowering in June and July. Purfla. The root is annual. Stem branched, hairy, weak, climbing by means of long, spiral, divided tendrils. Leaves alternate, on long flanks, pointed, more or less toothed, minutely rough, or three or four inches broad. Flowers white, marked with green lines, axillary; the male ones racemose, on a long flaks; female on a much shorter flaks, and capitate. Fruit ovate, pale, spinous, half an inch long, about eight or ten to an inch round. Seed large, ovate, smooth.

2. *S. parviflora*. Small-flowered Single-seeded Cucumber. Wildl. n. 2. —“Leaves five-angled, minutely toothed, smooth; heart-shaped, with a roundish finus, at the base.” —Native of Mexico. Communicated to professor Willdenow, by the celebrated Baron Humboldt, from whose seeds it was raised at Berlin. Annual, like the last, and much resembling it, but the leaves are not so long, nor is their finus an obtuse angle, but round. The male flowers are not so large as in *S. angulata*; the female ones about a quarter the size of that species. The fruit however is but little smaller. Wildenow.

3. *S. vitifolia*. Vine-leaved Single-seeded Cucumber. Wildl. n. 3.—“Leaves five-lobed, toothed, hairy and vifcid; heart-shaped, with a roundish finus, at the base.” —Willdenow saw this species in a living state, but was unacquainted with its native country. He describes it as annual, differing widely from both the preceding in having the leaves divided half way down into five lobes, clothed, like the whole plant, with fine vifcid hairs, and smelling like *Sisymbium vaccinum*. Male as well as female flowers half the size of the first species.

4. *S. laciniata*. Jagged-leaved Single-seeded Cucumber. Linn. Sp. Pl. 1439. Wildl. n. 4. (Sicyoides fructu echinato, foliis lacinio; Plum. Ic. 239, t. 243, f. 1.)—Leaves deeply five-lobed, laciniata.—Native of South America.—By Plummer’s figure, this species seems to differ from all the foregoing in its deeply divided and jagged leaves, which are rather rough on the upper side. The fruit appears more rounded and obtuse than in *S. angulata*.

5. *S. Garritii*. Linn. Mant. 297. Burm. Ind. t. 57. f. 3. —Is rightly, we believe, referred to *Bryonia* by Willdenow, in his Sp. Pl. v. 4. 625. Burmane mišook the flipula for the fruit, a rare instance of the kind!

SID, in Geography, a small river of England, which runs into the English Channel, at Sidmouth.


Gen. Ch. Cal. Perianth inferior, simple, of one leaf, angular, cut about half way down into five segments; in some, a short, dilated, upwards, emarginate, attached by their claws to the tube of the flammen. Stam. Filaments numerous, united below into a tube, separating at the upper part of the tube into capillary segments; anthers roundish. Pet. German orbicular; stigmas five, ten, or more, or less combined below; stigmas capitata. Peric. Capsule roundish, angular, deprest, as of many cells, as there are stigmas, more or less combined at the base, each with two pointed valves, bursting at the upper part. Seeds one or more in each cell, roundish, generally pointed; convex at the outer side; angular at the inner, by which they are attached to the central column.

Obi. This genus includes the *Malvinda* of Dillenius, which has five cells only, with solitary seeds, as well as his and Tournefort’s *Abutilon*, whole cells, as well as seeds for the most part, are more numerous. *Anoda* of Cavanilles is very insufficiently distinguished, by the cells of the capsule being rather more united than usual; but there is no clear or decided difference. For the distinctions of *Napaea*, referred to *Sidon* by Cavanilles, Schreb., &c. see that article. The fruit of the Linzaean *S. periplacifolia* seems peculiar, having two series of cells, according to Schreb.


An extensive genus, including most of the columiniferous or malaceous order, that have no external calyx. Cavanilles and L’Heritier have considerably added to the quantity of species. Their number in the 14th edition of Linn. Syll. Veg. is only 27; from which the half of all, being Schreb’s *Palavia*, is to be expunged. (See that article.) Willdenow reckons up 99, but from these are to be deducted the two *Napaea* of Linnaeus, which undoubtedly constitute a distinct genus, as we have shown in its proper place. In their stead, however, there are two or three from North America. Most of the species are tropical plants, natives of the Ear or West Indies. Several are found in Mexico and Peru; eight in North America; a few at the Cape of Good Hope, the Mauritius, &c.; none truly wild.
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. Abyssinia has afforded one new species to our gardens; besides which, 34, exclusive of the Napea, 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, toothed, or lobed. Inference mostly axillary. Leaves yellow, reddish, or white. The species are divided in sections, according to the shape of the foliage. We shall give various examples.

Seët. 1. Leaves lanceolate, more or less narrow, oblong, or ovate. Seventeen species.


S. bipinata. Prickly Sida. Linn. Sp. Pl. 960. Willd. n. 6. Ait. n. 2. Pursh n. 1. Cavan. Diff. 11 n. 1. f. 9. (Alcea carpinifolia, americana frutescens, floccus luteus, femine duplex rostro donato ; Comm. Hort. v. i. 3. t. 2.) — Leaves ovato-lanceolate, serrate; somewhat heart-shaped at the base. Stipulas fetaceous, with axillary spines. Flower-flasks 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 rubbish, 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 distinguishing it from the former, for their flowers appear are nearly similar. The root is annual or biennial.

S. bipinata. Haploid Sida. Pursh n. 2. — "Rough with bristly hairs. Leaves lanceolate, serrate. Flower-flasks axillary, the length of the footstalks. Outer calyx thread-shaped."—Described 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 fetaceous bract is all that is meant by the above definition. We have seen no specimen.

S. carpinifolia. Hornbeam-leaved Sida. Linn. Suppl. 307. Willd. n. 8. Ait. n. 3. Jacq. Lea. Rar. t. 135. Cavan. Diff. 274. t. 134. f. 1. — Leaves ovato-oblong, smooth, closely serrate. Stalks axillary, about four-flowered. Capsule with beaked valves. —Mr. Maffon met with this shrub in the garden of a Franciscan convent, in Madeira, and sent it to Kew garden in 1774, where it is treated as a green-house 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, serrations, each tipped with a bristle, as in the genus Carpinus. Calyx smooth. Petals yellow, oblique, and partly notched. Capsule of eight cells, each having two spinous beaks. S. plantifolius, Cavan.
though more elongated. This last plant being reckoned a
*Periplaca* by Tournefort and Dillenius, cauied the above
specice name. The flowers are yellowish, small, and fuga-
cious, opening in bright funfime only.

riplacifolia b; Linn. Sp. Pl. 963. S. tellata; Cavan. Dill. 27 and 349. t. 5 f. 4. Abutilon amphiplo foio, cau-
se villofo; Plum. f. c. 2. t. 3.)—Leaves roundifh-heart-
shaped, pointed, obtuseuly crenate; downy bonth:

*S. purpureas*. Naked-flowered *Sida*. L'Herit. Stirp. 177. t. 63. (S. peruviana; Cavan. Dill. 35. t. 7. f. 8, and 276.
t. 130.)—Leaves orbicular, heart-shaped, crenate, finely
downy, with short points. Flower-flalks orbicular, foltary,
flower-flaked, longer than the foot-flalks. Capsules orbicu-
lar, of numerous abrupt cells. *Native of Peru*. A green-
houfe rather than a fove-plant, both at Paris and Lon-
don, flowering in the latter part of funmer. This is
much larger in all its parts than the foregoing, to which it is,
in many respects, nearly aliied. The leaves however dif-
der in their short points, greater breadth, and more orbil-
cular form, the lobes at the bafe folding over each other,
so as to give the leaf a peltate apect. The foot-flalks are
six inches long in the lower leaves, two or three in the
upper. From the bofoms of the latter proceed the flower-
flalks, twice the length of their correpoding foot-flalks,
always foltary, as far as we have observed, though Wil-
denow says they are in pairs. We fupofe he confounded
this species and the hall. The flowers are full twice the
fize of *S. fwnbmata*, and of a pale sulphur-colour, or yel-
low-bihle.

935. Abutilon Avenaceum; Bell. Hort. Eyll. Diff. 6. t. 10. f. 1.)—Leaves roundifh-heart-shaped, pointed,
toothed, downy. Flower-flalks axillary, foltary, shorter
than the foot-flalks. Capsules orbicular, of numerous,
abrupt, double-baked cells. *Native of both Indies*; long
cultivated in the gardens of Europe, and partly naturalized
in the warmer parts, fo that Haller admits it as a Swiss
plant, under his n. 1077. Gerard raifed it every year,
from Spanifh or Italian ffeeds; fo he fays it hardly ripened
any in his garden, not flowering till September. The
root is annual. Stems much branched. Leaves not unlike
the *Arboria* in shape, but more pointed, more coarfly
notched, often obliquely lobed, and fels lofty pubefcent.
Flowers yellow, not an inch wide, foltary, except that
each is frequently accompanied by a young flowering branh.
Capsules downy, with a sharp, double, incurved leaf to each
cell. This, like many other old garden plants, of which no
coloured plates exit, ought to be figured in periodical pub-
lications.
Sida.

Lecto. heart-shaped, indented. Stalks many-flowered or racemose.


Flowers small, yellow, five or six in each long-flaked axillary solitary umbel. The upper umbels are many of them, unattended by leaves. The valves of the calypode have each a sharp, Iter, erect beak.

S. paniculata. Panicled Sida. Linn. Sp. Pl. 592. Willd. n. 78. Ait. n. 32. Cavan. Diff. 16. t. 12. f. 5.; Swartz Obi. 259. (S. astro-funguea; Jacq. Coll. v. 1. 49. t. 1. 136. C. capillaris; Cavan. Diff. 10. t. 1. f. 7.).—Leaves ovate or heart-shaped, toothed, downy on both sides. Flowers pinnate, with capillary stalks. Capsules rough, with double-beaked cells.—Native of calcareous rocks in Jamaica, as well as Peru and Brazil. Sir Joseph Banks is recorded as having sent it, in 1795, to Kew, where it flowers in the clove from July to September.

Mrs. Aiton marks this species as biennial. Jacquin describes it as an evergreen shrub, eighteen feet high, almost always in bloom. Our wild Peruvian specimens appear woody, with rough round branches. The leaves are stalked, of a roundish-ovate, partly heart-shaped figure, various in length from one to three inches, strongly serrated, clothed on both sides, but more densely beneath, with stellate pubescence.

Flowers small, crimson, copious, on long, very slender, pinnate stalks. Corolla more or less reflexed.

S. terminalis. Terminal-stalked Sida. Cavan. Diff. 29. t. 6. f. 6. t. 195. f. 2.; Willd. n. 82.—Leaves heart-shaped, deeply crenate, somewhat lobed, very soft and downy. Clusters simple, somewhat corymbose, on very long, solitary, terminal stalks. Capsule hairy.—Gathered at Monte Video, by Commoner, whose specimen is before us. The stem is shrubby, much branched, downy, apparently of rather humble growth. Leaves dependent, shorter than their flower, heart-shaped, bluish, very, scarcely an inch long, extremely soft, their nerves broad, round, and very unequal. Flower-stalks terminal, though the branches are often subequently elongated beyond them, solitary, simple, naked, four or five inches in length, round, downy, each bearing four or five rather large, flat-topped, corymbose, yellow, flowers, externally purplish, with linear bracteas, which soon fall off. The calyces, twice as long as the flowers, are thickly clothed with long upright hairs. The curious reader may observe how Wilkenden, without any other guide than the description and plates of Cavanilles, has altered his specific character for the worse. Wilkenden terms the leaves "ovato-lanceolate" and "toothed," for neither of which there is any foundation; but it may serve us, in any other doubtful case, to understand his phaenology, for which reason, chiefly, we here point it out.

Sect. 5. Leaves heart-shaped, three-pointed, or angular at the base.

S. crassifolia. Thick-leaved Sida. L'Herit. Stirp. 125. t. 60. Willd. n. 84. (S. tricuspidea; Cavan. Diff. 30. t. 6. f. 5.).—Leaves heart-shaped, toothed, pointed, obscurely lobed, downy on both sides. Stalks solitary, flowered, about equal to the flowerstalks. Capsules with double-beaked cells, rather longer than the calyx.—Gathered in Hispaniola by Thirry de Menonville. A flore-plant at Paris, unknown in our collections. The stem is shrubby, branched, round, downy. Leaves three inches long, strongly scented, bordered with tooth-like serrations, and furnished with one or two flat lobes at each side. Flowers yellow, an inch broad, on long, simple, axillary flabellae.

S. pectinata. Shuttlecock Sida. Sims in Curt. Mag. t. 164.—Leaves heart-shaped, pinnate, pointed, downy on both sides, somewhat angular; the upper ones heart-shaped. Pinnate racemose. Petals emarginate, nearly erect, shorter than the flowers. Capsule without a beak.—Supposed to be a native of Mexico. It flowers nearly throughout the year, in the collection of John Walker, eq. 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 hipid branches. Leaves green, alternate, flaked, divergent; the upper ones elongated, and deeply lobed. Flowers elegant, bright scarlet, near an inch long, of a shuttlecock form, as the inerely heart-shaped, oblong petals spread but very little. The column of filaments rises considerably above them.

S. xylola. Halberd-leaved Mexican Sida. Willd. n. 89. Ait. n. 33. Andr. Repol. t. 588. Curt. Mag. t. 154. S. crassifolia; Linn. Sp. Pl. 964. Anoda hakata; Cavan. Diff. 38. t. 11. f. 2.)—Lower leaves heart-shaped, lobed; upper halate. Stalks axillary, solitary, flowered, longer than the leaves. Petals oblong, spreading, entire. Native of Mexico. Its seeds were brought from Spain by the late marchioness 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 most 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 calypode have no beaks.

S. crassifolia. Crested Sida. Linn. Sp. Pl. 594. Willd. n. 90. Curt. Mag. t. 350. (Anona trifolia; Cavan. Diff. 39 and 55. t. 10. f. 3.)—Leaves crenate, pointed; the lower ones angular; upper halate. Stalks axillary, solitary, flowered, longer than the leaves. Petals inerely 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 whose flower this plant flowered in July 1866. 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 crimson 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. Dililentiana, Willd. n. 91. Ait. n. 34; figured in Cavanilles, t. 11. f. 1; and in Dill. Hort. Ethn. t. 2, being a mere variety; so little defined indeed, that we can hardly distinguish it as even such.

Sect. 6. Leaves heart-shaped, three-pointed, or angular at the base.

S. trifolia. Three-leaved Cape Sida. Cavan. Diff. 11. t. 1. f. 11. very bad; and 274. t. 131. f. 1. Willd. n. 92. Thumb. Prod. 117. Jacq. Hort. Schonbr. v. 2. 9. t. 142.—Leaves heart-shaped, toothed, with three or five lobes; the middle one longest and sharpest. Stalks axillary, solitary,
...and the leaves are white, and the flowers are red. The plant is often cultivated for its beautiful flowers and is a popular ornamental in gardens. The leaves are divided into several leaflets, and the flower clusters are large and showy. The flowers are usually white with red or purple centers.

The plant is easy to grow and requires little care. It thrives in full sun and well-drained soil. Propagation is usually done by division of the rhizomes or by root cuttings. The plant is hardy and can survive in a variety of climates, making it a popular choice for gardeners around the world.
SID

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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.
But to the meridian again in 365 days. But the equinoxial points go backward, with respect to the stirs, at the rate of fifty seconds of a degree in a Julian year; which caueth the stirs to have an apparent progressive motion eastward fifty seconds in that time. And, as the sun's mean motion in the ecliptic is only 11 figs 29 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 19 seconds 45 thirds short of that point of the ecliptic from which he set out at the beginning; and the stirs 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 stirr on any given day of the year, that stirr will be 14' 19" 45" + 50', or 15' 9" 45" east of the sun's centre, on the 365th day afterward, when the sun's centre is on the meridian; and therefore that stirr will not come to the meridian on that day till the sun's centre has passed 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' 9" 45"; and then, in 365 days 0 hour 1 minute 0 second 38 thirds 57 fourths, the stirr will have just completed its 366th revolution to the meridian.

This table was calculated by Mr. Ferguson; and it is the only table of the kind in which the reckoning of the equinoctial points has been taken into the calculation.

Siderite, in Mineralogy, a name given by Bergman to a fopped peculiar metallic substance, which is the principal cause of the Brittleness of certain kinds of bar iron.

It has since been discovered to be phosphofate of iron.

Siderites, a name which some authors give to the loadstone. See Magnet.

Sideritis, in Botany, supposed to be the σιδερίτης of the Greeks, of which Dioscorides describes three species, all celebrated for staunching blood, and healing wounds. The first quality they might very well possess, being, according to his account, rough herbs, akin to Marrubium, in which also there might be somewhat of an allriginous or tonic quality. They answer indeed to the general idea of the genus to which modern botanists have applied the name, whose etymology is to be sought in σιδερός, iron; but whether it alludes to that metal as the cause of wounds, to the ruffly colour of the flowers, as De Theis imagines, or to any other circumstance, nothing but conjecture can be offered.—Linn. Gen. 290. Schreb. 387. Wild. Sp. Pl. v. 3. 63. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 3. 384. Sm. Prod. Fl. Grec. Sibth. v. 1. 400. Jull. 113. Tourn. t. 90. Lamarck Illutr. t. 505. Clafs and ord. Didyma Gymnosophm. Nat. Ord. Verticillata, Linn. Labiate, Jull.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, oblong, cut nearly half way down into five acute, almost equal, segments. Cor. of one petal, nearly equal; tube cylindrical, oblong; throat oblong, somewhat cylindrical; upper lip erect, narrow, divided; lower in three segments, of which the lateral ones are more acute, and scarcely to large as the upper lip, the middle one rounded. Stam. Filaments four, within the tube of the corolla, and shorter than the throat, two of them smaller than the rest; anthers roundish, two of them with two distinct lobes. Pyl. German four-cleft; style thread-shaped, rather longer than the stamens; ligulas two; the uppermost cylindrical, concave, abrupt; the lower membranous, shortish, sheathing the other. Peric. none, the seeds being lodged in the base of the calyx. Seeds four.

Ell. Ch. Calyx five-cleft. Corolla ringent; its upper lip erect, divided; lower deeply three-cleft. Stamens within the tube of the corolla. One stigma shorter, encompassing the other.


2. S. candidiss. Mullen-leaved Iron-wort. Ait. n. 2. Wild. n. 2; excluding the synonymy.—Shrubby and downy. Leaves densely downy, ovato-lanceolate, taper-pointed; heart-shaped at the base; snow-white beneath. Spikes compound. Whorls remote, each of about eight flowers. Calyx obtuse, pointless.—Native of Madeira; long known in the gardens of England, as well as Holland; flowering from April to July, and sheltered in the greenhouse in winter, with moderate supplies of water. Akin to the preceding, with which Limnæus confounded it; but differing in the peculiar dense snow-white clothings of the leaves, which almost resemble thick white leather. The flowers are larger, and fewer, with an obtuse, very woolly, calyx, deltiform of awns, and grow in compound, whorled, leath'ry spikes. The inflorescence is so different from Commelin's figure, cited by Aiton and Wildenow, that we rather follow Limnæus in applying that synonymy to the following species; though not quite without a suspicion of its really belonging to S. canariensis.

3. S. cretica. Cretan Iron-wort. Linn. Sp. Pl. 801, excluding the reference to Tournefort. Wild. n. 3. (Stachys canariensis frutescens, var. foliosa; Commel. Hort. v. 2. 197. t. 99.)—Shrubby and downy. Leaves densely downy, heart-shaped, bluntish, broadly crenate, on long stellae; snow-white beneath. Spikes simple, whorled. Calyx obtuse, pointless.—Native of Crete and Greece. This has the very dense white pubescence of the last species, but differs in its larger, blunter, more strongly crenate leaves, and especially its solitary unbranch ed leaflets spikes. The whorls consist of each of eight or more flowers, whole calyx, though less woolly, nearly agrees with the preceding, being totally unlike the spinous-pointed calyx of S. canariensis. If Commelin's plate had been executed with any care, this circumstance would have determined his synonymy, which certainly belongs either to our first or third species, and not to the second.

SIDERITIS.

8. Corolla undoubtedly a

ference 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 flat-leaved are oblong, or elliptic-lanceolate, obscurely crenated; those which accompany the flowers are generally much shorter, ovate, and acute; sometimes they nearly resemble the rest of the foliage, evincing that they are not bracteas, as some esteem them, but real leaves. Whorls about eight, a little dilated, each of five bright yellow flowers. Calyx obvate, 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. lyciica. Tartarian Iron-wort. Willd. n. 8. ("S. Lyciica; Pallas Nau. 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 branches are a foot long, subdivided, clothed with white down. Radical leaves falcate, flat-leaves sessile, all crenate, rugged with veins, covered with fine wooliness; the floral ones roundish-ovate, pointed, ribbed, reticulated, shorter than the calyx; woolly, like the other leaves, till the flowers are past, when they become nearly smooth, except the edges. Corolla yellow. Willd.

6. s. difusa. Distant-woolly Iron-wort. Willd. n. 9. —"Somewhat shrubby, hoary. Leaves lanceolate, acute, entire. Whorls dilated. Floral leaves heart-shaped, sharp-pointed, reticulated with elevated veins."—Supposed to be a native of the Levant. Willdenow obtained it from some old herbarium, with the name of Sideritis folia conjugata amplexicaulis rigidis. He describes it as like the former, but different, having acute, entire, less downy leaves, the stem alone being villous. Whorls very dilated, 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 any thing answering to this description.

7. S. perfusata. Perfusate Iron-wort. Linn. Sp. Pl. 802. Willd. n. 10. Ait. n. 7. Prodr. Fl. Græc. n. 1332. (S. orientalis, philomidis folio; Tourn. Cor. 12?)—Herbaceous, rough with bristly 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 isles, but omitted to mark the precise spot. No figure is extant of this species. The herbage is green, hairy, and bristly, not downy. Leaves reticulated with copious veins; the floral ones crowded, short, and broad, with spinous points, their disk pale, and semi-pellucid. Flowers six in a whorl. Calyx tubular, round, without angles, glandular and hairy; its teeth long, erect, ribbed, spinous. Linnæus says the corolla is white, with some red veins.


9. S. montana. Mountain Iron-wort. Linn. Sp. Pl. 802. Willd. n. 4. Ait. n. 3. Jacq. Anh. v. 5. 16. t. 434. Sm. Fl. Græc. Sibth. t. 551, unpublished. (S. montana, parvo flos nigro-purpureo; Column. Edpl. 198. t. 196.)—Herbaceous, decumbent, hairy. Leaves deflexed, spinous-pointed. Calyx-teeth spreading, spinous, nearly uniform.—Native of Italy and the Levant. A hardy annual, cultivated by Miller in Chelsea garden, where it still springs up spontaneously every year, flowering in June and July. The stem is branched from the bottom, hairy, rather rigid, a foot long, diffuse, clothed all the way up with ovate, concave, deflexed, slightly notched, green, hairy leaves, each accompanied by a whorl of six flowers. The calyx is tubular, very hairy, except its lip, which spreads in two divisions; the upper three-lobed, with three spinous teeth; the lower deeply divided, rather narrower, with two; mouth hairy. Corolla with a yellow slender tube, the length of the calyx; limb various, sometimes very small, yellow, bordered with brown on all sides; sometimes, as in our garden plants, and in Dr. Sibthorp's Greek specimens, the upper lip only is small and brown, the lower dilated, yellow, obtusely three-lobed. This does not at all answer to the figure and description of Columna. We are not without a suspicion of two species being here confounded, and yet we are not able to trace a permanent distinction between any of the specimens we have seen.

10. S. romanæ. Simple-beaked Iron-wort. Linn. Sp. Pl. 802. Willd. n. 6. Ait. n. 5. Cavan. Ic. v. 2. 69. t. 187. Sm. Fl. Græc. Sibth. t. 552, unpublished. (Sideritis genonis spinifinis verticillatis; Bawh. Hist. v. 3. 428.)—Herbaceous, decumbent, hairy. Calyx-teeth spinous; the uppermost largest, solitary, ovate.—Gathered by Cherler first near Rome, whence the specific name. It has however been found in fields and waste 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 oedys of Dioscorides, to whose description, as far as any thing can thence be determined, it answers well. The habitat of the plant is much like the last, but the leaves are more notched, 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. lanata. 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. Willd. n. 5. S. nigricans; Lamarré Dict. v. 2. 168.)—Herbaceous, diffus, hairy. Leaves elliptical, obtuse, crenate, without spines. Calyx-teeth spreading, spinous, hairy, nearly uniform.—Native of Egypt, Caria, and Palæstine. Murray first described it at Gottingen, from garden specimens, without knowing whence they came. Nor was he blamable for not discovering his plant to be S. lanata of Linnæus, whose specific character, made from a flavished wild specime, 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 poissled a very old and luxuriant morrel, apparently from some Dutch collection. This species is undoubtedly most akin to montana and romanæ, nor has it any real bracteas. The whorls, as in those, are all axillary, fix-flowered. Calyx involuted 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
its upper segment cloven; lower in three rounded lobes. The leaves vary greatly in size, but are rounded, pointed, crenate, or dentate and distinctly crenate; the lower ones stalked.

12. *S. incana*. Lavender-leaved Iron-wort. Linn. Sp. Pl. 382. Willd. n. 12. Ait. n. 8. Cavan. Ic. v. 2. 69. t. 186. (Hyphopus montana verticillata major; Barcel. Ic. t. 239. H. verticillata minor; Bocc. Muf. 77. t. 67. f. 2).—Somewhat thrybbly, downy, hoary. Leaves linear-lanceolate, entire. Bracteas ovate, palmate, with many spiny teeth. —Native of Spain. Cultivated by Miller in 1752, being tolerably hardy, flowering in July and August. The habit of the plant is much like Lavandula. Whorls claret, four or five in each spike, with a pair of close, firm, ribbed, thorny bracteas, cut into many spiny segments, under every whorl. Calyx clothed with white cottony down; its teeth erect, spiny, nearly equal. Corolla twice as long as the calyx, yellow, white, or pale blue; both its lips dilated and spreading.

*S. virgata*, Desfont. Atlant. v. 2. 15. 125. Willd. n. 13. seems the very same plant, not even a variety. We venture to remove Barrelier's synonym, cited by Desfontaines, to the following, as Willdenow has done.


14. *S. hyophylophila*. Hyophylla-leaved Iron-wort. Linn. Sp. Pl. 803. Willd. n. 15. Ait. n. 9. (S. alpina; Villars Dauph. v. 2. 373. S. alpina hyophylophila; Ger. Em. 606. S. montana, &c.; Barcel. Ic. t. 171. 172.)—Leaves lanceolate, smooth, nearly entire. Bracteas heart-shaped, with spiny teeth, as long as the calyx.—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 flowers 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, flaked, green, elliptic-lanceolate, two or three of the upper ones only occasionally toothed. Whorls more or less crowded into an ovate or oblong, solitary, terminal spike, each whorl accompanied by two broad, reticulate, hairy bracteae, with strong spiny furrows. Calyx-teeth long, spiny, erect, nearly equal. Corolla straw-coloured, with two dilated lips, longer than the calyx.


16. *S. spinosa*. Spinous-leaved Iron-wort. Vahl. Symb. v. 1. 41. Willd. n. 17. Lamarck Dict. v. 2. 169. (S. subspinosa; Cavan. Ic. v. 3. 5. t. 209.)—Leaves lanceolate, pointed, with strong spiny teeth, as well as the reticulated heart-shaped bracteas. Stem equally hairy on all sides.—Native of mountains in Spain, flowering in June. We received it from the late abbé Cavanilles. The habit of the plant, as well as its inflorescence and flowers, all seem to agree with the two last; but the sharpness of the leaves, and their strong spiny teeth, as well as the more strongly reticulated, and deeply cut, bracteas, indicate an essential difference, confirmed perhaps by the pubescence of the stem, which is generally, though sparingly, diffused, not collected into two dense opposite lines. The leaves moreover are very strongly ribbed.

17. *S. hispida*. Hairy Procumbent Iron-wort. Linn. Sp. Pl. 803. Willd. n. 18. Ait. n. 11. (S. teretia; Cluf. Hilt. v. 2. 40. Tetralit herbatarium; Lob. Ic. 523. Herba judaeica Lobelia; Ger. Em. 690.)—Leaves oblong, obtuse, strongly toothed. Bracteas with spiny teeth. Stems hairy all round, decumbent at the base.—Native of Spain, Italy, and the south 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 scrophularioides, a hairy variety of which, we suspect, is sometimes taken for the true hispida. The latter however appears essentially to differ, in having the copious hairiness of its stem equally diffused all round, not collected into decussating lines. The whorls vary much in being crowded or remote, and are very hairy. The wooden cut cited above, which is the same in all the three authors, does not well represent the inflorescence, nor distinguish the bracteas from the leaves. It seems taken from an axillary-whorled species, like montana, romana, &c.

18. *S. ovata*. Ovate Peruvian Iron-wort. Cavan. Ic. v. 1. 36. t. 48. Willd. n. 19.—Herbaceous, downy. Leaves flaked, elliptical, obtuse, crenate. Whorls crowded. Bracteas ovate, spinous-toothed, imbricated in four rows.—Native of Peru. It flowered in the gardens of Madrid, in July. The root is fibrous and perennial. Stems scarcely a foot high, square, slightly hairy. Leaves about two inches long, on flanks about the same length; rough on the upper side, with hairs proceeding from minute tubercles; smooth and shining beneath spike solitary, terminal, about three inches long, quadrangular. Bracteas crowded, in four rows, ovate, acute, rigid, spreading, beset with strong spiny furrows. Flowers fix in a whorl, three to each bractea. Calyx with five slender, sharp, nearly equal teeth. Corolla yellowish-white; its upper lip entire, lower three-lobed, the middle lobe three-crested.

**Sideritis**, in *Gardening*, contains plants of the under-shrubby, and shrubby exotic kind, of which the species cultivated are, the Canary iron-wort (S. canariensis); the Cretan iron-wort (S. cretica); and the sage-leaved iron-wort (S. lyracea). 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, planting them in a moderate hot-bed; when the plants have had some growth, they should be removed into separate small pots, filled with light mellow mould, being afterwards treated as other shrubby greenhouse plants. The cuttings and layers may be planted out or laid down in the summer season, and when sufficiently rooted managed as the other sorts. Also, the third sort may be increased by planting the clipped heads, either in pots or in a shady border, to be afterwards removed into pots for potting in the winter in a frame.

They afford variety in greenhouse collections, among other evergreen potted plants of similar growth.

**SIDERO.** in *Geography*, 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 crustated ferruginous bodies, of a moderately firm and compact texture, composed of ferruginous mixed with earthy matter, and formed of repeated incrustations, making so many coats or crusts round a softer or harder nucleus, or round loofe 
earths, or an aqueous fluid.

Under this class are comprehended the emphretia, heteropera, goads, and enhydris.

SIDERODENDRUM, in Botany, from sidero, iron, and dendro, a tree, a species given by Schreber to the Sideroxyloloides of Jacquin, which the latter had called for a while only, till he should be more certain of the genus, by ascertaining the true nature of the fruit. This Schreber has determined; and the name he has chosen alludes to the hardines of the wood, known to the French in Martinique by the appellation of Bois de fer, or Iron-wood. The analogy of the neighbouring genus Sideroxylon is also thus kept in mind.—Schreb. Gen. 71. Wild. Sp. Pl. v. 1. 612. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 1. 245. (Sideroxyloloides; Jacq. Amer. 19.)—Clas and order, Tetrandria Monogynia. Nat. Ord. Dumafo, Linn. Sapotes, Juff.

Gen. Ch. Cal. Perianth inferior, 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, obvate, flat, reflexed segments, half the length of the tube. Stam. Filaments four, very short, inserted under the divisions of the limb; anthers oblong, erect. Pet. four, oblong roundish, inferior; style thread-shaped, the length of the tube of the corolla; stigma oblong, obtuse, thickish. Peric. Berry two-lobed, crowned with the calyx, two-celled, with a transverse 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. Wild. n. 1. Ait. n. 17. Sideroxyloloides ferreum; Jacq. Amer. 19. t. 175. f. 9. Sideroxylon americanum, five lignum duritiae ferrum zemulans; Pluk. Almag. 346. Phyt. t. 224. f. 2.)—Native of mountainous woods, in the islands of Martinico, Montserrat, Barbadoes, &c. A tall branching tree. Leaves opposite, flat, ovato-lanceolate, acute, entire, shining, five inches long. Flower-flats axillary, very short, mostly three-flowered, chiefy on the older and leafless branches. Flowers small and slender, about half an inch long, roselike at the outside, white within. Mr. Ryan observed the corolla to be often changed, possibly by the attack of some insect, into an oblong, hollow, pearly bag, pointed at the top, half an inch in length, resembling a fruit.

SIDEROMANTIA, Σιδερόμαντια, 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, bendings, sparklings, &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 inflexed 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, incurved. Pet. four, roundish, inferior; style awl-shaped, the length of the flaments; stigma simple, obtuse. Peric. Drupa roundish, pointed, of one cell. Seed. Nut ovate, large, of one cell.


Obi. SER SHELLIA 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 distinguish it from the present genus. Sideroxylon amurense, Linn. Sp. Pl. 279, according to Mr. Brown, constitutes a very distinct genus of the same natural order.

1. S. mite. Harmless Iron-wood. Linn. Syll. Nat. ed. 12 v. 2. 178. Wild. n. 1. Jacq. Coll. v. 2. 249. (S. amurense; Mill. l. t. 299.)—Thorns none. Leaves acute.—Native of Africa. Jacquin describes its 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 greenhoue in winter. The leaves are scattered, flafted, lanceolate, pointed, entire, coriaceous, smooth; of a shining deep green above; paler beneath. Foot-flats short, purple. Flowers white, on simple or branched axillary flats.—We know nothing of this species but from the above authors. Linnaeus defines his plant as having fowle flowers, but we find no specimen in his herbarium to ascertain what he meant.

2. S. amurense. Smooth Iron-wood. Linn. Sp. Pl. 278. Wild. n. 2. Ait. n. 1. Jacq. Coll. v. 2. 250. (Sideroxylon amurense, De Corne indorum nomine data arbore; Dill. Elth. 357. t. 25. f. 544.)—Thorns none. Leaves obovate, obtuse. Flower-flats simple, round.—Native of the Cape of Good Hope. This shrub has long been known in the greenhoues 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 flats. 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. mlanophyllum. Laurel-leaved Iron-wood. Linn. Mant. 48. Wild. n. 1. Ait. n. 2. Jacq. Hort. Vind. v. 1. 29. t. 71. (Padus foliis oblongis, fructu foliario: Burm. Afr. 238. t. 84. f. 2. Laurifolia africana; Coll. Hort. v. 1. 95. t. 100.)—Thorns none. Leaves lanceolate. Flower-flats simple, angular.—Native of the Cape of Good Hope. Communicated by Linnaeus in 1761, by the late professor David Van Royen; and sent to Kew in 1783, by Mr. Graesser. This has dark purplish branches, and elliptic-lanceolate leaves, longer and more acute than the last. The flowers and their flats are altogether of a palish red hue. Linnaeus says the scales between the flaments are wanting, which Jacquin finds to confirm. The frut is blue, the size of a pea.


5. S. fericeum. Silky Iron-wood. Ait. n. 3. Wild. n. 5. (Sideroxylon fericea; Brown Prod. Nov. Holl. v. 1. 530.)—
530.—Thorns none. Leaves ovate, obtuse; downy, like the calyx and flower-flalks, beneath. Corolla villous externally. Gathered by Mr. Brown, in the tropical part of New Holland; and by Sir Joseph Banks, who sent it to Kew in 1773, in New South Wales. The style is flender, hairy at the base.

6. S. obvolutum. Ovulate iron-wood. (Serbalia obo-vata; Brown tab. n. 2.)—Leaves obovate; somewhat tapering at the base; scarcely silky beneath. Calyx nearly smooth. Corolla smooth. Style very short.—Gathered by Sir Joseph Banks, in the tropical part of New Holland.—In both thefe the feeler between the flaments are lancelolate.


8. S. tectum. Downy iron-wood. Roxb. Coromand. v. 1. 28. t. 28. Willd. n. 7.—Thorns none. Leaves elliptic-oblong, with a blunt point; downy when young. Flower-flaks downy, axillary, aggregate, the length of the footflalks. Found chiefly on the tops of the mountains in Hindoostan, flowering during the hot feason. This is a small tree. The leaves, three inches long and one broad, are smooth when full grown, but in a young flake are covered with rusty down. Flowers numerous, of a dirty white. Fruit yellow, the size of a small cherry. Dr. Roxburgh says there are the rudiments of five feels, though only one or two come to perfection. Hence it seems that the generic character, in that refpect, is but precarious.


10. S. decandrum. Linn. Mant. 48. Willd. n. 9. Thorns axillary. Leaves effetial, 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 strong, spreading, tapering, axillary, solitary 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, somewhat pointed, smooth, light green, finely reticulated with veins, deciduous. Flower-flalks axillary, several together, simple, about the length of the spines, and rather longer than the footflalks. 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. lecyoides and decandrum. A specimen in the Linnaean 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 lent by Baron Munch-haufen to Linnaeus, and marked lecyoides by the latter, though described in his Hortus under the appellation of decaandrum.

10. S. spinifum. Thorny iron-wood, or Argan. Linn. Sp. Pl. 279, excluding the synonynm. Dryand. in Ait. Hort. Kew. n. 5. (Eriodendrum Argan; Willd. Sp. Pl. v. 1. 1148. Rhamnus ficulif; Linn. Syll. Nat. ed. 12. v. 3. 229.)—Thorns lateral. Leaves obovate-oblong, deciduous.—Native of Morocco. This has strong, almost conical, thorns. Leaves aggregate, flaked, obovate, simple, entire, smooth; a few of them, like coarse roots, or tufks. Rhamnus siculus pentaphyllus, Bocc. Sic. 43. t. 21. must be a very different plant, having really five leaflets on a common stalk, as Mr. Dryander observes in Tr. of Linn. Soc. v. 2. 225. This learned writer justly remarks, that many East Indian synonynms have erroneously been referred to Linnaeus to his Sideroxylum spinifum; but he errs respecting the specimen under this name in the Linnaean herbarium, which is evidently the plant belonging to those synonynms, though not to the original specific character, being Placourtia sepertia, Willd. Sp. Pl. v. 4. 831. Roxb. Coromand. v. 1. t. 68.

The reader will perceive that there is considerable uncertainty about the species of this genus; nor is there least difficulty respecting its generic character, which is not yet clearly contrasted with that of Bumelia; see that article.

Sideroxylum, in Gardening, contains plants of the shrubby, evergreen, exotic kinds, of which the species cultivated are; the smooth iron wood (S. infemc); and the willow-leaved iron-wood (S. lycioides).

The wood of these shrubby plants having great solidity, hardens, and ponderosity, so as to sink in water, they have obtained the appellation of iron-wood.

Method of Culture.—These plants may be increased by seed procured from abroad, which should be sown in the spring in pots filled with fresh mould, and plunged in the tan-bed of the flove; when the plants have some growth, they should be removed into separate pots, and be replanted in the bank-bed. They are also sometimes raised from flit-layers and cuttings in the summer season; but they are tedious in forming roots in this way, and the plants are not so good in general.

The first fruit is tender, affording variety in the flove; but the leaf is more hardy, and may sometimes be introduced in the shrubbery borders in warm sheltered situations.

SIDERS, in Geography, a town of Switzerland, and principal place of a dixain in the Valais; 8 miles E. of Sion.

SIDES-MEN, properly called fynd-men, or quest-men, persons who, in larger parishes, are appointed to affult the church-wardens inquiring into the manners of inordinateivers, and in preventing offenders at visitations. In the ancient episcopal synods, the bishops were wont to summon divers creditable persons out of every parish to give information of, and to attest the disorders of clergy and people. These were called "tellers synodals"; and in after-times, they were a kind of impanelled jury, consisting of two, three, or more persons in every parish, who were upon oath to present all heretics and other irregular persons. These, in process of time, became standing officers in several places, especially in great cities, and hence were called "synod-men," and by corruption "sides-men." They are also sometimes called "quest-men," from the nature of their office, in making inquiry concerning offences. And these sides-men or quest-men, by Can. 90, are to be chosen yearly in Easter-week, by the ministers and parishioners (if they can agree); otherwise to be appointed by the ordinaries of the diocefe. But for the most part this whole office is now devolved upon the church-wardens; which see. The sides-man's oath, agreed upon by the civilians and common lawyers, is as follows: "You shall swear that you will be affiant to the church-wardens in the execution of their office, so far as by law you are bound; so help you God." Gib. 216.

SIDEWAYS, in the Measure. To ride a horse side-ways, is to passage him, or make him go upon two treads, one of which is marked by his shoulders, and the other by his haunches.

SIDGUR, in Geography, a town of Hindoostan, in Baglana; 50 miles E.N.E. of Bussien.

SIDI, in Hindo Mythology, is the name of one of the two
two wives of Ganea or Pollear, the god of prudence and policy. (See Pollear.) The name of the other was Budh; and both were daughters of Vifhawarp. which see. Their names occur in the Hindoos writings.

Sid Efo, a town of Algiers; 30 miles S. of Boujeliah.

Sid Gazi, a town of Afiatic Turkey, in Natolia; 4 miles N.E. of Kintaia.

Sid Ibrahim, a town of Algiers; 30 miles W. of Tnbah.

Sid Medhab, a town of Africa, in Tmias; 20 miles N. of Gabs.

Sid Schiri, a town of Afiatic Turkey, in Caramania, on a lake; 6 miles E. of Beifheni.

SIDIALIEL, a town of Nubia; 55 miles N. of Sennaar.

SIDIBISCHIR, a town of Africa, in the country of Fezzan; 16 miles E. of Monrouk.

SIDIN, or VATISA, a river of Afiatic Turkey, which runs into the Black sea, at Vatifa.

SIDLA, SIDLAW, or Sudlauc 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 Erse, the south hills. This ridge commences on the east, in the vicinity of the town of Perth, and extends in a north-easterly direction to Redhead, a promontory on the coast of the German ocean, between Aberbrothick and Montrofe. 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 measurements:

Sidlaw hill, 1406 feet; Kinglet, 1238; Kipnicnie 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 which the usurper 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 East 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 14½ miles S.E. of Exeter, and 158 miles S.W. of London. Sidmouth was formerly a sea-port of some confluence; 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-rooms erected for the convenience of the visitors. According to the population report in the year 1811, the number of houses in the parish was 549, 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 mother-church; and in a path leading from Sidmouth to Otterton, called Go-Church, is an ancient stone cros. At Sidmouth was formerly an alien priory, a cell to Mountborow in Normandy, or rather to St. Michael in Per cula Maria; 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 scene on this coast, between Sidmouth and Seaton, is grand and romantic; prefenting a succession of lofty cliffs, sloping ridges, and narrow valleys. In some places the cliffs are composed of sand, tinged by a red oxyz 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 foss is double. Observations on the Western Counties, by George Maton, M.D. 2 vols. 8vo. The History of Devonshire, by the Rev. Richard Polden, vol. 3 vols. fol. 1797. The Chorographical Description, or Survey of the County of Devon, by Trithram Ridson, 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 of the island of Cape Breton; 20 miles N. of Louisburg.—Allo, a town of New York, on the Sufquechanna; 50 miles W. of Hudfon.—Allo, a port-town of the county of Maine, on the Kennebeck; 30 miles N.E. of Portland, situated in the county of Kennebeck, and containing 1558 inhabitants.

SIDNEY COVE. See SYDNEY COVE.

SIDODONA, in Ancient Geography, a barren place on the coast of Carmania, in the Persian gulf, where Near- chus is said to have refreshed himself, in his voyage from the isle of Oarafta to that of Cara, according to his journal of the navigation.

SIDOLOUCUM, or SODOLEUCUM, a town of Gallia Lyonnaensia, on the route from Lugdunum to Gefloriaecum, between Angluodium 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. Justin says, that the Phoenicians, being obliged to abandon their country on account of an earthquake, established themselves in the vicinity of the lake of Allysia, which they afterwards deserted, and established themselves on the neighbouring coast of the sea, where they built the town, which they called Sidon. Mofes informs us that this town had been built by Sidon, the elder son of Canaan, the father and founder of the Phoenicians. Josuha (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 Salomon, when this prince entered into Phoenicia. Josephus (Antiq.) relates, that about 150 years afterwards, Aprics, king of Egypt, invaded Phoenicia with powerful armies, took Sidon by force, and burnt the city, which event was followed by the submission 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 Heraclitus (i. iii.); and in the war of Xerxes against the Greeks, the king of Sidon, according to Diodorus Siculus (i. xiv.) commanded
commanded a fleet of forty-eight ships, which very much contributed to the victory which that prince obtained over the Lacedæmonians. The city of Sidon was ruined in the year 351 B.C. under the reign of Ochus, king of Persia. When the inhabitants saw the enemy in the city, they shut themselves up in their houses, with their wives and children, and were there massacred by a conflagration. Dio-Dorus Siculus (l. xvi.) says, that the Sidonians, who were absent during this massacre, and thus escaped destruction, returned thither and rebuilt it, after Ochus had withdrawn to Persia. Arrian (De Exped. Alex.) says, that the Sidonians offered to submit to Alexander, when that prince entered into Phœnicia after the battle of Ilius, 333 years B.C. This prince charged Hephaestion to appoint a king for this city; accordingly this officer raised to the throne of Sidon the hoft with whom he had lodged; but this person declined the charge, and procured the crown for a person of the royal family, called by Diodorus, Ballonymus. After the death of Alexander, Sidon was transferred to the kings of Egypt, and afterwards to those of Syria, until at length it fell under the power of the Romans. This city, according to Strabo, suffered the effects of an earthquake, which demolished half the city. See SAID.

SIDONA. See Sidoena.

SIDONEY, in Geography, a town of Hindoostan, in Oude; 42 miles W. of Kurrabat.

SIDONIUS, Caius, SOllius Apollinaris, in Biography, was born at Lyon in or about the year 430, of a distinguished family, his father and grand-father having ex-received the office of praetorius-prefect in Gaul. He was liberally educated, and obtained great reputation for his literary talents, and especially his skill in the poetical art. Coming to the capital he was raised to the highest offices by several successive emperors. He married Papianilla, daughter of the emperor Avitus, whose ecelebration he celebrated by a long panegyric in verse, which was rewarded by a brafs statue of him placed in the portico of Trajan. On the deposition of that prince, he was made a prisoner at Lyon by the emperor Majorian; whose favour he afterwards obtained by a new panegyric. He was now employed by Majorian to negotiate a treaty with Theoderic, king of the Visigoths, 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 Rikler he defended with the most complete successes Auerenge against the incursions of the barbarians. On the accession of Anthemius he was ready with another panegyric, and was in this requited 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 prelude of famine. He was a great sufferer at the siege of Clermont, and was forced to fly at its surrender, but was very soon restored to his see. He afterwards underwent some trouble from two factions priests, who contended with him the government of the church, and also from some who were deemed by him as heretics; and to this 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 debated 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 Savaron in 1609, and by Sirmond in 1652.

SIDOWLY, in Geography, a town of Hindoostan, in Bahar; 12 miles E. of Safaran.

SIDRA, a town of Hindoostan, in Bahar; 18 miles N.W. of Palamow.

SIDRA, Gulf of, a large bay of the Mediterranean, on the coast of Tripoli, anciently called "Syris," extending from N. lat. 30° 30' to 32° 30', and E. long. 15° 30' to 19° 30'.

SIDRONA, in Ancient Geography, a town of Illyria, in the interior of Liburnia. Ptol.

SIDUS, a small borough of the territory of Corinth, E. of Schenus, which served as a port to Megara. Steph. Byz.—Allo, a small borough of Afa Minor, in Ionia, in the vicinity of the town of Clazomene.—Allo, another in the vicinity of the Erythrea sea.—Allo, a place of Afa Minor, in Pamphylia. Steph. Byz.

SIDUS, Georgium, in Astronomy. See Georgian Planet.

SIDUSA, in Ancient Geography, an island of Afa Minor, upon the coast of Ionia. Pliny.

SIEBELN, or Siebenlihn, in Geography, a town of Saxony, in the circle of Erzgebirg; 4 miles N. of Freyberg.

SIEBENKEES, John Philip, in Biography, professor of philology and the Oriental languages in the university of Altdorf, and member of the Society of Volsci, at Velletri, was born in 1759 at Nurnberg, where his father was organist to one of the churches. Being intended for the church, he was initiated in the Latin and Greek languages under very able masters, and he applied also with great diligence to the Hebrew and Chaldee. In the year 1778 he repaired to the university of Altdorf, where he attended lectures on the holy scriptures, and where, in conjunction with some of the other students, he established a private literary society, the first-fruit of which was a dissertation on the religion of the ancient Germans, and other Northern people. This piece was published in 1781, and it was so highly esteemed by Morelli, that he added it to his translation of Tacitus "De Moribus Germanorur," which was printed in 1791. He now became the tutor to some young people, and not only performed the duties attached to the office for six years with high reputation, but was able by diligence and affability to apply himself, at the same time, to refarches in the literature, history, and arts of the ancients. He collected materials to compose memoirs of the life of Bianca Capello de Medici, grand duches of Tuscany, which was published in one volume octavo at Gotha, in the year 1759. 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 refarches here were much facilitated by Morelli, the librarian, who assisted him greatly in the art of deciphering and reading manuscripts, a branch to which he himself 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 Vallofon's edition, he gave a circumstantial account in the German work entitled "Bibliothek der Alten Literatur und Kunf." In the same work he published an extract from the Chirilothamia of Proclus; collated some MSS. of Heliodorus; and made selections from the unprinted fehola on Plato and other authors. With the same eagerness he examined and studied the remains of ancient art preserved in different collections at Venice. In 1788 he quitted Venice, and made a tour through many parts of Italy, and at Rome he remained fifteen months, entirely occupied in surveying the works of art, or in studying 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 there, Siebenkees made copious extracts for the improvement of Strabo and other ancient authors; and here he transferred 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 Borgia 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," prefaced in it, which was published with the following title: "Expositio Tabulae Hospitalis ex varie antiquissimo in Museo Borgiano Veltrii alteram." 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 1790 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 1791 and 1796, besides giving academic lectures on the Oriental as well as the Greek and Latin languages, on mythology, archaeology, geography, universal history, the history of literature and of the German empire, he found leisure to publish the following works: "An Essay on the History of the Inquisition in the Venetian States," "A Plan for Prosecuting the Study of Roman Statuaries, for the Use of His Lectures," "On the Temple and Statues of Jupiter at Olympia," an antiquarian essay. But his most important undertaking was his edition of Strabo, amended and corrected from various readings, and an improved translation, with the following title: "Strabonis Rerum Geographiarum Libri XVII. Graeco a Opt. Codd. MSS. recensuit var. lec. ad notationibusque illustravit Xylandri Verlinom emendavit I. P. Siebenkees." He contributed to many periodical works, such as the "Journal des Luxus," in which he was not distinguished a picture of Venice; Harles' edition of "Fabrii Bibliothecae Graecae," &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. Gen. Biog.

SIEBER, in Geography, a river of Germany, which runs into the Oder, 5 miles S. of Olerode.

SIECHAM-HOTUN, a town of Corea, in the sea of Japan. N. lat. 41° 24'. E. long. 127° 24'.

SIEDABAD, a town of Hindoostan, 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 Benares.

SIEDENBERG, a town of Germany, in the county of Hoya; 9 miles S.S.W. of Hoya.

SIEG, a river of Germany, which rises in the east part of Naflau-Siegen, falls by Siegen, Blankenberg, Siegburg, &c. and runs into the Rhine, two miles below Bonn.

SIEGBURG, a town of the duchy of Berg; 14 miles S.E. of Cologne. N. lat. 50° 53'. E. long. 7° 18'.

SIEGBURG. See Synberg.

SIEGE, in War, the encamping of an army around a place, with design to take it, either in the way of batteries 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, seat; alluding to the army's taking its seat 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 Olland, Candia, Grave, Bergen-op-Zoom, Gibraltar, &c. See Line, in Fortification.

SIEGE, 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.

SIEGE, To turn a, into a blockade, see Blockade.

SIEGE-PIECES, in Coinage, a division of modern coins, consisting of those that have been minted 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 1574, when that place was besieged by the Spaniards. It has a lion rampant, PUNO PRO PATRIA; and on the reverse this inscription, LUGDUNI BATAVORUM. Various siege-pieces of gold and silver were minted in the reign of Charles II.; some of the latter being far larger than to be of 20s. value.

SIEGEN, in Geography, a town of Germany, which gives name to a branch of the house of Naflau, in the vicinity of which are some considerable iron-mines and forges; 37 miles E. of Bonn, N. lat. 50° 48'. E. long. 8° 48'.

SIEGENBURG, a town of Bavaria, on the Ambs; 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 Brzece; 56 miles N.E. of Brzece.

SIELUB, a town of Lithuania; 8 miles N. of Novogrodeek.

SIEIMIECZOW, a town of Lithuania; 15 miles W. of Luck.

SIEKAGE, a town of South America, in the province of Tucuman; 20 miles N. of St. Miguel de Tucuman.

SIELE', in Ancient Geography, a town of Egypt, situated, according to Pliny, in a peninsula, on the western bank of the Nile, in which was a Roman garrison. See SYN.

SIENITE, Granitella of Saussure, in Geology, a rock nearly resembling granite, but composed of felspar and hornblende, and occasionally containing quartz and mica. The name is derived from the city of Sienna, 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 sienite is in fact a granite,
granite, intermixed with a small quantity of hornblende. Some fienites are coarsely granular, containing large distinct crystals of red felspar; in other fienites the crystals are very minute, and the hornblende greatly predominates: in the latter case, fiente paffes into the rock which the Germans call grun-itein, or green-ite. When the fiente is finely granular, but contains large crystals of felspar imbedded, it is then denominated fiente porphyry. This rock frequently occurs in large continuous masses, lying over granite and flate rocks. It is sometimes divided into distinct layers, which, by the German geologists, have been called strata; in other instances, it affumes the prismatic or columnar form. Some mineralogists clas all those fienites with fiente, which contain a portion of hornblende; but this distinction appears ufelefs, for the fame mineralogists admit that hornblende is frequently a conftituent part of gneifs or flaty granite.

In the infancy of science, fubstances which are effentially distinct, are apt to be confounded together, if they poffefs certain points of reSEMBlance; and in a somewhat more advanced state of information, fubstances, that are effentially the fame, are often separated, by artificial classifications, into distinct orders or fpecies, by thofe who are accufomed to infpect the cabinets of collectors, and overlook the great features of nature. Thus much ufeles difcufion has arisen with refpect to certain rocks, whether they were to be clasled with granite or fiente, &c. The operations of nature, in the composition of the great rock formations, are not to be limited by the definitions of the mineralogist. Almost all rocks, with the exception of the calcareous, pafs by fuch infenfible gradations into each other, that the moft experienced eye would find it difficult to clas them, from the infpection of detached specimens. Nor will this appear surprizing, when we consider that flex generally comport half or more of the fubftance of all rocks not calcareous, whether fimple or compoud; and even the diftinct conceptions in compound rocks generally contain about the fame proportion of fexit, except quartz, which is almost entirely formed of it. Even in common clay, though the properties of flex are concealed by a portion of alumine, yet it is fill the predomiiating part of the mafs. Now whether rocks were confolidated from a solution, or from a flate of igneous fusion, the flex, or principal ingredient, as it became variously intermixed with the other earths, would, on confolidation, pafs into a vall variety of forms. Where the solution or fusion continued for a longer time undisturbed, tho' the laws of chemical affinity would have fecret action, and difpofe the different elementary parts in a certain manner, thefe diftinct cryflalline forms peculiar to certain combinations and proportions of the earths. Where from change of temperature, or other caufe, the play of chemical affinity was interrupted, the mafs would become confucedly cryflalline, and lofe all appearance of cryflallization; and between thefe extremes there might be every poffible variety of gradation, as we now find to exist.

Hornblende appears to be the fubflance which conneets granite with rocks that have a very different external appearance. When hornblende exifs in small quantities in granite, it does not change the character of the rock, where the three effential fubstances, quartz, felspar, and mica, form the prevailing part of the mafs; for chlorite, fletite, and other minerals, are intermixed in small quantities in the granite of the higher Alps. When the quantity of hornblende is increafed, and that of the mica and quartz defini, the rock is properly what mineralogists denominate fiente. When the hornblende and other minerals, except felspar, are fo intimately mixed as to form one homogeneous pate, in which the cryflals of felspar are imbedded, it then constitutes a porphyry. When the hornblende greatly predominates, and the felspar is in very small cryflals, it forms green-ite. When the cryflals are no longer difcernible, it forms rocks to which the name of trap have been given. (See Trap.) Green-ite may be confidered as a cryflalline variety, and basalt as an earthy variety, of trap. Thus by an intermixure of hornblende, we have an infenfible gradation from highly cryflalline granite and fiente to a compact earthy rock, in the internal structure of which scarcely any trace of cryflallization can be feen.

Sienna is found in Cornwall, and the western side of Wales, and at Chanwood forell in Leicesterfsire: from the latter place it is sent to London, and to Nottingham and Leicester, cut into blocks for paving-foles. A beautiful green and red fiente forms one of the hills called Markfield, which is described in Mr. Bakewell's Geography, as covered on its summit with pyramidal blocks of the fame flone, which he conceives might be employed for durable ornamental architecture. Sienna occurs in many of the mountainous parts of Scotland, but is not, we believe, a metalliferous rock in any part of Great Britain; nor has it, we believe, been applied to any other purpose than for paving-foles. Many of the ancient statues and columns in Egypt are formed of this folne; and it has been before observed, that it was brought in great quantities from that country by the Romans, on account of the varr columns, &c. which could be formed from fiente blocks. As a proof of its durability, it is flattered by travellers that columns which the Romans left unfinished in the quarries of Sienna, nearly two thousand years fince, preferve to the preient day the impreflion of the tools as sharp and diftinct as if they had been recently worked.

Sien-Ku, in Geography, a town of China, of the third rank, in Tche-kiang; 18 miles W.S.W. of Tai-tcheou.

SIENNA, or SIENA, a city of Italy, and capital of a district, in Tuscany. This district, called Sienne, or Tauriotus in the Romans, was once a free republic, conquered by the emperor Charles V. in the year 1554: whole fole, Philip II, king of Spain, ceded all parts, except the Stadt de gli Praedii, to Cosmo I. duke of Florence. The city is pleafantly built on three hills, in a healthy situation. The houses are of brick, and the streets paved with the fame. It is nearly five miles in circumference, but not peopled in proportion to its size; the inhabitants feem scarce exceeding 17,000. It is the fite 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 1333, by Augultino and Agnolo, Siennefe architects. The front is prodigiously loaded with ornaments. All the work of the infide is most highly finished, as the carving in wood of the choir; the sculpture in marble of the pulpit; and especially the hisorical engraving of the pavement, repreffenting in chiaro-fumo the most remarkable stories of the Old and New Testament. From an aperture in the choir pavement may be feen St. John's church, which lies directly underneath. Its entrance is without, on the hill; and thus one church may be faid to f tand on another. Near the cathedral is the archbishop's palace, and oppofite to it a large and well-endowed hospital, founded by a shoe-maker. Here are also many other churches and convents. The church of the Dominicans is remarkable for an ancient picture of wood, repreffenting the Virgin with the infant Jesus in her arms, by Guido Sainfe: it is dated 1221, and is in the Venturini chapel: though fo ancient,
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 the 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 Excellenzi; 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 casino or assembly of both sexes; and it is generally allowed that the Italian language is in no part of Italy spoken with greater purity; 54 miles S. of Bologna. 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 Mogilev; 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 Tong-kouang.

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-hi; 15 miles N.W. of Yung-ning.

SIEU-OU, a town of China, of the third rank, in Ho-nan; 36 miles S.W. of Vuc-kiun.

SIEU-YUEN-HOTUN, a town of Chinese Tartary; 330 miles E. of Peking. N. lat. 40° 18'. E. long. 122° 51'.

SIIPERNOI-PESOK, a small sandy island of Russia, in the Frozen ocean. N. lat. 71° 36'. E. long. 166° 14'.

SIER, a river of France, which rises about six miles S.E. of Thones, and runs into the Rhône, near Sefiel.

SIERAGE, a town of Hindoothan; 32 miles N.W. of Benares.

SIERCK, a town of France, in the department of the Mofelle. 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 Paharn.

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 Asturias; 9 miles N.E. of Oviedo.

SIEROCK, a town of the duchy of Warsaw; 15 miles N. of Warsaw.

SIERRA, the eastern part of New Castile, 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'Adrian, a mountain of Spain, in Guipuzcoa, which took their name from the hermit Adrian. The road leading over it to Alaba and Old Castile 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 Tolosa.

Sierra de Bejar, a mountain of Spain, in the province of Leon; 20 miles N.N.E. of Placentia.

Sierra Cara, a small rocky island, near the east coast of Sardinia. N. lat. 39° 46'. E. long. 10°.

Sierra del Cid, a mountain of Spain, in Valencia; 14 miles N.W. of Alicant.

Sierra de Cobre, 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 Castile; 15 miles S. of Segovia.

Sierra di 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 Greder, a mountain of Spain, in the province of Leon; 25 miles N.W. of Placentia.

Sierra Ialoma, a mountain of Spain, in Estremadura; 20 miles N.N.W. of Coria.

Sierra Leon, 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 1791. A considerable number of whites and free negroes were conveyed thither from Nova Scotia, besides many who went from England. At first the new settlers 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 Leon, and many others proposed to send them in the ensuing dry season. 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 inured 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 Scottians, 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 Leon 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 monkies.

The benevolent and laudable exertions of the African Institution, established since the abolition of the slave-trade, have very much contributed to the prosperity of the colony of Sierra Leon. The climate is much better for European constitutions than that of almost any other part of the coast. There are now 400 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 considerabl
The number of European forts on the coast, apparently very few, except for slave-trading purposes. From Apollonia to Aera, a distance of only 64 leagues, there are no fewer than 27; and the expense of the British forts is about 25,000 annually. Government, it is said, has in contemplation to dismantle all these, except one or two, which will be put in a respectable state of defense. See Slave-trade.

Amongst the labourers at Sierra Leona there are above 800 persons of the tribe of Kroomen; and they are to be found at every factory and town along the coast, for the space of 350 miles. They are employed as factors or intermediate merchants, boatmen, and laborers; and while the slave-trade was carried on upon this coast, they had their share of its occupation. After the age of 40, they return and settle at home. Their country, or Kroom country, extends along the Grain Coast, between Mount and Cape Palmas, from 4° 54' to 5° 7' N. lat. The chief town, Secutra Krea, is in W. long. 7° 48'. This district, though small, is populous, and the natives are of a migratory disposition. Their country produces grain, particularly rice, pepper, and cattle; but their staple article is their own labor, with which they purchase goods, and return to their home for the produce. Wars are rare among these people, and they never fell one another, nor kill their captives; nor do they punish any offence by slavery, though witchcraft is a capital crime, and the only one that is invariably fatal among them. While the slave-trade lasted, they used to kidnap the " Bulhmens," or natives of the interior, and sell them.

The Kroomen are indolent, but when task-work is assigned them, they exert themselves very much; as the reward, in this case, is proportioned to their labour. In their expenditure they are rigid economicals, the only luxury which they allow themselves being tobacco. Their whole subsistence is only from 1 lb. to 2 lb. of rice, clean and fit for use, per day; and of this they sell one half, when rice is dear. Though they are fond of rum, they never buy it; and some of them will not drink it, when offered to them. Their clothing does not cost them 10s. a year. The residue of their grain they lay out in goods; and in 18 months, or two years, the Krooman returns home with his wealth. This he distributes liberally; and what remains he gives to his father to buy him a wife. Having had a wife, after a few months of idleness and idleness, he sets off again for Sierra Leona. When his coffers are replenished, he returns home, and disposes of his riches as before; referring a part, which he gives to his father to buy him another wife. Thus he proceeds for twelve years or more, increasing the number of his wives, and establishing a great character among his countrymen.

The Kroomen are peculiarly distinguished by their extreme love of their own country, which they think superior to all others. All their exertions are to obtain a sufficiency, that they may return and live there. They have not the use of letters, and will not permit their children to learn; and as they live by daily labour, which is paid for in European goods, they have no occasion for manufactures of their own. They have few opportunities of displaying peculiar talents; however, they make their own canoes, several of their implements of agriculture, and some trifling musical instruments.

**Sierra Leona**, a river of Africa, called also "Ritomba," and "Tagrin," about eight miles broad at its mouth, which runs into the Atlantic Ocean, N. lat. 8° 20'. W. long. 12° 30'.

**Sierra Morena**, a mountain, or rather a chain of mountains, of Spain, between the provinces of Cordova and Jaen to the south, and Estremadura and La Mancha to the north. A few years ago, this district was the dread of travellers. M. le Maure, a Frenchman, who for a long time has been one of the corps of engineers of Spain, was chosen in the year 1779, by the count de Florida Blanca, to render practicable a road the most frequented of any in the kingdom; and he has made it one of the finest in Europe. Several new settlements have been formed, and new towns founded in this barbarous district.

**Sierra Madre**, a lofty chain of mountains of New Mexico, crossing the province of Cimbalos.

**Sierra de Malin**, a headland on the coast of Mexico. N. lat. 16° 52'. W. long. 104° 50'.

**Sierra Nevada**, mountains of Spain; 20 miles E. of Grenada.

**Sierra Nevada, or Ixtacihuatl**, a volcanic mountain of Mexico, whose summit is always covered with snow; 30 miles S.E. of Mexico.

**Sierra de Yufra Gomera**, a range of mountains in South America, forming the western boundary of the province of Tucuman.

**Sierra de St. Mamed**, a mountain of Spain, in Estremadura; 25 miles N. of Badajoz.

**Sierra de St. Pedro**, a mountain of Spain, in Estremadura; 30 miles S.W. of Truxillo.

**Sierra de Torquio**, a mountain of the island of Cuba; 25 miles N. of Bayamo.

**Sierra Vernon**, a range of hills in Spain, which run westward towards Malaga, and afford a singular curiosity; for though they run parallel, and so close that their bales join, yet one is red and the other is white; snow will not remain on the highest, whilst it constantly covers the other. The white hills produce the cork-tree, and the Encore oak; the red has no oak, but is covered with firs. The white has iron ore in little lumps; the red has several ores, but no iron. The waters of the white hills are marshy and vitriolic; those of the red sulfurous, alkaline, and with a strong smell like those of Cotterets, in France.

**Sierrasberg**, a town of France, in the department of the Meul, near the river Nied; 4 miles N.N.W. of Sar Louis.

**Sierrasagen**, a town of the duchy of Holstein; 2 miles N.W. of Neuchâtel.

**Siétamou**, a town of Spain, in Aragon; 5 miles E. of Huesca.

**Siétree**, a town of Bengal; 4 miles S. of Burwa.

**Siéve**, a river of Etruria, which runs into the Arno.

**Siéve, or Scarce**, an instrument serving to separate the fine from the coarse parts of powders, liquors, and the like; to cleanse pulse from dust, light grains, &c.

It is made of a rim of wood, the circle or space of which is filled with aplexus of filk, tiffany, hair, linen wire, or even thin slices of wood.

The sieve which have large holes, are sometimes also called riddles; such is the coal or lime-sieve, the garden-scive, &c.

When drugs are apt to evacuate are to be passed through the sieve, it is usual to have it covered with a lid.

**Siévernyagos**, or Rutheun Mountains, in Geography, mountains of Ruffia, extending between the Baltic and the White Sea.

**Siévernoipesok**, a small sandy island in the Frozen ocean, near the continent of Ruffia. N. lat. 76° 54'. E. long. 105° 14'.

**Siévercouóstochino**, a cape on the north coast of
of Russia, called Cape Taimura by captain King. N. lat. 58°. E. long. 101° 14'.

SIEVERO-ZAPADNOI, a cape on the north coast of Russia. N lat. 77°. E. long. 94° 14'.

SIEUGUR, a town of Hindoostan, in Malwa; 9 miles S. of Tandla.

SIEVI, a town of Sweden, in the government of Uleu; 45 miles S. of Braheind.

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 modesty, in speaking of themselves: thus, at the heads of books, we see Traduction du fieur d'Abalance; Oeuvres du fieur d'Eprouet, &c.

Sieur is also a term expressive of singularity, or lordship; as ecuyer or fieur of such a place.

SIFACE, Giovan Francesco, Detto, in Biography, a celebrated opera singer 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 Metastasio, and set by Porpora for Venice in 1732. Algarotti highly praiseth the pathetic manner in which he sung. Though it is confidently asserted, in the work of a late historian, that Siface had been in England as a singer in the chapel of King James II., yet we can trace no proof of this assertion.

In travelling from Ferrara to Modena, he miserably lost his life in a quarrel with an insolent and brutal fellow.

SI-FANS, or TOU-FANS, in Geography, subjects of the Chinese empire, who inhabit the west of China, and the provinces of Chen-fi and Si-teheun. Their country is only a continued ridge of mountains, inclosed by the rivers Hoang-ho on the N., Ya-long on the W., and Yang-tsi-kiang on the E., between the 30th and 35th degrees of north latitude. The Si-fans are divided into two kinds of people; the one are called by the Chinese black Si-fans, the other yellow, distinctions arising from the different colours of their tents. The black are the most clownish and wretched; they live in small bodies, 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 assumes the yellow drees. These lama-princes, who command in their respective districts, have the power of trying causes, and punishing criminals; but their government is by no means burdensome: provided certain honours 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 houfes built of earth, and even brick. Their habitation is not contiguous; they form at most but small hamlets, consisting of five or six families. They feed a great number of flocks, and are in no want of any of the necessaries of life. The principal article of their trade is rhubarb, which their country produces in great abundance. Their horses are small; but they are well-shaped, lively, and robust.

These people are of a proud and independent spirit, and acknowledge with reluctance the superiority of the Chinese government, to which they had been subjected; when they are summoned by the mandarins, they rarely appear; but the government, for political reasons, winks at this contempt, and endeavours to keep these intractable subjects under by mildness and moderation: it would, besides, be difficult to employ rigorous means in order to reduce them to perfect obedience—their wild and frightful mountains (the tops of which are always covered with snow, even in the month of July) would afford them places of shelter, from which they could never be driven by force.

The customs of these mountaineers are totally different from those of the Chinese. It is, for example, an act of great politeness among them to present a white handkerchief of taffeta or linen, when they accord any person whom they are desirous of honouring. All their religion consists in their adoration of the god Fo, to whom they have a singular attachment; their superstitious veneration extends even to his ministers, on whom they have considered it as their duty to confer supreme power, and the government of the nation.

Some of their rivers walk down gold mixed with their sands: they are acquainted with the art of applying it to use, and form it into vases and small statues, of which they often make offerings to their idol; it even appears that the use of gold is very ancient among them; for Chinese books relate, that under one of the emperors of the dynasty of Han, an officer having been sent to the Si-fans to complain of the ravages committed by some of their chiefs, they endeavoured to appease him by making him a present of a piece of gold plate, which the officer refused, telling the Si-fans, that rice served up in golden dishes was to him an infipid food.

These people have lost much of their ancient splendour; for the Si-fans, who at present are confined in a wild country, where they have not a single city, enjoyed formerly an extensive dominion, and formed a powerful and formidable empire, the chiefs of which have often given great uneasiness to the emperors of China. They possessed towards the east several tracts of land, which at present make part of the provinces of Shchuen and Chen-fi; they even extended their conquests to China, so as to render themselves masters of several cities of the second class, of which they formed four principal governments; in the west, they seized upon all the countries which lie beyond the river Ya-long, and reach as far as the boundaries of Cachemir; but infallible divisions infensibly weakened this great monarchy, and at length brought it to ruin. The Chinese annals fix the epocha of its downfall about the year 1227; since that time, the Si-fans have retired to their native mountains, where, from being a conquering and polished people, they have again sunk into their original barbarity.

SIFEBAD, a town of Hindostan, in the province of Sirhind; 10 miles S. of Sirhind.

SIFEEROO, or White River, a river of Persia, so named from the foam occasioned by the rapidity of the current, that flows in a meandering course through Ghilan to the Caspian sea.

SIFFLET, Fr. 3 cat-calls. According to M. Laborde, it was during the reign of Augustus that clapping of hands and cat-calls were introduced in the Roman theatres. Effai fur la Musique.

SIFTE, in Geography, a pretty considerable village of Egypt, between Cairo and Damietta. It has three mosques, and a church belonging to the Copts, the congregation of which consists of 300 families. See SEDRE.

SIG, in Agriculture, a provincial term applied to urine, or chamber-levy, as employed by the farmer.

SIGS, in Geography, a lake of Russia, in the government of Olonetz, about forty miles in circumference; 40 miles W. of Povenetz.

SIGA, in Ancient Geography, a river of Africa, in Mauritania.
ritania Cæfarinensis. Ptolemy places the mouth of it between the town of Siga and the mouth of the river Afarath. —Alfo, a town of Africa, in Mauritania Cæfarinensis. It had the title of a colony, and was situated between the port of Apulia and the mouth of the river Siga. Ptolemy. Strabo says, that this town was destroyed by the Romans, and that the palace of Syphax was here.—Alfo, a royal town, situated in Africa, in Numidia, and on the western part of the river Mulucha. It was the capital of the kingdom of Syphax.

SIGAGIK, in Geography, a town of Asiatic Turkey, in Natalia, on the sea-coast; 14 miles S.W. of Smyrna. N. lat. 39° 18'. E. long. 16° 31'.

SIGAH-Gufb, or SIAH-Gufb, or Black-Ear, in Zoology, the name of a Peruvian animal, of the felis or cat-kind, and no way differing from the lynx, but in that it has no spots; it has a lengthened face, and small head; its ears have the fine velvety black pencil of hairs at the top, which are the distinguishing character of the lynx; the inside and bottom of the ears are white; the nose white, the eyes small, the upper part of the body of a very pale reddish-brown, the tail darker, and about half the length of the body; the belly and breast whitish; the limbs strong, and pretty long, the hind-part of each marked with black. This animal inhabits Peru, India, and Barbary; and is used in the chase of lefter quadrupeds, and the larger sort of birds, which it artfully surprize and seize; it is said to attend upon the lion, and to feed on the remains of its prey. It is fierce when provoked. Pennant's Hill. Quadr. vol. ii. p. 283. Phil. Trans. vol. ii. part ii. p. 648, &c.

SIGALA, in Ancient Geography, a town of India, on this side of the Ganges, according to Ptolemy, who assigns it to the Mandrakes.

SIGANA, a town of Arachosia. Ptolemy.

SIGARUM, in Geography, a town of Hindoostan, in Goleconda; 12 miles N. of Rachore.

SIGATHA, in Ancient Geography, a town of Libya. Strabo.


SIGEAN, in Geography, a town of France, in the department of the Aude, near which Charles Martel defeated the Saracens; 9 miles S. of Narbonne.

SIGEBERT I., in Biography, king of Austrasia, born about the year 535; was third 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 Childeper made an irruption into Austrasia, and took several places; but Sigebert returning victorious, took Soissons, Childeper's capital, and defeated Childeper 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 Carlert, at his death, were shared by the three survivors; but it was not possible for such a divided empire to continue long at peace. Childeper had married Guflwintha, sister of Brunehaut, who was afterwards murdered at the instigation of his mistress, Brunehaut. Brunehaut invited Sigebert, in conjunction with his brother Guntram, king of Burgundy, to revenge this crime, and they over-ran a great part of his dominions, and forced him to purchase peace by the cession of several places. The Avars, or Huns, soon after made a second irruption into Austrasia, when Sigebert's troops, terrified at their savage appearance, refused to act, and he was obliged to purchase a peace, and supply them with provisions to return to their own country. After this, Sigebert assembling a numerous army, after making himself master of the greatest part of Childeper's territories, invaded him in Tournaï, and refused to listen to terms of accommodation. When the ruin of that prince seemed to be inevitable, Fredegonde, hiring two affluents, who pretended to have some important secret to communicate to Sigebert, thrust their daggers into his body, in the midst of his army. This was in the year 575, after he had reigned 14 years, leaving behind him the character of the greatest and holl of the sons of Childeper.

SIGEBERT, SIGEBERTUS, a monk of Gemblours, in the diocese of Namur, in Brabant, who lived in his time for a man of wit, universal learning, and a good poet. In the younger part of his life he embraced the monastic state in the abbey of Gemblours, under the abbot Olbertus, who died in 1048. During his noviciate he was invited to Metz, where he studied in the school of the monastery of St. Vincent, and acquired great consideration by his learning, in which he was superior to most of the other writers who flourished at the same period. He was acquainted with the Greek and Hebrew languages, and in consequence of the progress he had made in the latter, was much esteemed by the Jews at Metz, where he refused a considerable time, and from which he was with difficulty prevailed to depart, in order to return to his former monastery. His celebrity accompanied him thither: he gained many scholars, who did honour to their instructor; and he was chosen by the clergy of Liege to manage their defence in a controversy which they had with the pope, and which he conducted with great talent and moderation. He took sides in the quarrel of Gregory VII., Urban II., and Paschal II., with the emperor Henry IV.; and he wrote against these pontiffs without the least ceremony. Sigebert is author of a Chronicle, the bell edition of which was published at Antwerp in 1608, in 400. It is carefully written, and in a vulgar style; but contains curious and well authenticated facts. And in endeavouring to ascertain to whom the fyltem of folimation by the hexachords belongs, Sigebert in his Chronicle, under the year 928, as well as in his account of ecclesiastical writers, says, that "he had excelled all his predecessors; as by his method children were taught to sing new melodies, with more facility than by the voice of the master, or the use of an instrument; for by only affixing five letters, or syllables, to fix sounds, all that music admits of, regularly, and differing these sounds by the joints of the fingers of the left hand, their distances ascending and descending through the whole diapason, are clearly presented both to the eye and the ear." Now as Sigebert was nearly contemporary with Guido, his testimony in favour of the discoveries attributed to him have more weight than any proofs that can be adduced from such of his own writings as are generally known. The Chronicle of Sigebert begins at 181, and is continued to 414; he died the year after

But what entitles Sigebert to an article in our department, besides his bearing testimony to the inventions of Guido, and his musical records in several other articles of his Chronicle, is the information which he himself gives us in his life, that he had set to muse the anthems and responsories of St. Guibert; that is, had composed all that was necess
fury to form an entire office to his honour. And this information is copied by Fabricius, De Script. Eccl. Arte Mufcae Antiphonae et responforia de fancü. SIGENBURG, in Geography. See Siegenburg.

SIGENUS PORTUS, in Ancient Geography, a port of Africa, on the coast of Mauritania Cæfarinensis, between Siga and Camarata, according to the Itinerary of Antonine.

SIGER, in Geography, a river of Silezia, which runs into the Oder, six miles below Beuthen.


Gen. Ch. Outer Common Calyx of five lineare, cylindrical, 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 fo many, all on one side of the flower, female, ligulate, broad, short, three-cleft. Stam. in the united florets, Filaments five or three, very short; anthers combined in a cylindrical tube. Pfl. in the united florets, German oblong, incurved, the fize of the calyx; fyle thread-shaped, the length of the flaments; stigma divided: in the females, German oblong, incurved, the fize of the calyx; fyle and stigma as in the united florets. Peric. none, the calyx remaining unchanged. Seeds in the united florets solitary, oblong, bluntly quadrangular, thickened upwards, obtufè, naked; down none; in the female ones the fame. Recept. chaffy; fcales very like the fcales 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. flocculosa of L'Heritier offers a singular exception in this great natural clas, with regard to number, having the florets of the disk three-cleft, and triandrous.

1. S. orientalis. Oriental Siegenbeckia. Linn. Sp. Pl. 1269. Willd. n. 1. Ait. n. 1. (Sigebuckia; Linn. Hort. Cliff. 412. t. 23. S. triangularis; Cav. Ic. v. 3. 27. t. 253. Cichoreo affinis. Lampfana linearis, mentali folis, calyce fimbrati hispído, finice bi-him-fervi diâcta; Pluk. Amalth. 59. t. 380. f. 2.)—Leaves falked, ovate, unequally toothed; somewhat angular at the bafe. Outer calyx twice as long as the inner.—Native of China and the Eal Indies; also, according to Cavanielles, of Mexico. Thouin informed the younger Linnaeus that he had it from the Cape of Good Hope, and the fratts of Magellan. The plant has been known for near a century in the gardens of Holland and England, and is a tender annua, flowering in July and August, but with much more singularity than beauty to recommend it. The flem is bulbous, 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 ftofalk; the uppermost much smaller and more oblong. Flowers numerous, terminal, falked, brownish-yellow, chiefly conpicious for the spreading outer leaves of their glandular vifcid calyx, each three-quarters of an inch long. We cannot agree with Willdenow in discarding Plukener's fynonym, which furely agrees better with this than with the following.

2. S. ibérica. Georgian Siegenbeckia. Willd. n. 2. (Bidenti similis, folis latifimis ferratis; Buxb. Cent. 3. 29. t. 52.)—Leaves falked, ovate, bluntly toothed; rounded at the bafe. Outer calyx the length of the inner.—Obferved by Buxbaum about villages in Media, flowering in July. Willdenow, who had seen a dried fpecimen, afferts this to be a very distinct fpecies from the former, to which Linnaeus referred Buxbaum's fynonym. The leaves, it feems, are neither triangular, nor cut at the bafe, but shortlcy and bluntly toothed. The outer and inner calyces, being both of an equal length, feem to us a more certain distinction.

3. S. flocculosa. Small-flowered Siegenbeckia. L'Hérit. Stripa. 37. t. 19. Willd. n. 3. Ait. n. 2. Pursh n. 1. Ehrl. Exfl. f. 79.—Leaves nearly feftile, ovate, toothed. Florets of the disk three-cleft, triandrous.—Native of Peru, from whence we believe its feds were brought or fent by the unfortunate Domby. This has the habit of the firk fpecies, but the flem is loother. The leaves, though tapering at their bafe, are fcarcely falked, nor are they all dilated, or angular. The greatfe peculiarity is found, as we have already faid, in the flowers, which are fmaluer and paller than thole of S. orientalis, ufually, though we believe not always, delitute of a radius, but fingly remarkable for the florets of the disk having only three teeth and three flaments.

For S. occidentalis, Linn. Sp. Pl. 1269, see Phaethusa and Verbesina.

SIGET, in Geography, a town of Hungary, on the forwards of Poland, near the fource of the Theyfle; 50 miles E. of Munkacz. See als SIGET.

SIGEUM, in Ancient Geography, a town and port of Asia Minor, in the Troade, at the distance of 60 stadia from the town of Rhodeteum, and 100 stadia from Tenedos. Strabo reports that this town was ruined in his time. The Myli- nenians built it; but foon after the Athenians expelled them, which occasioned a long war between these two people; but at length, according to Herodotus (I. v.), having submitted it to the arbitration of Periander, the fon of Cyphieus, this prince adjudged it to the Athenians, in the year 564 B.C. or, according to the computation of Uther, in the year 589. The Athenians kept possession of it till the time of Alexander. Under his fuccelfors it was destroyed by neighbouring people. Pliny speaks of it as of a town which had long ago fubfitted: "quondam Sigem oppido." Sigem was re-established under the Chriflian emperors, and erected into a bifhopric dependent upon Cyzicus. A miserable village, which has been built upon its ruins, and which prefents a few veftiges of the ancient town, is called by the Turks "Yenitcher-Keui," or village of the janizaries, and "Disarg-Keu," 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 infcription, almost entirely effaced, the words of which follow one another without interruption, i.e. that the firit runs, as among us, from left to right, and the fcond runs back from right to left, and so on to the end. (See Boustrophedon.) On the inner fide of the door is seen a bas relief in marble, tolerably well wrought: it repreffents a woman feated, to whom other women appear to offer children in swaddling clothes; behind there is feen another woman, holding a box in one hand and a vafe in the other.
SIGEUM Promontorium, a promontory of the Troade. It is near to and north of the mouth of the river called Scamander. Strabo calls it the port of the Achaeans, because the Greeks landed there in going to the siege of Troy. In the vicinity was a large lake, which was thought to communicate with the sea. This promontory is now called Yeni-Hifari.

SIGG, or Sikke, in Geography, a river of Algiers, which, united with the Habrah, forms the Muckda, or, as it is first called, Makerra.

SIGGU, a town of Japan, in the island of Niphon; 65 miles N.E. of Meaco.

SIGHING, an effort of nature, by which the lungs are put into greater motion, and more dilated, so that the blood pales more freely, and in greater quantity, to the left auricle, and thence to the ventricle. Hence we learn, says Dr. Hales, how sighing increases the force of the blood, and consequently proportionately cheers and relieves nature, when oppressed by its too slow motion, which is the case of those who are depressed and sad. Hales's Statistical Eff. vol. ii. p. 6. See LUNGS.

SIGHT, the exercise, or act of the senses of seeing. See EYE.

Our sight, the noblest and most useful of all our senses, father Malebranche shews, deceives us in abundance of instances; nay, almost in all: particularly with regard to the magnitude and extent of things; their figures, motions, &c. Our eyes do not show any thing less than a mote; half a mote is nothing, if we believe their report. A mote is only a mathematical point, with regard to it; and we cannot divide it, without annihilating it. In effect, our sight does not represent extension, such as it is in itself; but only the relation and proportion it has to our body. Hence, as half a mote has no relation to our bodies, and that it cannot either preserve or destroy us, our sight hides it entirely. Were our eyes made like microscopes, or were we ourselves as small as mites, we should judge very differently of the magnitude of bodies.

It may be added, that our own eyes are really no other than a kind of natural spectacles; that their humours do the same office as the lens in spectacles; and that, according to the figure of the crystalline, and its distance from the retina, objects are seen very differently by us; insomuch that we are not sure, that there are any two persons in the world who fee them equally big. It is ever very rare, that the same person sees the same object equally big with both eyes; as both eyes are very seldom perfectly alike; on the contrary, we generally see things bigger with the left than the right eye; of which we have some very good observations in the journal of the learned at Rome, for the year 1669. See VISION.

The Acta Leipfienfis give us an account of a man, who received a smart stroke on the pupil of one of his eyes from the end of a fiddle-string, which broke while he was tuning the instrument, and chance to fly that way. Some cooling things were applied to the eye, and a bandage used to shade it from the light; but at midnight the patient, thinking to wake in the dark, found that he could see with that eye, though not with the other: this continued a long time, and on trial he found that he could read a small print at midnight with this eye, but could scarcely distinguish any thing with it in a bright and clear day.

We have, in the same collections, an account of a man, who, after the cure of a confirmed pox, saw every object double for a long time. Act. Leip. 1690.

It is a very common, and a very just observation, that children do not see any thing clearly when new-born; and if their eye be then examined, they are found to want that brilliancy which they afterwards acquire; and finally, when any object is presented to their view, they at first turn their eyes about in such a manner, that it is evident they either do not see at all, or but very imperfectly and obscurely.

This imperfection may either be owing to a fault in some one of the humours, or in their capsules; or, finally, in the retina, or complexly in them all together. It is impossible to discover whether there be any imperfection in the retina in this rate of life, that membrane being ever, in new-born infants, tender and soft like a jelly: if it be in any of the other parts that the imperfection lies, it must be either in their nature or extent. M. Petit, of the Academy of Sciences at Paris, determining to enquire thoroughly into the cause of this, was at the pains of dissecting the eyes of several infants which had died soon after their birth, and in three-fourths of them he found the vitreous, the crystalline, and the capsule, all greatly deficient in their transparence. He uvea appeared also more opaque than in adults, and the pupil over-large; and that there was either none, or, at the utmost, very little of the aqueous humour; and in those eyes where the humours had not this opacity, they were all, as were also the membranes, of a reddish colour; and this was observed in fœtuses of seven and nine months old.

The cornea in these eyes was also remarkably thick, which, in general, found to be the case in the eyes of all fœtuses. The thicknes and opacity in these corneæ gradually diminish 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 most fœtuses, to be wholly wanting; and where it is found, is ever greatly in under proportion to the other humours.

It therefore appears, that the dimness and imperfection of sight, in new-born infants, are owing to the over-thicknes 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 softnes 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 six 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 increase 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 movable; 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 restriction, for the letting in occasionally a greater or less number of rays, and the refractions are perfect by the augmentation of the aqueous humour. It is plain, therefore, that the clearness of vision must every day increse. 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 let before them; and this time is not cern.
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 detecting 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 features 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 no more than all. Mem. de l'Acad. Par. 1777.

**SIGHT, Defects of.** See Cataract; Guuta Serena; Leucoma; Opithalmia; Pterygium; Trichiasis; Eye, Cancer and Excitiation of; Euphor; Fistula Lachrymalis; Staphylyoma; Hypopyion; Fusus Hematodes; &c.

**SIGHT, Short.** See Myopes and Short-sightedness.

**SIGHT, Second.** See Second Sight.

**SIGHT, Point of.** See Point of View.

**SIGHT, Line of.** See Collimation.

Sight. Singing or playing at sight, in Music, is the being prepared by long practice and experience for every difficulty, not only of execution, but also of expression: as a person allowed to read well in a book which he has never seen, must not only pronounce the words correctly and diligently, but observe the punctuation, and enter into the author's design. We do not always give credit to reports of dilettantes, or even every professor, performing à viva voce, or, as the French call it, à vue ouverte, all kinds of composition without study or practice. See GREETY.

**SIGHTS, in Mathematics,** denote two thin pieces of brass, raised perpendicularly on the two extremities of an alidade or index of a theodolite, circumferentor, or other like instrument; each of which has an aperture or slit up the middle, through which the visual 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 apertures have glasses or lenses fitted into them; in which case, they are called telescopic sights, by way of distinction from the former; which, in respect of the others, are denominated plain sights.

Mr. Flamsteed and Dr. Hooker absolutely expounded the use of plain sights in astronomical observations. The errors in Tycho's latitudes of the stars Mr. Flamsteed ascribes wholly to his using plain sights; and suspects, that Hevelius, using the same kind of sights, must fall into the like errors. Hevelius, on the contrary, in a paper in the Philosophical Transactions, vindicates the use of plain sights, and prefers them to telescopic 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, azimuth 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 custom which obtained therein, of giving little presents from one to another, constituting 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 argi, or rushen figures of men, thrown annually into the Tiber, from the Pons Sublicius, by the Veii-fly, on the ides of March. Vide Macrob. Saturn. lib. i. cap. 7. 19. and 11. See also AREEA.

**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 also called Lemnian earth; of considerable use in medicine.

It was anciently found in a mountain, in the neighbourhood of the city Hephæstia, where Diana's prieiels 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 Diana's 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 MARIS, 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 SUGILMESSA.

**SIGINDUNUM,** in Ancient Geography, a town of Upper Moesia, on the banks of the Danube, according to Ptolemy. The Itinerary of Antoninus marks it on the route from Rimini to Byzantium, between Taurumnum 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 affililated 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 dissatisfaction, 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 goodwill 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 dissensions which prevailed in Germany. He held a conference with pope John XXIII. for the convoking of a council; the principal object of which was that the termination of the feilism 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 affiliated. As the opposition of the Hulfilites to the doctrines
of Rome was now making great progress, the emperor
granted a safe-conduct to John Hufz to come to the council,
and defend the articles of his faith; and it will be to his ever-
lasting disgrace, that he suffered the council to violate the
protection he had solemnly given, and to bring this re-
former to the stake. He now endeavoured to re-establish
peace among the Christian princes, that they might concur
in a plan for reforming 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 deposing the exiling popes, and electing a new one.
Upon the death of his brother Wenceslaus, in 1415,
Sigismund succeeded to the crown of Bohemia, which
country was in a flame, from the revolt of the perfected
Hussites, under their leader the famous Ziska. He marched
with an army into Bohemia, but was entirely defeated by
Ziska, and the fame fortune attended him a second time.
After the death of that hero, a long series 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 year 1436, 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 feized with a mortification in his
bones, which was the prelude to approaching dilution, and
having publicly declared his son-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 possessed various accomplishments, especially an un-
common 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 superfi-
tiously devoted to the clergy. He was licentious in his
conduct, the confidencé of which made him indulgent to the
open and abandoned debauchery of his second wife,
Barbara de Cilley, denominated the Meisslina of Germany.

SIGISMUND I. king of Poland, furnamed the Great, was
the son of Casimir IV. He succeeded his brother Alex-
ander in 1507, and immediately applied himself to the re-
medying 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,
abated by the tsar of Muscovy, joined to an incursion of the
Walachians and Moldavians, obliged him to put him-
self 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 acknow-
ledge 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 terri-
tories 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 Musco-
vites, to make new inroads. These, 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-fourth year of his reign, and in the
year 1548.

SIGISMUND II. named Augustus, king of Poland, son of
the preceding, was elected to the crown before his father's
death. He offended the nobles by marrying the widow of an
obscure person; and it is asserted, that, in order to re-
cover their favour, he permitted them to lend their sons for
education to the Protestant universities of Germany, which
was the means of introducing their opinions into Poland.
He himself remained attached to the old religion, and by
his prudent and moderate conduct kept out of the king-
dom 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 ad-
dition of new taxes. This force he had occasion to employ
as an auxiliary to his kinsman the archbishop of Riga, against
an invasion of the Russians. 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 renounce
their alliance, and put the order under the protection of Po-
land. From this period Livonia was annexed to Poland, and
the grand-master abdicating his dignity, received in com-
penation the duchies of Courland and Semigalia, which
long remained in his family. The tsar, John Balibowitz,
made an irruption into Lithuania, which occasioned much
bloodshed and devastation, and Sigismund was glad to pro-
pose an amicable; and while this measure was in discussion,
the king of Poland died in 1572, leaving only two daugh-
ters, and with him terminated the male line of the house of
Jagellon. He left a high character for courage, ability, and
evry princely quality, but he is said to have been too much
attached to the fair sex.

SIGISMUND III. king of Poland, furnamed De Vafa, was
the son of John III. king of Sweden, and Katharine, daugh-
ter of Sigismund I. king of Poland. He was born in 1566,
and in 1587 was elected to the crown of Poland, in compe-
tition with Maximilian of Austria. Through the exertions
of Zamoiski, 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 assistance of Zamoiski, till the death of his father, in
1592, left him heir to the crown of Sweden. As he was
a zealous Catholic, and the Swedes were friendly to the
Reformation, they felt displeased to come under his author-
ity; besides, 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 Sigif-
mund's absence, inflamed those discontent. Sigismund
having obtained permission from the Polish diet to visit his
other kingdom, arrived in Sweden in 1593, accompanied by
the pope's nuncio, and his proceedings soon proved how
much the rupture of the Catholic religion was the object
of his wishes. Violent differences 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 en-
fused, which terminated in a pacification, and the king re-
turned 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 Swe-
den, which ended in the conquest of Livonia by the Polish
general.

Russia, at this time, being thrown into confusion by a re-
volntion, Sigismund took part in its disorders, and entering
that country, in 1610, at the head of a numerous army,
gained
SIG

Sigs, the autumnal, are, Libra, Scorpio, and Sagittarius.

SIGNS, the brumal, or winter, are, Capricornus, Aquarius, and Pisces.

The vernal and summer signs are also called northern signs.

And the autumnal and brumal signs, southern signs.

Signs, Ascending. See Ascending.

Signs, Fixed. See Fixed.

Signs, Masculine. See Masculine.

Sign Manual, the letting one's hand and seal to a writing. See Signature.

The expirion 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. rat. 2, cap. 6. See Patent.

Among the Saxons, before the invention of seals, a + was a common sign, or signum, prefixed to the names of most subscribing witnesles in charters, and other deeds: as + signum Roberti Episcopi, Lind. &c. See Seal.

Sign of Reference, in Music, signa repetitionis. See Signo.

Signs of Desease in Horos, the appearances which shew them to be out of order. The first sign of a horse's indifposition is, his 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 fitting, 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 moves other horses; contrary to his former custom, he rifes 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 be 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; 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 taffy, which was blown by the wind, as if it had been a real dragon, and the bearers of this ensign were called draconarii; lastly, the emperor's ensign was called labarum, and those that carried it labariferi, which they carried out when he went in person to the field; it was of a purple colour, befit with gold fringe, and adorned with precious stones.

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 conveying of intelligence to places to which the voice cannot reach.

Signals are given for the beginning of a battle, or an attack; usuallly with drums and trumpets: at sea, they are given by cannon or musket-shot, by lights, sails, flags, &c.

All signals may be reduced into three different kinds: six those which are made by the sound of particular instruments, as the trumpet, horn, or sife; to which may be added, striking
SIGNALS.

Striking the bell, or beating the drum; those which are made by dislaying pendants, ensigns, and flags, of different colours; or by lowering or altering the position of the sails; 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 exercise, instead of the word of command, are as follow: a short roll, g. d. to caution; a drum, 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 dragoon 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 polls, 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 o. v. 553, Sc. Odysse. q. v. 261. Tho' 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 apprize 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.

Frontinus observes they were in use among the Arabs; and Bonaventura Vulcainus, in his scholia on Arilottis 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 torrents, or watch-houses, called, in the Arabic, atalayas, a word the Spaniards still 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 used among the Romans. Polydore Virgil shews it of great antiquity in England; and Boetius 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 shewn, if a particular pendant be also thrown out from some remarkable place on the same mast with the general signal, it will communicate intelligence to nine ships that wear the same pendant.

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 shewing the same signal, to testify that they are ready to execute his orders. Having observed their answers, he will shew the signal which is to direct their operations: as, to chase, to form the line, to begin the engagement, to board, to double upon the enemy, to rally or return to action, to discontinue the fight, to retreat, and fave themselves. The dexterity 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 ships that repeat the signal, besides the chiefs of squadrons or divisions, are usually frigates 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 ditreeful 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 preserve order in the repetition of signals, and to favour their communication, without embarrassment, from the commander-in-chief to the ship for 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 those, 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, mailers, &c. or for any of those officers of a peculiar ship. Falconer.

Signal-flags are hoisted at the mizen-peak, &c.; night-signals are made with lanthorns, and are hoisted by the same halliards as the flags. Since November 1805, the red flag at the main-mast has been the first in rank after the union flag. See Flag.

Signals by Day. When the commander-in-chief would have them prepare for failing, he first looses his fore-topmast, and then the whole fleet is to do the same. When he would have them unmoor, he looses his main-topmast, and fires a gun, which, in the royal navy, is to be answered by every flag-ship. When he would have them weigh, he looses his fore-topmast, and fires a gun, and sometimes hauls home his sheets; the gun is to be answered by every flag-ship, and every ship is to get to fail as soon as it can. If with the ketch-fove, the lertennent 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 fore-topmast-head, and fires a gun, which each flag-ship answers; but if he would have the lertennent and leeward-mast ships to tack first, he hoists the union-flag at the mizen-topmast-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-topmast-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 main-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 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 falling 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 main-top-mast-head, and fires a gun. But if they are to bring-to, with the larboard tack, 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-top-mast crosstrees, and to fire two guns; but if he should strike or stick fast, then, besides the same signal with his jack, he is to keep firing, till he sees all the fleet obverse 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 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 deferred, and to brace up his low fails, and continue hoisting and lowering his topsails, 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 chase, he hoists a flag, striped white and red on the flag-staff, at the fore-top-mast-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-top-mast-head, and fires a gun. When the admiral would have any ship to chase to windward, he makes a signal for speaking with the captain, and he hoists a red flag in the mizen yards, and fires a gun; but if to chase 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 chase, he hoists a white flag on his flag-staff at the fore-top-mast-head, and fires a gun; which signal is to be made also by that flag-ship which is nearest the ship that gives chase, till the chasing ship sees 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-top-mast, downwards on the throuds, lowering his main or fore-top-tail, 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, who shall 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-topstall, with the clew-lines hauled up, and fires a gun. If he would have the fleet cut or flip, he looses both his topstalls, and fires two guns; and then the leeward-mast ships are to cut or flip first, to give room to the weather-mast to come to fail. So if he would have any particular ship to cut or flip, and to chase to windward, he makes the signal for speaking with that ship, hoists a red flag in the mizen yards, and fires a gun; but if a ship is to chase 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 in port, he hangs out three lights, over one another in the main-top-mast-ends, 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-ends. 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-top-mast-ends, 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-end. 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 answer, with one light at the mizen-peck. The main-mast and leeward-mast ships are to bear up fo soon as the signal is made. When he would have them, in blowing weather, to lie a-try, short, or a-hull, or with the head-fails braised to the mail, he will form lights of equal height, and fire five guns, which are to be answered by the flag-ships, and then every private ship must shew four lights; and after this, if he would have them to make fail, he then fires ten guns, which are to be answered by all the flags, and then the head-mast and weather-mast ships are to make fail. When the fleet is failing large, or before the wind, and the admiral would have them bring-to, and lie by, with their larboard tacks aboard, he puts out four lights in the fore-ends, and fires six guns; but if with the larboard tacks aboard, he fires eight guns, which are to be answered by the flag-ships; and every private ship must shew four lights. The wind-mast ships must bring-to first. Whenever the admiral alters his course, he fires one gun, without altering his lights, which is to be answered by all the flag-ships. If any ship hath occasion to lie short, or by, after the fleet hath made fail, he is to fire one gun, and shew three lights in his mizen-ends. When any one first discovers land, or danger, he is to shew as many lights as he can, to fire one gun, and to tack, or bear away from it; and if any one happen to spring a leak, or any be disabled from keeping company with the fleet, he shews out two lights of equal height, and fires guns till he is relieved by
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 steer after them, and to continue firing of guns, unless the admiral call him off, by fleering another course, and fire 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 shew two lights. When the admiral would have the fleet to moor, 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 shew two lights. If he would have them lower their yards and topmasts, he hoists one light upon his ensign-flags, 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-topmast-flags, and fires one gun, which is to be answered by the flag-ships; and each private ship must shew one light in the mizen-flags. If any strange ship be discovered coming into the fleet, the next ship 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 gun after gun, till the admiral answers him with one. When the admiral would have the fleet to cut or slip, 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 is 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-ship is to answer. To make them tack, he fires four guns, which are to be answered by the flag-ships; and then the leeward-mast and hawn-mast ships must tack first, and after they are about, to go with the main sail they tacked with, and not to lie by, expecting the admiral to come a-head; and this is to avoid the danger of running through one another in thick weather.

When the admiral brings-to, and lies with his head-fails to the main; if with the starboard tack aboard, he fires fix 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 headow-mast and weather-mast ships are to make fail first. If it grow thick and foggy weather, the admiral will continue failing, with the same fail felt that he had before it grew foggy, and will fire a gun every hour, which the flag-ships must answer; and the private ships must answer, by firing of masts, beating of drums, and ringing of bells. But if he be forced to make either more or less fail than he had, when the fog began, he will fire a gun every half-hour, that the fleet may discern whether they come up with the admiral, or fall a-tack of him; and the flags and private ships are to answer, as before. If any one discovers danger, which he can avoid, by tacking and standing from it, he is to make the signal for tacking in a fog; but if he should chance to strike, and lick fail, he is to fire gun after gun, till he thinks the risk has avoided the danger. When the admiral would have the fleet to anchor, he fires two guns, which the flags are to answer; and after he hath been half an hour at an anchor, he will fire two guns more, to be answered by the flags as before, that all the fleet may know it.

Signals for calling Officers on board the Admiral. When the admiral puts abroad an union-flag in the mizen-flags, and fires a gun, all the captains are to come aboard him; and if, with the same signal, there be also a waft made with the ensign, then the lieutenant of each ship is to come on board. If an ensign be put aboard in the same place, all the masters of the ships of war are to come on board the admiral. If a standard on the flag-staff be hoisted at the mizen-topmast-head, and a gun fired, then all the flag-officers are to come aboard the admiral. If the English flags only, then a standard in the mizen-flags, and fire a gun: if the flags, and land general officers, then the admiral puts aboard a standard at mizen-topmast-head, and a pendant at mizen-peak, and fires a gun. If a red flag be hoisted in the mizen-flags, and a gun fired, then the captains 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 second poll, 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 ensign-flags, and a gun fired, the vice and rear-admirals must come aboard the admiral's ship. When the admiral would speak with the captains of his own division, he will hoist a pendant on the mizen-peak, and fire a gun; 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 lorn, 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 and the ensign on the topmast of the vessel, and fires a gun. The signal for the long-boats to come on board him, manned and armed, is the pendant hoisted on the flag-staff, and a gun fired; and if he would have them chafe any ship, veslel, or boat in view, he hoists the pendant, 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 flag-staff, both on the fore-topmast and mizen-topmast-head, and a gun fired; and if he would have them chafe any ship, vessel, or boat, in open view, without coming on board him, he hoists the pendant, as aforesaid, and fires two guns. When the admiral would speak with the victualler, or his agent, he puts an English ensign in the mizen-topmast-flags; and when with him that hath the charge of the gunner's stores, he will spread a 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, one ship a-head 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 a-head of another, he hoists a pendant with the union-flags, &c. When he would have the admiral of the white, or him that commands in the second poll, to tack, and endeavour to gain the wind of the enemy, he spreads a white flag under the flag at the main-topmast-head, 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 so, he spreds a red flag from the cap, on the fore-topmout-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-amarial of the red do so, he hoists a red flag at the flag-flaff, at the mizen-topmout-head, if the rear-admiral of the white, a white flag; if the rear-admiral of the blue, a blue flag, and under it a pendant of the fame 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-peck, 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 thes ships into the line, he bears down with a blue flag at the mizen-topmout-head; but a blue one, if he would have ships of the larboard quarter come to the larboard tack, with a gun. If the van are to tack fift, he spreds the union-flag at the flag-flaff, on the fore-topmout-head, and fires a gun, if the red flag be not on board; but if it be, then he lowers the fore-topsails a little, and the union-flag is spred from the cap of the fore-topmout downward; and every flag-flaff doth the fame. If the rear be to tack fift, he hoists the union-flag on the flag-flaff, at the mizen-topmout-head, and fires a gun; which all the flag-flaffes are to anfwer. If all the flag-flaffes are to come into his wake or grain, he hoists a red flag at his mizen-peck, and fires a gun; and all the flag-flaffes must do the fame. If he would have him that commands in the fectl polt of his squadron to make more fail, (though he himfelf shorten fail,) he hoists a white flag on the ensign-flaff. But if he that commands in the third polt be to do fo, he hoists a blue flag, and fires a gun, and all the flag-flaffes must make the fame fignall. Whenever he hoists a red flag on the flag-flaff at the fore-topmout-head, and fires a gun, every flag in the ffleet must ufe their utmost endeavour to engage the enemy, in the order preferred them. When he hoists a white flag at his mizen-peck, 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 flem. 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 mift, he hoists a yellow flag on the flag-flaff, at the mizen-topmout-head, and fires a gun; which the flag-flaffes are to anfwer; and then the ships in the rear mift brace fift. After this, if he would have them fall their head-fails, and stand on, he hoists a yellow flag on the flag-flaff of the fore-topmout-head, and fires a gun, which the flag-flaffes must anfwer; and then the ships in the van mift fall fift, and stand on. If, when this fignall is made, the red flag at the fore-topmout-head be abroad, he spreds the yellow flag under the red. If the flets being near one another, the admiral would have all the fhips to tack together, the sooner to lie in a pofture to engage the enemy, he hoists an union-flag on the flag-flaffes at the fore and mizen-topmout-heads, and fires a gun; and all the flag-flaffes are to do the fame. The fleet being in a line of battle, if he would have the fhip that leads the van hoift, lower, fet, or haul up any of her falls, he spreds a yellow flag, under that at his main-topmout-head, and fires a gun, which fignall the flag-flaffes are to anfwer; and the admiral will hoift, lower, fet, or haul up the fail, which he would have the fhip that leads the van do; which is to be anfwered by the flag-flaffes of the fleet. When the enemies run, and he would have the whole flets follow them, he makes all the fail he can after them himfelf, takes down the fignall for the line of battle, and fires two guns out of his fore-chafe, which the flag-flaffes anfwer; and then evry fhip is to endeavour to come up with and board the enemy. When he would have the chafe given over, he hoists a white flag at the fore-topmout-head, and fires a gun. If he would have the red squadron draw into a line of battle, one abreath of another, he puts abroad a flag, if riplred red and white, on the flag-flaff at the main-topmout-head, with a pendant under it, and fires a gun; if the blue or fcond squadron is to do fo, the flag is riplred white, and blue; if the blue or third squadron is to do fo, the flag is a Genoefe enfign and pendant; but if they are to draw into a line of battle, one a-head of another, the fame fignalls are made with a pendant. If they are to draw into the line of battle one a-fern of another, with a large wind, and he would have the leaders go with the larboard tacks aboard, by the wind, he hoists a red and white flag at the mizen-peck, and fires a gun; but if they should go with the larboard tacks aboard, by the wind, he hoists a Genoefe flag at the fame place; which fignalls, like others, must be anfwered by the flag-flaffes.

SIGNATURES, among the Romans, witneffes who feal'd wills and marriage contracts.

SIGNATURE, Signatura, Signing, a subscription, or putting of one's name at the bottom of an act, or deed, in one's own hand-writing. Ancienfly, when very few people could write, they difpenfed with the ufe of signatures; and contenued themselves with the party's feal. See Deed.

SIGNATURE, of the Court of Rome, is a fupplication anfwered by the pope, by which he grants a favour, defpifation, or collation to a benefice, by putting the fiat at the bottom of it, in his own hand; or the exception eff written in his præfence. This fignature, at the bottom of the fupplication, gives name to the whole instrument.

The fignature contains the claufls, derogations, and defpifations, with which the pope grants the favour, or the benefice, with a commifjon for the execution of it, either in forma dignum, or in graciouf form.

A fignature of the pope's own hand, by which he anfwers, Fiat ut petitur, is preferred to another anfwered by the prefent, in his præfence, in these words, Concellum vti petitur in prefentia D. N. pope. Sometimes in fignatures, with the flat, the pope adds proprio motu; which clause gives them fìll farther force.

There are three kinds of fignatures: one in forma grata, difpatched on an affettation of the ordinary; another in forma dignum antiqua, difpatched for canonicates; the third in forma dignum novissima, which is a kind of fcond fignature, or executorial letter, granted where, upon the ordinary's failing to execute the ftrait, within thirty days, the nearest other ordinary is enjoined to execute it.

SIGNATURE, in Printing, denotes a mark at the bottom of each feet, to regulate the gathering and binding of the book; and to fwear the order and number of the feets, in collating, to fee if the book is perfect.

The fignatures conftit of the capital letters of the alphabet. If there be more feets than letters in the alphabet, to the capital letter they add a small one of the fame fort; i.e. a little a after a great A, &c. which they repeat as often as is neceffary.

SIGNATURE, Signatura, is also used, by some naturalists, for the refeemblance a vegetable or mineral bears to any part of the human body; this is, by fome fantafical people,
people, supposed to afford an indication of its virtues and use.

SIGNAU, in Geography, a town of Switzerland, and principal place of a district, in the canton of Berne; 12 miles S.E. of Berne.

SIGNES, a town of France, in the department of the Var; 12 miles S.W. of Brignoles.

SIGNET, one of the king's seals, used for sealing his private letters, and fixing all grants which pass his majesty's hand by bill. Forging it is treason. See Sign Manual.

The signet is always in the custody of the king's secretaries; on whom attend four clerks of the signet-office. See Secretary and Clerk.

SIGNIA, in Ancient Geography, a town of Italy, in Latium, at some distance to the right of the Latin way, and towards the S.W. of Anagnia. Livy says, that Tarquinius the Proud first hither a colony. Some remains of it are still visible. — Also, a mountain of Alia Minor, in the Great Phrygia. Pausanias says, that the town of Apamaea was built at the foot of this mountain.

SIGNIFICANT, among the Romans, an ensign-bearer, or the person who carried the standard, on which was represented a hand stretched out. See Sign.

SIGNIFICATION, the sense or meaning of a sign, word, phrase, emblem, device, or the like; that is, the thing denoted by such sign, word, figure, &c.

We are almost perfectly at a loss as to the signification of the hieroglyphic characters of the ancients.

SIGNIFICATION, in Law, 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 perfon himself; or at least at his house; for others, it is enough that they be made to the party's attorney, or agent.

SIGNIFICATIV. See Excommunicato Capiendo.

SIGNING. See Signature, 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 Cortona in 1439, and was a disciple of Pietro della Francesca. He was among the first of the Italian artists who deigned the naked figure with fidelity and accuracy; though still impeded by the flashes of stiffness and formalism, and too much adherence to common 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. Vafari, who was related to Signorelli, says that Michael Angelo adopted, in his Last Judgment, many of the ideas of this art; of which most probably he only took the characters of actions, and clothed 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 Lanzi as poling the metaphysical qualities in a superior degree; viz. his Communione del Apostoli, in the church del Geta at Cortona. He was invited to Rome to assist in decorating the apartments of the Sifilina, 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 1526, aged 52.

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SIGNORELLI, Pietro Napoli, of Naples, author of an excellent critical history of the Ifage, "Storia Critica de' Teatri," 1783. This work is written with great spirit, and, in general, exactitude and genuine information, concerning other theatres, as well as those of Italy; particularly of Spain, where the author had resided twenty years, and with whose literature and dramatic productions he seems perfectly well acquainted. But having given the preference to the dramatic works and performance of the Italians, he provoked a controversy with a Spanish writer, which was not carried on with great patience or urbanity.

Signor Signorelli is likewise author of a work more voluminous and important, entitled "Vicende della Colutta nelle due Sicilie"; or, "Progress in the Culture of Legislation, Policy, Literature, Commerce, Fine Arts, and Theatrical Exhibitions, in the Two Sicilies," 5 vols. 8vo. Naples, 1786. This work contains much information of the progress of music at Naples during the two last centuries; but we were disappointed in finding no mention of the Conservatories, those famous musical seminaries which have produced so many great composers and singers, whose works and performance have not only delighted Naples and the rest of Italy, but all Europe.

SIGNORESSA, in Geography, a town of Italy, in the Trevifian; 6 miles N.W. of Trevigio.

SIGNUM PUGNÆ, the signal of battle among the Romans, was a coat of arms of a purple colour, set upon the general's pavilion.

SIGNY-le-Grand, in Geography, a town of France, in the department of the Ardennes, and chief place of a canton, in the district of Mezières; 6 miles S.W. of CHARLIEVE. The place contains 2380; and the canton 6699 inhabitants, on a territory of 210 kilometres, in 13 communes.

SIGNY-le-Petit, a town of France, in the department of the Ardennes, and chief place of a canton, in the district of Rocroy, 9 miles W.S.W. of Rocroy. The place contains 1723, and the canton 5790 inhabitants, on a territory of 142½ kilometres, in 10 communes.

SIGNONIO, Carlo, in Biography, was born of a good family at Modena, about the year 1534. At the age of seventeen he went to Bologna, where he palled three years in the study of philosophy and medicine, to which last profession he was directed by his father. But having no turn for physic, he spent a year at Pavia, and then entered into the service of cardinal Grimani. At the age of twenty-two he was taken by invitation from his native city to occupy the chair of Greek, vacant by the departure of Porta, the master under whom he had formerly studied. In 1550 he made himself advantageously known to the learned world by publishing the "Salii Confuores," with a commentary, which quickly went through several editions. In 1552 he was invited to the professorship of belles-lettres at Venice, and in that city he published several discourses on important topics of literature, and his valuable notes and conjectural emendations of Livy. In 1560 he was removed to the chair of eloquence at Padua, then the most celebrated of the Italian universities, but in 1563 he accepted an invitation to Bologna, which was from this time the usual place of his residence. In this situation he rendered himself so acceptable to the city, that he was presented with its freedom, together with a large inerit of salary. Here he employed himself in the composition of learned works, which have handed down his name to posterity with high honour, and he was so well satisfied with his condition, that he refused a very flattering proposal from Stephen, king of Poland, to occupy a professorship in that country.
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 Lacedemonians. 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 obfcuré 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 "Confolatio." 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 1732-3, by Ardelati, at Milan, in fol. vol. with his Life, by Muratori, prefixed.

SIGORUM, in Ancient Geography, a mountain of Asia, in Melopotamia, in the vicinity of the town of Niltus, according to Sozomen. SIGOULES, Le, 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. SIGRIANA, in Ancient Geography, a country of Asia, in Media, according to Strabo. SIGRIANI, mountains of Asia Minor, on the coast of the Propontide. SIGRIUM, a promontory of the isle of Lebos, in the most westerly part of the island. SIGRUM, a part of the isle of Tenedos, in which was a statue 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 1068, it was plundered and burnt by Olaf the Pious, king of Norway; in 1188, it was destroyed by the Carelions, Etonians, and Ruffians. It recovered from these calamities, and flourished till the vast 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 Asia, in the Greater Armenia. Ptolemy. SIGUENC(A), in Geography, a city of Spain, in Old Calilfe, situated on the edge of a mountain, near the source of the river Henares; the fee 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 caisson of iron, with teeth or tachys, that is, a semicircle of hollow and vaulted iron, with teeth like a saw, containing of two or three pieces joined with hinges, and mounted with a headflail and two ropes, as if they were the caissons that in former times were wont to be put upon the nose of a fiery stiff-headed horse, in order to keep him in subjection.

There is a fort of figuette, that is, a round iron all of one piece, fewed under the nose-band of the bridle, that it may not be in view. This figuette we employ with a martingale, when a horse beats upon the hand.

SIHASTRIA, in Geography, a town of Moldavia; 34 miles W. of Suceava. SIHAUL, a town on the W. coast of Sumatra. N. lat. 0° 25'. E. long. 119° 45'. SI-HIAM, a town of China, of the third rank, in Che-si; 37 miles E.S.E. of Han-tchong. SI-HO, a town of China, of the third rank, in Chen-si; 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 SION, or AMU. See JINON and AMU. SION, or Sharokah, a name given to the river Sier, in its course. SIHOR, a town of Hindostan, 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. 104° 26'. SIKAJOCKI, a town of Sweden, in Eait Bothnia; 8 miles N. of Brahehall. SIKE, in Rural Economy, a term provincially applied to a little rill, a water-furrow, and a gutter. SIEVI, in Geography, a town of Turkish Circassia, on the coast of the Black sea; 30 miles S.E. of Anapa. SIKFORD, a town of Sweden, in Well Bothnia; 18 miles N.W. of Pitea. SIKHS, or SEKS, an appellation formed of the Sanscrit term SIKH, or SIKHA, denoting a disciple or devoted follower, and in the Punjabi corrupted into SIKH, 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 conditionists, to the rank of one of the most powerful states in Hindostan. The founder of this sect was Nanan 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. 1459. It is now become a town, and denominated Rayapur, and is situated on the banks of the Beyah or Hyphasis. Nanak's father, whose name was Calo, and who belonged to the Chatriya cast and Vidi tribe of Hindostan, wished to bring him up to trade, but Nanak 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 needful to recite his trances and visions, and converse with the prophet Elias, and the sages which he practised at the commencement and in the progress 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 ignorance of the Mahometans. It will be sufficient for us to observe, that after he had visited all the cities of India, and explained to all ranks the great doctrines of the unity and omnipotence of God, he went to Mecca and Medina, where his actions, his miracles, and his long disputations with the Mahometan fainins and doctors, are most circumstantially recorded by his biographers. He is flated, on this occasion, to have defended his own principles without offending those of others; always professeing himself the enemy of discord, 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 text, which both of them believed, the unity of God; and by re-called them from the numerous errors into which they had fallen. During his travels, about the year 1526 or 1527, 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 priest refused, alleging, that he trusted in him who provided for all men, and from whom alone a man of virtue and religion would content to receive favour or reward. The Hindoo zealots violently oppressed him, more especially after he had laid aside the habits of a Fakir; but he treated their opposition and reproaches with great contempt; and when they required him to exhibit some proof 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 Rave or Hydractis, he there performed many miracles, as it is reported, threw off his earthly shape, and was buried near the bank of the river Rave, which has since overflowed his tomb. Kirtipur continues to be a place of religious reformation and worship; and a small piece of Nanac's garment is exhibited to pilgrims, as a sacred relic, at his Dharamala, 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 successes with which he combated the opposition that encountered him; whilst he laboured without intermission to recall both the Mahometans and Hindoos to an exclusive attention to that sublimest of all principles, which invests devotions with 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 devolved them upon a Chhatrinya of the Trehun tribe, called Lhana, whom he had initiated in 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 Khundur, on the bank of the Bough or Hyphasis, 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 "Grant'h." At his death, which happened A.D. 1532, he was succeeded by Amera Das, a Chhatrinya of the tribe of B'hal, who had been a mensal servant for twelve years. Amera Das was active in propagating the tenets of Nanac successful in gaining profelytes, by whose alliusion he established a degree of temporal power. He had two sons, and a daughter, named B'haini, who was married to a young lad, whose name was Ram Das, a Chhatrinya, of a respectable family, of the Sondi tribe, and an inhabitant of the village of Gondawal. Upon the death of Amera Das, A.D. 1574, he was succeeded by his son-in-law, whom he had initiated in the mysteries of his holy profession, and who became famous for his piety, and still more on account of the improvements he made at Amritfar, which was for some time called Rampur, or Ramdaspur, after him. Some writers have erroneously ascribed the foundation of this town, anciently and long before his time denominated Chak, to him; however, he added much to its population, and built a famous tank, or reservoar of water, which he called Amritfar, a name signifying the water of immortality, and which has become so sacred, that it has given its name, and imparted its sanctity, to the town of Ramdaspur; so that it has become the sacred city of the Sikh nation, and is now only known by the name of Amritfar. After a life passed in the undisturbed propagation of his tenets, in explanation of which he wrote several books, Ram Das died A.D. 1581, and left two sons, one of whom, viz. Arjunmal, succeeded him, and rendered himself famous by compiling the A'di-Grant'h, containing ninety-two sections, part of which was composed by Nanac and his immediate succedors, but arranged in its present form by Arjunmal, who blended his own additions with the compositions of his predecessors. Arjun, from this circumstance, is deemed the first who gave consistent form and order to the religion of the Sikhs. Arjun 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 inoffensive, peaceful sect; and they took up arms under Har Govind, the son of Arjunmal, and wreaked their vengeance upon all whom they thought concerned in the murder of their revered prict. 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 irreconcileable 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 peaceable enthusiasts into an intransigent 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 Aurungzebe. At his death, A.D. 1664, a violent concil arose among the Sikhs, concerning the succession to the office 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 Aurungzebe, the Sikhs were allowed to elect their own prict. They chose Har Grin, son (or grandson) of Har Ray, who died at Delhi A.D. 1664, and was succeeded by his uncle, Tegh Behadur. During his life, which terminated prematurely, by the violence of his rival, A.D. 1675, and also from the period of Govind's death, the Mogul empire was in the zenith of its power under Aurungzebe; and the Sikhs, who had never attained any real strength, were rendered still weaker by their own divisions. However, after the death of Tegh Behadur, the history of the Sikhs assumed a new aspect. Under Har 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 clafs, might aspire. It was the object of Govind to make all Sikhs equal, and that their advancement should solely depend upon their exertions; and well aware how necessary 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 clays. The disciples of Govind were required to devote themselves to arms; always to have steel about them in one shape or other; to wear a blue dresa; to allow their hair to grow; and to exclaim, when they met each other, “Wa! Guruji ka khalfalt! Wa! Guruji ki futhee!” i.e. “Success to the state of the Guru! Victory attend the Guru!”

Govind inculcated his tenets upon his followers by his preaching, his actions, and his works. He is said to have first instituted the Guru-mata, or state council, among the Sikhs, which meet at Amritsar; by which institution he gave that form of a federative republic to the commonwealth of the Sikhs, which was most calculated to rove his followers from their indolent habits, and deep-rooted prejudices, by affixing to them a personal share in the government, and placing within the reach of every individual, the attainment of rank and influence in the state. The emperor Aurungzebe, aided by the rajas who were hostile to Govind, purfued him and his followers to Chamkour, and accompanied it on all sides. The siege was carried on with great vigour; and though Govind manifested an invincible spirit, and performed prodigies of valour, he was at last overpowered by numbers; and reduced to the necessity of making his escape from Chamkour in a dark night, covering his face, as it is said, from shame at his own disgrace. After his flight, a sene of his misfortunes, and the loss of his children, deprived him of his reason, and he wandered about for a considerable time in the most deplorable condition. At length, having obtained from the emperor Behadur Shah a small military command in the Deccan, he was flabbled by a Patan soldier’s son, and expired of his wounds, A.D. 1708, at Nared, a town situated on the Caveri river, about 100 miles from Hyderabad. Guru Govind was the last acknowledged religious ruler of the Sikhs. A prophecy had limited their spiritual guidance to the number of ten; and their superstition, aided, without doubt, by the action of that spirit of independence which its institutions had introduced, caused its fulfilment. Banda, a devoted follower and friend of Guru Govind, stabilized the union of the Sikhs under his banner; and his grief at the misfortune of his priest, is said to have fettled after the death of Govind into a gloomy and desperate desire to avenge his wrongs. The conflagration 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 leonions to deeds of the most horrid atrocity, subdued all the country between the Setlej and the Jumna, and crossing that river, made inroads into the province of Sharanpur, 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 execrable of the most wanton barbarity; life was only granted to those who conformed to the religion, and adopted the habits and dress of the Sikhs; and if Behadur Shah had not quitted the Deccan, which he did A.D. 1710, the whole of Hindoostan would probably have been subdued by these merciless invaders. The first check which the Sikhs received was from an army under sultan Kuli Khan. They were afterwards defeated in a very desperate action by Abdal Samad Khan, an officer of the emperor Farakhfeir, after which the Sikhs were never able to make a stand, but were hunted like wild beasts from one strong hold to another, by the army of the emperor, by whom their leader, Banda, and his most devoted followers, were at last taken, after having suffered every extreme of hunger and fatigue. Great numbers of the Sikhs were put to death, after the surrender of Lohgad, a fortress 100 miles N.E. of Lahore; but Banda was sent, with the principal chiefs of the tribe, to Delhi, where, after having been treated with every kind of obloquy and insult, they were executed.

After the defeat and death of Banda, resentment prompted to every measure 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 issued, ordering all who professed the religion of Nanak 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 said to have fallen upon the habitants of the Panjab, who sought shelter in the hills, and to have plundered them of that property which they were endeavouring to secure from the rapacity of the Persian invader. Enriched with these spoils, says the author whose 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 said to have added, both to their wealth and reputation, by harrying and plundering the rear of Nadir Shah’s army, which, when it returned to Persia, was encumbered with spoil, and marched, from a contempt of its enemies, with a disregard to all order.

The weak state to which the empire of Hindoostan 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 increased by the union of all those who had taken shelter in the mountains; the re-admission into the fold of those who, to save their lives, had abjured, for a period, their usages; and the conversion of a number of profelytes, who haintened to join a band which under robbery was made facred, and to plunder was to be pious.

Aided with these recruits, the Sikhs now extended their irruptions over most of the provinces of the Punjaib; and though it was some time before they reproached themselves of Amritsar, they began, immediately after they quitted their faithlessness, to flock to that holy city at the periods of their sacred feasts. Some performed this pilgrimage in secret, and in disguise; but in general, according to a contemporary Mahometan author, the Sikh horsemens were seen riding, at full gallop, towards “their favourite shrine of devotion.” They were often inlust in making this attempt, and sometimes taken prisoners; but they used, on such occasions, to feek, instead of avoiding, the crown of martyrdom; and the fame authority states, “that an infall was never known of a Sikh, taken in his way to Amritsar, concurring to abjure his faith.”

Encouraged by the confusion which took place on the first Afghan invasion, A.D. 1746, the Sikhs made themselves masters of a considerable part of the Doob of Ravi and Jandara, 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 frequently and repeatedly checked by Mir Manu, the governor of Lahore, yet, after his death, they availed themselves of all the advantages which the local distractions of a falling empire
pier afforded them of extending and establishing their power. Their bands, 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 appointment of their old friend, Adina Beg Khan, to Lahore; as that brave chief, anxious to defend his own government against the Afghans, immediately entered into a confederacy with the Sikhs, whom he encouraged to plunder the territories of Ahmed Shah Abdali.

The Afghan monarch, resenting this predatory warfare, in which the governor of Lahore was supported by the court of Delhi, determined upon invading India. Adina Beg, unable to oppose him, fled; and the Sikhs could only venture to plunder the baggage, and cut off the stragglers of the Afghan army, by which they so irritated Ahmed Shah, that he threatened them with punishment on his return; and when he marched to Cabul, he left his son Taimur Khan, and his vizir, Jehan Khan, at Lahore, with orders to take vengeance on the Sikhs for all the exchequies which they had committed. The first expedition of Taimur Khan was again against their capital, Amritsar, which he destroyed, filling up their sacred tank, and polluting all their places of worship; by which action 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 country, but collected and divided the revenues of the towns and villages around it. Taimur 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 Jafa Sinh Calal, immediately took possession of the vacant fortress of Lahore, and ordered trophies to be coined, with an inscription to the following import: "Coin'd by the grace of Khaliuf ji, in the country of Ahmed, conquered by Jafa 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 were, however, soon checked by Ahmed Shah Abdali, who, irritated by their unsubdued turbulence and obstinate intrepidity, made every effort (after he had gained the victory of Panipat', which established his supremacy at Delhi) to destroy their power; and, with this view, he entered the Punjab early in 1762, and over-ran the whole of that country with a numerous army, defeating and dispersing the Sikhs in every direction. That feat, unable to make any stand against the army of the Abdali, purloined their old plan of retreating 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 surprised 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. Amritfar 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 contamination might be removed, and the induct offered to the religion of Mohamet expiated.

This species of savage retaliation appears to have animated instead of depressing the courage of the Sikhs, who, though they could not venture to meet Ahmed Shah's army in action, harried it with an incessant predatory warfare; and when that sovereign was obliged, by the commotions of Afghanistan, 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 garrison, and made themselves masters of the Punjab; and, from that period until his death, a constant war was maintained, in which the enterprize and courage of the Afghans gradually gave way before the almonishing activity, and invincible perseverance, of their enemies; who, if unable to stand a general action, retreated to impenetrable mountains, and the moment they saw an advantage, rushed again into the plains with renewed vigour and recruited numbers. Several Sikh authors, treating of the events of this period, mention a great action having been fought by their countrymen, near Amritfar, against the whole Afghan army, commanded by Ahmed Shah in person; but they differ with regard to the date of this battle, some fixing it in 1762, and others later. They pretend that the Sikh, inspired by the sacrficiency 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 lead 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 Amritfar 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 refiiaence; 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 almost 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 Hindooostan: for the king of Candahar polishes but an inconsiderable extent of territory on the coast of the Indies. Since the complete downfall of the Mogul empire, they have acquired very extensive domains. But major Rennell 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 Delhi, very rapidly of late years; and perhaps, the Ze- 
mindars 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 
adjacent territory of Schaurunpore is subject to their depres-
sions, 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 
debris of Regilfan, and on the south-west their boundary 
meets that of Sindy, or Tatta, at the city of Behker or Bhek- 
r, on the Indus. On the west the Indus is their gen- 
eral boundary, as high up as the city of Attoc; near to 
which begin the territories of the king of Candahar; and 
their northern boundary is the chain of mountains that lies 
towards Thibet and Cashmere. As this is the caye, they 
will be found to possess the whole soufbah or province of 
Lahore, the principal part of Moultan, and the western part 
of Delhi; the dimensions of which tract are about 340 
British miles from N.W. to S.E., and from 150 to 200 
broad, in general; although in the part between Attoc 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. 25° 30' to beyond N. lat. 32°, and includes all the 
Panjab, a small part of Moultan, 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 eastward, by the possessions 
of the mountainous rajas of Jumnu, Nadon, and Sinagar; and 
to the southward, by the territories of the English govern-
ment, and the sandy deserts of Jafalmer and Hanuya Hifar.
A general estimate of the value of the country possessed 
by the Sikhs may be formed, when it is flated, that it contains, 
besides other countries, the whole of the province of La-
here; which, according to Mr. Bernier, produced in the 
reign of Aurungzebe, 245 lacks and 95,000 rupees; or 
2,469,500, sterling. The Sikhs who inhabit the country 
between the Setlej and the Jumnah, are called Malawa 
Sinh, and were almost all converted from the Hindoo 
tribes of Jats and Gojars. The country of the Malwa 
Sinh is in some parts fruitful; but those districts which bor-
der on Hanuya and Carnal are very barren; being covered 
with low wood, and in many places almost destitute of water. 
Its former capital was Sibhind, 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'hanefur, which is still 
held in high veneration by the Hindoos, who have also a 
high reverence for the river Serafoweti, which flows through 
this province. The country of Jalendra 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 Jalendra and Sultanpore are the 
principal in the Doonab. The country between the Bayah 
and Ravi rivers is called Bari Doob, or Manjha; and the 
Sikhs inhabiting it are called Manjha Sinh. The cities 
of Lahore and Amritfar are both in this province, and conse-
quently it becomes the great centre of the power of this na-
tion. The country of Bari is said to be fertile, particular-
ly towards the mountains, than Jalendra, but lying on 
the same level, its climate and soil must be nearly the same.

The inhabitants of the country between Ravi and Chanhab 
are called D'harpal Sinh, from D'harpal, the name of the 
country; the D'hahugh Sinh are beyond the Chanhab, 
but within the Jeholam river. The Sind Sinh is the term by 
which the inhabitants of the district under the Sikhs bor-
dering on the Sind are known; and Nakai Sinh is the name 
given to the Sikhs who reside in Moultan.

The government of the Sikhs may be termed a theocracy. 
Although they obey a temporal chief, that chief preserves 
his power and authority by profiting himself the fervant of 
the khalfa, or government, which can only be paid 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 imme-
diate inspiration and impulse of an invisible being; who, as 
they believe, always watches over the interests of the com-
monwealth. 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 de-
stroyed. The last Guru-mata was called in 1805, when the 
British army pursued Holkar 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 clasf of devotees, called Acals, or immortals, 
who, under the double charafter of fanatic priests and de-
ferateolders, have unfurled the false direction of all reli-
gious affairs at Amritfar; 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 al-
most the sole direction of the religious ceremonies at Amritfar. 
They have a place on the bank of the sacred rehervoir of 
Amritfar, where they generally refort, but are individually 
poffessed of property, though they affect poverty, and subfixt 
on charity. The principal chiefs of the Sikhs are all de-
cended 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 pro-
tected 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 aban-
don, whenever they chuse, 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 Khalfa cast, who, being followers of Namae, 
and not of Guru Govind, are not devoted to arms, but edu-
cated for peaceful occupations, in which they often become 
very expert and intelligent. In the collection of the revenue 
of the Panjab, it is said 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 sugar, 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 
ryat, or cultivator, treated with more indulgence. Com-
merce is rather restrained than encouraged by the heavy 
duties and the distracted state of the country. However, 
a great part of the shawl trade now flows through the cities 
of Lahore, Amritfar, and Patiala, to Hindooitam. The ad-
ministration of justice among the Sikhs is in a very rude and 
imperfect state.

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 customs), 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, much the better for the Koran or Hindu books afford scarcely any rules or principles of law, which are not so vague as to speak any 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 Hindu or Mahometan has only to find or to feign a principle of his book, which may enable him to decide as he pleases.

Trifling disputes about property are settled by the heads of the village, by arbitration, or by the chief. The court of arbitration is called *panchayat*, or a court of five, the general number of arbitrators chosen to adjudge differences and disputes. It is usual to assemble a panchayat, or a court of arbitration, in every part of India under a native government; and, as they are always 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 whom 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 Hindu call of countenance, somewhat altered by their long beards, and are to the full as active as the Maharrats, 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 wronged 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 address, 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 Sir 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 Maharrats, 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 wiles 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 Hindon race,) to have the constitutional frolic of the latter. The Sikh soldier is, generally speaking, brave, active, and cheerful; without polith, but detest neither of fincerity 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 pait 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 folder, except that his occupation renders him less preemining and boisterous.

He also wears arms, and is, from education, prompt to use them, whenever his individual interest, or that of the community in which he lives, requires him to do so. The general occupations of the Khalsa of Sikhs have been before mentioned. Their character differs widely from that of the Sikhs. Full of intrigue, plant, vertile, and infiniate, they have all the art of the lower classes of Hindoos, who are usually employed in transacting business; from whom, indeed, as they have no distinction of drees, it is very difficult to distinguish them.

The general character of the religious tribes of Acalis, Shabhid, and Nirmala, is formed from their habits of life. The Acalis are insolent, ignorant, and daring; presuming upon those rights which their numbers and fanatic courage have established, their deportment is hardly tolerant to the other Sikhs, and inoffensive to strangers, from whom they entertain a contempt which they take little pains to conceal. The Shabid and the Nirmala, particularly the latter, have more knowledge and more urbanity; they are almost all men of quiet, peaceable habits; and many of them are paid to public service.

There is another tribe among the Sikhs, called the Nanac Pautra, or descendants of Nanac, who have the character of being a mild, inoffensive race; and though they do not acknowledge the institutions of Guru Govind, they are greatly revered by his followers, who hold it sacrilege to injure the race of their founder; and under the advantage which this general veneration affords them, the Nanac Pautra pursue their occupations; which, if they are not mendicants, is generally that of travelling merchants. They do not carry arms; and profess, agreeably to the doctrine of Nanac, to be 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 practice, without infringement of the tenets of Nanac, or the institutions of Guru Govind. They are most particular with regard to their intermarriages; and on this point, Sikhs descended from Hindoos almost invariably conform to Hindoo customs, 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 Guru-mata, 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 Gujar tribes, which include almost all those settled to the north of the Sutlej, to preserve an intimate intercourse with their original tribes; who, considering the Sikhs not as having lost, 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 "Jats" 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 strongholds of that part of India are still in their possession. The "Gujars" 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 call of Hindoos, such as Brahmins and Chatriyas, who have become Sikhs, continue to intermarry with converts of their own tribes, but not with Hindoos of the call they have abandoned, as they are polluted by eating animal food, all kinds of which are lawful to Sikhs, except the cow, which it held sacrilege to slay.

The
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 circumcission.

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 folder, after dinner, quite sober. Their drink is an ardent spirit, made in the Panjab; 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 bhang (cannabis fativa), 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 severe 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 defy; and there is hardly an infamy which this debauched and dilolute race are not accursed, 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 Maharrattas.

Their horsemen use swords and spears, and most of them now carry matchlocks, though some still use the bow and arrow, a species of arms for excellence in the use of which their forefathers were celebrated, and which their descendants appear to abandon with great reluctance.

The education of the Sikhs renders them handy, and capable of great fatigue; and the condition of the society in which they live, affords constant exercize to that refined spirit of activity and enterprise which their religion has generated. Such a race cannot be epicures; they appear, indeed, generally to defpise luxury of diet, and pride themselves in their coarse fare. Their dress is also plain, not unlike the Hindoos, equally light, and diversified 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 consequence, more state, and to maintain equal, if not more reserve and dignity with their followers, than is usual with the Maharratta chiefs.

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 horsemans, 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 subversive of the constitution of their commonwealth. His army is now more numerous than it was, but it is composed of materials that have no natural cohesion, and the hirfierous check which it meets probably cause its disfission.

As for the religion of the Sikhs, it seems, say Sir John Malcolm, to have been a sort of pure deism, grounded on most sublime general truths, blended with the belief of all the absurdities of the Hindoo mythology, and the fables of Mahometanin; for Nanac professed to conciliate Hindoos and Mahometans to the belief of his doctrine, by persuading them to reject those parts of their respective belief and usages, which, he contended, were unworthy of that God whom they both adored. He endeavoured to impress both Hindoos and Mahometans with a love of toleration, and an abhorrence of war; and his life was as peaceable as his doctrine.

We cannot forbear remarking on the inconsistency and contradiction which are involved in the idea of “pure deism” blended with the belief of absurdities. As well might we call a fylem of philosophy perfect, the greater part of which is nonsense. Is it not evident, says an anonymous writer, that so far as absurdities are mixed with a religious creed, so far the purity of its deism is excluded.

—But to proceed; Guru Govind, as we have already goggled, gave a new character to the religion of his followers, by establishing institutions and usages, which not only lepated them from other Hindoos, but which, by a complete abolition of all distinctions of cast, destroyed a fylem of civil polity, which, from being interwoven with the religion of a weak and bigotted race, fixed the rule of its priests upon a basis that had withstood the shock of ages. For further particulars we must refer to the author, whose elaborate account of the Sikhs has furnished the principal materials of this article. Malcolm’s Sketch of the Sikhs in vol. xi. of his Asiatie Researches; or Sketch of the Sikhs, &c. London, 1812. Rennell’s Memoir, Introd. Edin. Rev. No. 42.

SIKI, in Geography, a town of Anatic Turkey, in Carmania, on the Dragant; 27 miles W. of Selaikhe.

SI-KIANG, or Weli River, a river of China, which rises near Fong-tceun, in Quang-tong, and runs into the sea, S. of Canton.

SIKIATZKOI, a town of Ruffia, on the Lena; 140 miles N. of Zigarfls. N. lat. 60° 20'. E. long. 121° 40'.

SIKINOS, an island in the Grecian Archipelago, which lies seven or eight miles to the W.S.W. of Nio. This island is lofty and mountainous, of small extent, being about twenty miles in circumference, and contains, according to Olivier, no more than 200 inhabitants. It has no harbour, and is now little frequented by Europeans. Its productions consist of wheat, barley, wine, cotton, and fruits. It pays about 2000 piastras to the captain-pacha. A town of the same name with the island is situated on a rock, which hangs over the sea. N. lat. 36° 43'. E. long. 25° 10'.

SIKKE. See Sikk.

SIKNA, a river of Moldavia, which runs into the Zita, 20 miles S.W. of Batyszani.

SIKOKO. See Xicoco.

SIKOVIT, a small island in the East Indian sea. S. lat. 7° 12'. E. long. 131° 51'.

SIL, a river of Switzerland, which runs into the Limat, one mile below Zurich.—Alfo, a river of Spain, in Galicia, which rises in the mountains to the west of Leon, where it receives the Beza and the Burvia in Galicia, flows to one to San-Estevan and to Torbe, where it receives the Lor, and in
I is Picentini preternatural small substance contains town. It alfo town mine-town the N. It on of multitude at dug. It town Geography, both nicely effervefence river the a member. There word 10 it. It much German town 40 was word 12 word 13 x143 nine.

—Alfo, a mountain of Italy, in Lucania.

SILAI, a town of Hungary; 32 miles S. of Zatmar. SILAMBOE, a town on the S. coast of the island of Java. S. lat. 7° 33'. E. long. 107° 15'.

SILANDAM, in Ancient Geography, a town of Asia Minor, in Lycaia.

SILARUS, a river of Italy, which commenced in the territory of the Hirpini, separated the Picentini from Lucania, and discharged itself into the sea near Puteum. Strabo says, that this river petrifed the plants that were thrown into it, without destroying their colour or their form.—Alfo, a mountain of Italy, in Lucania.

SILAS, a river of India, which fprung from a fountain of the fame name, and ran into the country of the Sileans, according to Arrian.

SILATUM, a word used by the ancient Romans to express a morning's draught of wine. This was usually of a wine medicated with the plant flil, or selefi, and thence had its name. It has always been the custom to medicate the morning draughts of any strong liquor; we do it with wormwood, or the common bitter tincture; the Indians with ginger.

SILAVENGO, in Geography, a town of Italy, in the Novarca; 10 miles N.W. of Novara.

SILAUNA, in Geography, a town of European Turkey, in Bulgaria; 40 miles W. of Nicopoli.

SILBERBACH, a village of Welfphalia, in which is found lead-ore mixed with filver; 12 miles S. of Brillon.

SILBE, a town of Africa, in the county of the Foolsaths, on the Senegal. N. lat. 17° 5'.

SILBERBACH, a town of Pruilia, in the province of Oberland; 6 miles W. of Liebigstadt.

SILBERBERG, a mine-town of Silelia, belonging to the principality of Brieg, but inluated in that of Munsterberg. N. lat. 50° 24'. E. long. 16° 26'.

SILBEREGG, a town of the duchy of Carnithia; 2 miles N.W. of Ebermühlen.

SILBERMANN, Johann Andreas, in Biography, the moft eminent and renowned organ-builder and maker of keyed-instruments in Germany. He was born at Strafburg in 1712, and the flil of a numerous and eminent family of that name, who have inherited his professional abilities and reputa
tion. There is, in Gerber's Continuation of Walther's Musical Lexicon, a fift of their feveral names and works; but old Silbermann was the Father Smith of Germany. His in
tuments 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 fortas were not then brought to great perfection anywhere; but since that time we find that John Henry Silbermann is much celebrated for his piano fortas.

SILBERSCHLAG, John Isaiah, a German mathematician and mechanift, was born in 1721. He fludied at the college Kloflcrberge, near Magdeburg, and afterwards went through a coufe 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 ufe of the students in the feminary which had been placed under his care. He died

SILBERSTRASS, in Geography, a town of Saxony, in the circle of Erzgebirg; 4 miles S.E. of Zwicau.

SILBIDUM, in Ancient Geography, a town of Italy, in Italy.—Also, a town of Aet, in Greater Pityrga.

SILBODAL, in Geography, a town of Sweden, in the province of Warmeland; 35 miles W. of Carlslad.

SILBOJOCK, a town of Sweden, in the Lapland of Pitea; 12 miles N. of Niarg.

SILBURY HILL, 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 reasonably 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 dilatation, 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 chiefs of monuments. Stukeley calls it the tomb of Cunedha, whom he characterizes as a celebrated Briton, who refided at Cunuo (then supposed to have been Marlborough), and gave his name to that town, and to the river Kennet, or Cruin. The Rev. Samuel Greathead, in a letter to Mr. Britton, printed in the account of Wiltshire, in the 17th volume of the " Beauties of England and Wales," regards Silbury as the burial-place of Prydain, a later king of the Britons, to whom he attributes 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 of 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 13,558,609 cubic feet, and highly praised the choice of the ground, and the symmetrical proportions of the structure 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 considered to have belonged to the person for whom he supposed the mount was raised; but the pothole 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 site and ruins of an ancient Roman station. It appears also to have been a city of the Belgic Britons anterior to the Roman colonization of Great Britain, and was called Cacarenion, or Segont, as being the chief city of the Segontiaci. In the seventh Iter. of Antoninus it is named Vindomir, and marked 22 miles from Venta-Belgarum (Winchelster), and x from Callevam (probably Reading.) That this was a Roman station of importance, appears evident from the various roads, or vias, 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 infide, on which a wall was raised. This was constructed, in the usual Roman manner, with alternate layers, or rows of large flat stones, rubbish stones, and cement, also bricks and flints. 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 (Winchelster), Lindum (Lincoln), Londonium (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 intersected 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 there have been traced the foundations of a large edifice, supposed to have been the forum. About 170 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 contrariety 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 remoreless battles, savage sports, and nefeteful 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.

SILCOLU, a town of Hindooftan, in Myfor; 8 miles S.E. of Seringapatam.

SILDA, in Ancient Geography, a town of Africa, in Mauritania Caflariensis, according to Ptolemy. The itinerary of Antonine places this town on the route from Toenofda to Tingis, between Aquax Dacie and Volfspace.

SILDE
SILDE REVEL, in Geography, a cluster of small islands belonging to Denmark, in the Cattegat; 6 miles S. of Lefoe.

SILE, in Ancient Geography, a town of Lower Egypt, on the route from Serapium to Pelphis, between Magdolun and Thaisaum, according to the Itinerary of Antonine.

SILE, in Geography, a river of Italy, which passes by Treviglio, and runs into the Adriatic, opposite to the island of Torcello.

SILE, in Rural Economy, provincially the name of a milk-pointer.

SILEBY, in Geography, a large and populous village and parish on the easterly bank of the river Soar, in the hundred of East-Golscote, and county of Leicester, England. The lordship contains about 2130 acres, the greater part of which was inclosed, with other contiguous lands, in conformity to an act of parliament passed in 1759. The manor belongs to Earl Ferrers. In the parish were formerly two ancient mausoleums, belonging to the Sherard and the Polcan families. In 1811 the parish contained 240 houses, and 1200 inhabitants, most of whom were employed in agriculture and farm-work, knitting. Here is one free-school, and three other large schools. The church, a handsome stone building, consists of a nave, aisle, and chancel, a porch, and a tower. The reversion of the church was formerly appropriated to the abbey of St. Ebrul, in Normandy, which was suppressed by king Henry V. Afterwards the living belonged to the prior of St. Mary, in the isle of Axholme, in the county of Lincoln. Nichols's History and Antiquities of the County of Leicester, folio, vol. iii.

SILEIN, a town of Hungary; 14 miles E.N.E. of Bolekdo.

SILENCE, Fr. in Music, equivalent to rest; which see.


Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, swelling, five-toothed, permanent. Cor. Petals five; claws narrow, the length of the calyx, bordered with a membrane; limb flat, horizontal, obtuse, often divided, and morelly furnished, more or less, with a crown, erect, toothlike crest at its base, constituting the crown of the flower. Stam. Filaments ten, awl-shaped, five alternate ones inserted into the claws of the petals, and later than the rest; anthers oblong. Fil. German superior, cylindrical; styles three, simple, longer than the flower; stigmas twisted contrary to the motion of the sun. Peric. Capsule cylindrical, ovate, or somewhat globule, covered by the calyx, more or less perfectly three-celled, bursting at the top into fix teeth. Seeds numerous, kidney-shaped, attached to a central receptacle.


Obi. The crown of the petals, on which Linnaeus depended for his character of Silene, in contradistinction to Cucubalus, being found not only to separate species most closely related, but even to vary in the same species, as Lamarck and many others have noticed; the authors which stand on our list of references above, have agreed to remove to Silene all the Linnaean Cucubalus, except C. baceta, on which Tournefort originally founded that genus, which has indeed a crown, but is distinguished by having for its fruit a real berry, not a capsule. See Cucubalus.

Silene, thus considered, is a vast genus, of which new species are still from time to time discovered, in the warmer and drier regions of the south of Europe, and north of Africa; countries abounding particularly with this tribe of plants. All the species in general are herbaceous, many of them annual, very few shrubby. Their stems are jointed, branched, leafy, frequently gluttonous, for a certain space, below each joint. The calyx and flower-flats are also, when downy, somewhat vilid. Leaves opposite, fimple, entire. Petals red or white, rarely greenish or yellowish; scarcely ever blue. Some of the flowers, especially the greenish ones, are deliciously fragrant at night; and if they have any scent, are sweetest at that time, like the Pink tribe in general. We shall select sufficient examples of the genus, particularly describing such as are new, or hitherto only mentioned in the Prodr. Fl. Grsec, as well as all those of British growth.

Sect. 1. Stem racemose; occasionally somewhat forked.


S. quinquerviulata. Variegated Catchfly. Linn. Sp. Pl. 595. Wildl. n. 3. Ait. n. 17. Pursh n. 1. Fl. Brit. n. 2. Eng. Bot. t. 86. (Lychins hirta minor, flore variegate; Tourn. Infl. 337. Dodart Mem. ed. Amst. 601. t. 23.)—Hairy. Petals roundish, entire. Flowers lateral, alternate, erect, as well as the fruit.—Native of dry or sandy fields in the fouth of Europe and the Levant. Mr. Hudson found it near Wrotham in Kent; and Mr. Pursh near Charlestown, Carolina, on the sea-coast. We presume this species to have been carried from Europe to America, being a common hardy annual in gardens, where it flowers in June and July. The plant is not viscous like the preceding, though hairy. The petals are remarkable for a brilliant crimson spot in the middle of each. The lowest calyctes are sometimes reflexed.


lui
Flowers spike, alternate, nearly sessile, directed one way. Petals deeply clawed. Leaves spatulate, hairy. — Native of Spain, the south of France, vineyards about Constantinople, and cultivated ground in Greece; also of Virginia; flowering in June and July. An annual, upright, slightly branched species; the leaves which accompany the flowers narrow, and much smaller than the leaf. Petals small, pale pink, or white with a green external tinge, minutely crowned. Capsules ovate, flattened. The flowers are said to expand at night only.

S. pendula. Pendulous Catchfly. Linn. Sp. Pl. 599. Willd. n. 27. Ait. n. 37. Curt. Mag. t. 114. (Vicagino hiera fucu. lychnidus aquaticus facie, fupina; Dill. E1th. 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 plumes 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. versicolor. Pink Evening Catchfly. Retz. Obl. fasc. 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. 352. t. 100. S. ciclata; Willd. n. 4, excluding the synonymy. Lychmis marina hirta purpurea, leucoj folio; Barred. Tc. 1010.) — Petals with two deep rounded lobes, and a sharp cloven crest. Calyx downy. Leaves spatulate. Stems diffuse. — Found on the sea-shores of Sicily, Barbary, Crete, Zante, 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 spatulate leaves. The flowering branches are naked below, each terminating in a simple cluster of eight or ten handiome bracteate pink flowers, all drooping one way, with a reddish club-shaped calyx. The pubescence, especially of the calyx, is more cold and soft than in S. pendula, though more long and flabby in some specimens than others. The stem is very rarely once forked, being usually altogether racemose.

S. dianthiflorus. Pale Spiked Catchfly. Prodr. Fl. Græc. n. 981. Fl. Græc. t. 410, unpublished. — Petals with two deep narrow segments, and a notched crest. Calyx villous. Leaves oblong. Stem diffuse. — Gathered by Dr. Sibthorpe, in the isle of Cyprus. The root is annual, long. Stems spreading, rarely a span in length, not forked, though morelly once divided, round, leafy, reddish, rough, like the leaf of the herbs, with long spreading hairs. Leaves thick and broad, rather more than an inch in length; the lower ones tapering at the base. Flowers six or eight in each spike, crested, on short, flat stalks. Calyx rather slender, hardly an inch long, with ten reddish hairs. Limbs of each with nearly as long as the claw; pale red on the upper side; light green, with darker veins, beneath; crest white, divaricated, double-toothed.

S. thyrsifolia. Thyme-leaved Catchfly. Prodr. Fl. Græc. n. 982. Fl. Græc. t. 411, unpublished. — Petals with two deep narrow segments, and a notched crest. Calyx hairy, glabrous. Stems procumbent, woody, much branched. Found by Dr. Sibthorpe 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 vivid, flowering branches, from three to fix inches long. Leaves oblong, acute, rough, about half an inch long, with axillary tufts of still smaller ones. Flowers raceemose, three or four at the top of each branch, erect, white, but 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. Pl. Select. n. 65. Willd. n. 23. Fl. Græc. t. 413, unpublished. (S. trinervis; Soland. in Russell’s Aleppo, ed. 2. 252.) — Petals in two deep narrow segments, with scarcely any crenum. Stem forked, racemose, villous as well as the leaves. — Native of Hungary and the Levant. Dr. Sibthorpe 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 Kievini. Root biennial, tapering, as thick as a common radish. Stems several, ascending, from one to two feet high, round, flabby with long spreading hairs, once or twice forked, with an intermediate, nearly feathery, flower, and then extended into long, simple, spiked or racemose branches, each bearing five or six flat, round white flowers, whose petals are narrow, with only occasional rudiments of a cret. Calyx with ten green ribs. Anthers green. Seeds red-brown. The leaves are chiefly radical, and very numerous, composing a dense, flabby, hoary, and somewhat glaucous, tuft; each leaf two inches long, and nearly one broad, ovate, bluntly pointed, tapering down into a broad footstalk.

S. divaricata. Forked Spreading-branched Catchfly. Sm. Prodr. Fl. Græc. n. 983. Fl. Græc. t. 414, unpublished. — Petals in two deep rounded lobes, with a cloven crest. Stem forked, divaricat, racemose. Leaves all lanceolate, hairy, acute. Discovered by Dr. Sibthorpe 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, undivided, of a darker green, rough with shorter hairs, not flabby. 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 crest.

Seç. 2. Stem forked, with paniced branches.

chaux noticed it in Canada. The root is perennial, long, whitish, branching at the summit. Stems erect, a foot and a half or two feet high, branched, round, glaucous. Leaves ovato-lanceolate, acute, glaucous, usually very smooth, but occasionally roughish and fringed; the radical ones numerous, crowded, capitate. Peduncle forked, bearing numerous white drooping flowers. Calyx almost globose, membranous, white, elegantly reticulated with green or purplish veins and ribs. Limb of each petal almost as long as its claw, cut half way down into two spreading, oblong, somewhat rounded segments, generally delimitate of a cret, but we have sometimes detected the rudiments of one. Anters green, occasionally liable to a disease, by which they become enlarged, tending with ufeles purple dust, which stains the petals. The natives of Zante, who call this plant čokalaki, eat the boiled leaves, which are said to partake of the flavour of green peas.

S. maritima. Sea Campion or Catchfly. With. 414. Fl. Brit. n. 6. Engl. Bot. t. 957. Willd. n. 29. Ait. n. 23. (S. amena; Hudf. Angl. 188. Lightf. Scot. 227. Cucubalus bhenan B.; Linn. Sp. Pl. 591. Fl. Dan. t. 857. Lychnias marina anglica; Bauh. Hill. v. 3. p. z. 357. Ger. Em. 469. Lob. Lc. 337.)—Flowers nearly solitary, terminal. Petals cloven about half way down; the segments of their cret entire. Calyx smooth, reticulated with veins. Stem decumbent.—Native of the sandy or rocky sea-shores of Norway, Britain, Gotland, &c. as well as of the rocky 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. inflata, that molot bo-nanths, for a long time, considered the plant as a mere variety of that species. They are indeed so nearly akin, as to be inseparable with respect to genus, though inflata is moist without a crown to the flower, and this is always furnished with one. The root of S. maritima is creeping, and the stems often quite prostrate, hardly a span high, bearing one flower, for the molt part, rarely two or three, fearcely constituting a panicule. The leaves are narrower, linear-lanceolate, or slightly flatulate, very smooth and glaucous, minutely toothed at the edges. Calyx much like the last. Capsule shorter, almost globular. Styles occasionally varying to four or five.

S. bimbrata. Fringed Campion or Catchfly. Sims in Curt. Mag. t. 908. Ait. n. 46.—Flowers panicked, drooping. Petals divided, many—eleft; the segments of their cret cloven. Calyx veined, down. Stem erect.—Native of mount Caucasus, from whence it was sent to Sir Joseph Banks and Mr. Lodgings. A hardy perennial, really increated by seeds, and flowering all summer long. The whole plant resembles a large rothgious variety of S. inflata, but the deeply fringed petals, and their evident cret, at once disting. With it.

S. fabaria. Thick-leaved Campion or Catchfly. Prodr. Fl. Græc. n. 685. Fl. Græc. t. 415, unpublished. Ait. n. 2. (Cucubalus fabarius; Linn. Sp. Pl. 591. Willd. Sp. Pl. v. 2. 685. Been album, feu Polemon masticale, fabaria folio, scabrum; Bosc. Mutt. 133. t. 92.)—Flowers clustered, crowded, drooping. Petals in two deep, rather narrow, lobes; the segments of their cret notched. Leaves ovate, with a small point.—Native of rocky places near the sea, in Sicily, Afa Minor, Mount Athos, and the Isle of Samos. Root perennial. Plant very glaucous and smooth, twice as tall as the inflata, with much thicker and broader leaves. The stem is once or twice forked, each of its long upright branches bearing several remote, short, tufted clusters of drooping white flowers, with a reticulated, purplish, timid, angular calyx; and flalks, with pointed bracteas, all of the same hue. The limb of each petal is half the length of its claw, in two narrow—ovata, spreading lobes; the cret deeply divided, with sharply crenate segments. Germin red in the lower half, green above. Calyp- fule nearly globose. The present species is evidently, according to the Linnean character itself, a Silene, and too clothly related to the three preceding, and the following, to be separable from any of them, even in a section of a genus.

S. beben. Oriental Bladder Campion or Catchfly. Linn. Sp. Pl. 599. Willd. n. 25. Ait. n. 36. Fl. Græc. t. 416, unpublished. (Cynoglossum orientale, parvum flore purpureo; Dill. Elth. 427. t. 317.)—Flowers in a corymbose panicle, nearly upright. Petals deeply divided, rounded; the segments of their cret notched. Calyx reticul- ated. Leaves ovato-lanceolate. —Native of Crete, Afa Minor, and Greece.—The root of this is annual. Herb less glaucous than the last, and more approaching in habit to our common S. inflata; but the flowers are smaller, and effenlly different. The limb of each petal is but a quarter the length of its claw, pale pink, in two elliptical, or almost orbicular, lobes, with a white cret, of two, quite separate, notched segment. Germin elevated on a stalk of its own length, along with the petals and stamens, within the calyx, as is more or less the case with most of this genus.

S. sestifolia. Sea-green Campion or Catchfly. Sm. Prodr. Fl. Græc. n. 689. Fl. Græc. t. 417, unpublished. (Lychnis recta montis Idae, folio subrotundo, cæli; Tourn. Cor. 24, by the character.)—Flowers in a corymbose panicule, erect. Petals in two deep linear divisions; the segments of their cret entire. Leaves roundish-ovate. —Native of mount Parnassus, and if we are right in Tournefort's synon- ym, of mount Ida. This delicate smooth species has a very deep perennial root, crowned with a dense tuft of nu- merous, branching, leafy, round, jointed stems, nearly a span high, each terminating in one or two naked flowering branches, about a finger's length, bearing a forked panicule, 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 clasp the stem. Bracteas under the partial flower-stalks small, ovate, acute. Calyx ovate, 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 close, or parallel, three to half the length of the claw. Styles and stamens rose-coloured, with greenish anthers.

S. levigata. Smooth-cupped Catchfly. Sm. Prodr. Fl. Græc. n. 699. Fl. Græc. t. 418, unpublished.—Panicule spreading. Petals cloven half way down, narrow, without a cret. Leaves roundish-elliptical. Calyx very smooth and even, without veins.—Found by Dr. Sibthorp in hilly pastures of the island of Cyprus. The root is annual. Stems several, from three to eight inches high, leafy below, smooth like every other part of the plant. Leaves of a deep glaucous hue; the radical ones ovate, stalked; the rest ovate, long oblong, and nearly sessile. Panicules forked; the partial stalks much longer than the calyx, which is ovate, reddish, peculiarly even and polished. Petals small; their limb pink, in two oblong, obtuse lobes, separated but half way down, and deltate of it minute. Styles very downy, rather short.

way, Sweden, Switzerland, and Greece. The root is perennial, tufted, bearing several leafy flens, four or five inches high, with a somewhat corymbose panicle. Herbage smooth, green, glaucous at all glaucous. Leaves an inch long, acute, varying in length. Flowers small, white. Capsule splitting from top to bottom into six valves.

S. chloroferia. Armenian Catchfly. Sm. Plant. ex Herb. Limn. t. 13. Willd. n. 52. Ait, n. 52. Curt. Mag. t. 807. (Lycnis orientalis vifcofa, centarea lutea folio, flore longifimo; Tourn. Cor. 24.)—Panicle spreading. Petals cloven half way down, with a two-lobed crest. Leaves glaucous, elliptical, pointed. Calyx nearly cylindric, very smooth, without out veins.—Gathered by Tuinoufert in Armenia. Said to have been introduced at Kew in 1796, by Mr. John Hinnemann. A very hardy perennial, twelve or eighteen inches high, flowering in August, readily known by the general resemblance of its foliage to Chloba perfoliata, though the leaves are not perfolate. Flowers large, erect, in a wide panicle, without scent, white, turning reddish as they fade. Calyx above an inch long, tinged with purple, very smooth, without out ribs or veins, its form slender, cylindric, or slightly club-shaped.

S. longipetala. Long-petalled Catchfly. Vent. Jard. de Cels. t. 83. Sm. Prodr. Fl. Grac. Sibth. n. 902. Fl. Grac. t. 419. unpublished.—Petals pendulous. Petals in two deep linear segments; with a notched crest, and hairy claw. Leaves lanceolate, rough-edged.—Found by Bruguiera and Olivier, in the neighbourhood of Aleppo. Dr. Sibthorp met with the same in the Isle of Cyprus. The root is annual. Stem two feet high, leafy, panicled, spreading, and manyflowered. Herbage 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 obvate, ten-ribbed, smooth, half an inch long. Claws of the petals hairy below, as well as the flaments and styles; limb smooth, very long, involute. Stigmas club-shaped, red like the anthers.

S. inaperta. Small Greenish Catchfly. Linn. Sp. Pl. 600. Willd. n. 39. Ait, n. 44. Sm. Fl. Grac. Sibth. t. 420. unpublished. (Vicago levii, inaperto flore; Dill. Elth. 424. t. 315.)—Panicle spreading. Flower-sect. Petals in two deep narrow segments; with a double awl-shaped crest. Leaves linear-lanceolate, smooth.—Native of Madeira. Atten. Dr. Sibthorp found it on the mountains of Greece. The root in his specimens is creeping, and evidently perennial. Delphinus describes it as annual. Stem 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 panicle 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 slender, 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. Calyx ovate, its stalk, within the calyx, as long as itself.

S. juncea. Ruflhy Catchfly. Sm. Prodr. Fl. Grac. Sibth. n. 954. Fl. Grac. t. 421, unpublished.—Panicle elongated. Flower-sect. Petals in two deep narrow segments; each lobe of their crest three-toothed. Leaves spatulate, 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, slender, smooth, slightly spreading panicle, of numerous flowers, 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 above the panicle are awl-shaped and smooth.

S. cretica. Cretan Catchfly. Linn. Sp. Pl. 601. Willd. n. 42. Ait. n. 47. Sm. Fl. Grac. Sibth. t. 432, unpublished. (Vicago folis inferioribus belliis, superioribus lineis, calice atrico, et turgidior; Dill. Elth. 422. t. 314. f. 404, 405.)—Panicle sparingly branched. Flowers erect. Petals in two deep dvaricated segment; the lobes of their crest acute, entire. Lower leaves obvate, undulated, roughish.—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 Chelsea garden. The flens are two or three, one to two feet high, erect, slender, villose. Leaves green; the lower ones obvate, obtuse and rough; upper linear-lanceolate, acute, smooth. Flowers few, small, but not elegant, crimson, with a smooth, purplish, obvate, ten-ribbed calyx. There is an angular tooth at 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. Auct. t. 253. Sm. Fl. Grac. Sibth. t. 243; unpubl. (Lycnis calicus friatis, sect. Sibth. 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 villose, of a greyish-green. Stems solitary or numerous, spreading, various in height, forked and panicled. Leaves linear-lanceolate, acute. Flowers erect, pale rote-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. conoidea of Linnaeus may be a variety of this, with finer, broader leaves.

S. nothoflora. Night-flowering Catchfly. Linn. Sp. Pl. 599. Willd. n. 31. Fl. Brit, n. 9. Engl. Bot. t. 291. (Oxycoites nothoflora; 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 Lycnis chito, (their calyx and flaments very villose,) 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. leucophaea. White and Brown Catchfly. Sm. Prodr. Fl. Grac. Sibth. n. 1000. Fl. Grac. t. 424; unpubl. —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, glabrous, branching, annual species, about a span high. Leaves an inch or inch and half long, green, narrow, obtuse, channelled, somewhat...
what revolute, recurved. Flowers smaller than the leaf, especially their calyx, which is pale, reddish, defoliate of tracheal ribs. Petals cream-coloured above; of a cinnamon brown beneath; their crest in two rounded entire lobes. This is probably a night-scented flower, like the last.

S. ramphiflora. Bushy Red Catchfly. Sm. Prodr. Fl. Græc. Sibth. p. 1001. Fl. Græc. t. 425, unpublished. (S. fedoideæ; Desfont. Atlant. v. 2. 449? Bivon. Cent. 2. 58. Osynomides, flore rubro, minus, creticum; Buhl. Hill. v. 2. 355. cap. 59. Lycnis hirta angustifolia cretica; Tourn. Insert. 337.)—Petals deeply divided; with a four-cleft crest. Calyx club-shaped, with ten angles. Leaves spatulate, recurved. Stem very much branched.—Native of Crete and Sicily, on rocks near the sea. Root annual. Whole herb hairy and viscid, green with a brown tint, repeatedly high. Leaves about an inch long, obtuse, rather fleshy. Flowers very abundant, small, on long, red, hairy stalks, from the forks, sides, and summits of the branches, erect. Calyx somewhat obovate, hairy, red, with ten ribs. Petals rose-coloured; their limb divided nearly to the bottom; their crest white, in four deepawl-shaped segments. Capsule erect, cylindrical, opening with three spreading, obtuse, cloven teeth. Seeds black. That this is S. fedoideæ of figinier Bivona Bernardi, in his second Cent. Siculiac. Plantarum, we have ascertained by specimens from himself, since the publication of Prodr. Fl. Græc. But there is reason for hesitation respecting the plant of Desfontaines, which is probably Wildenow’s n. 36; the former describes it as procumbent, with only two appendages to each petal, and the latter cites Lycnis cretica maritima minimæ, postulata fynstis folio, Tourn. Cor. 4, a species unknown to us.

Seç. 3. Stem forked, corymbosæ.

S. rubella. Small-red-flowered Catchfly. Linn. Sp. Pl. 620. Wild. n. 38. Ait. n. 43. Sm. Fl. Græc. Sibth. t. 426, unpublished. (Vifcago lautanica, flore rubello viro conspicie; Dill Elth. 423. t. 314. f. 466.)—Smooth, corymbosæ. Calyx obovate. Petals emarginate; with a rounded two-lobed crest. Upper leaves ovato-lanceolate. Capsule threc as long as its partial flalk. Native of fields and waste ground, in Portugal, Rhodes, and Cyprus, flowering in spring. Root annual. Herb quite smooth, of a glaucous green. Stem a foot or more in height, branched from the bottom, leafy; all the branches erect. Leaves obovate, recurved, an inch and a half long; upper rather shorter, acute, lanceolate, slightly ovate, recurved at the point. Flowers mostly crowded into a level-topped panicle, with one or two below, in the forks of the branches, pale red, erect. Calyx scarcely more than half an inch long, ten-ribbed, smooth, pale, with purple teeth. Petals of a dull rose-colour, spreading, variously heart-shaped, but rather oblong; their crest of two oblong, rounded, entire lobes. Capsulae redish-ovate, on a short partial flalk.

S. orbicella. Orchis-flowered Catchfly. Linn. Suppl. 241. Wild. n. 46. Ait. n. 50. Sm. Fl. Græc. Sibth. t. 427, unpublished. (A. Atcoson; Jacq. Hort. Vind. v. 3. 19. t. 32. Lycnis graecæ, bellidio folio verna, flore parvo dilute purpureascens; Tourn. Cor. 24.)—Downy, corymbosæ. Calyx cylindrical-club-shaped. Petals four-lobed; with a sharp two-lobed crest. Upper leaves ovate. Partial flalk as long as the capsule.—Native of the Levant, flowering in May. Annual, of the size and habit of the last, but the herbage is of a grassy-green, and finely hairy or downy, particularly the stem, the upper part of which is also viscid. Leaves broader, sometimes smooth in the diff., though rough-edged. Flowers crowded and level-topped. Calyx an inch long, downy, often red. Petals rose-coloured, four-lobed like the lip of Orchis militaris, having two rounded central segments, and two narrower sharp lateral ones. The lobes of their crest are awl-shaped. The crest is not well distinguished in Jacquin’s figure from the lateral lobes.

S. Armeria. Common, or Lobel’s, Catchfly. Linn. Sp. Pl. 601. Wild. n. 46. Fl. Brit. n. 10. Eng. Bot. t. 1398. Fl. Dan. t. 559. (Mucropulpa Lobeli; Ger. Em. 601.)—Smooth, corymbosæ. Calyx cylindrical-club-shaped. Petals emarginate; with a sharp two-lobed crest. Upper leaves heart-shaped. Partial flalk as long as the capsule. Found in fields, and on banks, in various parts of Europe, but a doubtful native of England, though frequently cultivated as a hardy ornamental annual, flowering in summer. Dr. Sibthorpe met with this species in Greece, and on mount Athos. In habit it agrees very much with the last, but is smooth, more glaucous, with broader leaves, and the calyx is not downy. The petals are simply obcordate, without lateral lobes. There is a brown glaucescent ring under each joint of the flalk, by which flies are caught.

S. italicæ. Italian Naked Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1006. Fl. Græc. t. 429, unpublished. Ait. n. 6. (Cucubalus italicæ; Linn. Sp. Pl. 593. Wildl. Sp. Pl. v. 2. 688. Jacq. Offb. fæce; A. 12. t. 97, not 79, as in Hort. Kew. and Wildl. now.)—Panicle corymbosæ, spreading, somewhat three-forked. Petals in two deep narrow segments, without a crest. Leaves spatulate, rough.—Native of Italy and Greece. Cultivated by Miller. The root is biennial. Herb green, roughish with short rigid hairs. Stem solitary, herbaceous, erect, twelve or eighteen inches high, leafy, somewhat branched above, but chiefly at the base, from whence it tends out several, decumbent, leafy, purplish, shoots, three or four inches long. Lower leaves forked, spatulate or ovate; with lanceolate; all thin and small, not fleshy. Panicle erect, rather slender, dirrivated, more or less downy. Calyx an inch long, finely swelling upward, with ten rough reddish ribs. Petals quite naked; their limb cloven nearly to the base, narrow, obtuse; white above; veined with purple underneath. Capsule ovate, on a long flalk within the calyx.

S. catholica. Panicled Naked Catchfly. Ait. n. 10. (Cucubalus catholicae; Linn. Sp. Pl. 593. Wildl. Sp. Pl. v. 2. 688. Jacq. Hort. Vind. v. 1. 23. t. 59.)—Panicle forked, much branched, widely spreading. Petals in two deep narrow segments, without a crest. Calyx obovate. Smooth. Leaves ovato-lanceolate, nearly smooth.—Native of Italy and Sicily. Mentioned in Cupani’s Hortus Catholicus, or Garden of the Prince of la Catholica, whence came the specific name; and not, as many suppose, from the plant being a native of Roman Catholic countries. The plant is perennial, of a tall slender habit, green, smooth, or slightly rough, with a large dirrivated panicule, of numerous, small, white flowers, whose calyx is one-third of an inch long, often purplish, obscurely ribbed. Stamens usually longer than the petals. Capsulae nearly globose, on a long flalk.

We are not quite satisfied respecting Vifcago latifolia non viscosa, herbeceæ flore; Dill. Elth. 425. t. 316. considered by Linnaeus as a variety of this, but it seems to be S. fistulosa, Ait. n. 28. Curt. Mag. t. 689.

with foot down.—Native of the sea-coast of Italy. Gathered by Dr. Sibthorp in Alia Minor, between Smyrna and Paphos. 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 velvety pubescence. Leaves crowded, spatulate, an inch and a half long, acute, slightly revolute. Panicle denser, level-topped. Calyx club-shaped, ten-ribbed. Petals white or reddish; their limb irregularly heart-shaped. We find this plant mentioned in Mr. Donn’s Cambridge catalogue, as introduced in 1804. If it exilis in any garden, a figure ought to be published.

S. fruticosus. Shrubby Catchfly. Linn. Sp. Pl. 597. Wildl. t. 14. Ait. t. 26. Sm. Fl. Græc. Sibth. t. 428, unpublished. (Saponaria frutescens, acutis foliis, ex Sicilia; Bocc. Sic. 58. t. 30. Ocydoides fruticosum; Cramer. Hort. 109. t. 33, excell. — Panicle corymbose, close, somewhat three-lobed. Calyx club-shaped, rough. Petals clavên; cleft of four teeth. Stem shrubby. Leaves round-edged.—Native of rocky situations, near the sea, in Sicily and Cyprus. It is supposed, on the authority of Parkinson’s Paradiso 254. t. 10, 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 an inch long, are more densely furnished with smaller leaves, and are downy, vilvíd, 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, long-ovate, smooth, and thick; 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 crest 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, scarcely forked.

S. rigida. Slender Rigid Catchfly. Sm. Prodr. Fl. Græc. Sibth. t. 1009. Fl. Græc. t. 439, unpublished.—Stem alternately branched, spreading. Petals in two deep sharpish lobes; each segment of their crest four-toothed. Leaves lanceolate, smooth.—Discovered by Dr. Sibthorp, on mount Hympetnus, near Athens. The stem is annual. Stem erect, a foot high, copiously branched from the very bottom, spreading, flender, purplish, vilvíd, but, like every other plant, of a dérit of pubescence. Leaves green, narrow, few and remote, about an inch long; the lowermost longer and broader. Petals pale pink, veined with cr monuments. Calyx club-shaped, pale green, with ten red ribs, smooth, not an inch long. Capsule ovate, shorter than its flake. A very pretty species, whose copious and delicate flowers would be an acquisition to our gardens.

S. spinifex. Thorny-branched Catchfly. Sm. Prodr. Fl. Græc. Sibth. t. 1010. Fl. Græc. t. 431, unpublished.—Stem shrubby, branches opposite, horizontal, becoming thorns. Petals deeply divided. Leaves spatulate, downy all over.—Found by Dr. Sibthorp in Aia Minor. The stem is thick and woody, very densely branched, leafy, downy, remarkable for its numerous, long, divergated, lateral shoots, which finally harden into spines. The flowering branches are erect, a span high, each bearing a raceme, downy panicles, 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 crest of each petal consists of two small, rounded, white lobes. Capsule ovate, twice the length of its flake.

S. gigantea. Gigantic Catchfly. Linn. Sp. Pl. 598. Wildl. n. 17. Ait. n. 29. Sm. Fl. Græc. Sibth. t. 432. (Lychnis graeca, fæci arboreceentric follio et facie; Walch. Hort. 32. t. 11.)—Stem erect, downy, and vilvíd. Flowers tufted. Leaves spatulate, villous. Petals in two rounded lobes. Capsule nearly globular.—Native of Crete and the islands of the Archipelago; Linnæus by mistake says of Africa. It has long been noted in our more curious green-houses; and is esteemed for its sweet nocturnal perfume of its pale green flowers. The plant, though only a yard high, and of a shrubby aspect, is only biennial. Radical leaves two inches long, copious, of a broad flatulate figure, more or less villous, light green, obtuse, with or without a small point. Stem straight, vilvíd, leafy, with a few short branches, below; slightly branched above, but beget with denfe, whorl-like, downy panicles, of numerous flowers. Calyx three-quarters of an inch long, club-shaped, downy. Limb of the petals divided more than half way, into two broad rounded lobes, veined beneath with purple; their crest claven, very short. Capsule twice as long as its flake.

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 flatulate, downy.—Gathered by Dr. Sibthorp in Greece; we believe on hills near Athens. The stem is woody, evidently perennial, bearing many tufts of copious, flatulate, obtuse, green flowers, an inch and a half long, clothed, like the rest 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 vilvíd 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 claven into two rounded lobes, without any crest. 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. viridiflora. Panièled Green Catchfly. Linn. Sp. Pl. 597. Wildl. n. 19. Ait. n. 31. (Lychnis ocymaltri folio, flore viridi; Herm. Parad 199, with a plate.)—Stem branched. Panicles elongated, leafy, drooping, many-flowered. Petals divided half way; their crest of two linear lobes. Leaves elliptic-lanceolate, acute, downy. Native of Portugal and Spain. The root is said in Hort. Kew, to be biennial, though Hermann calls it perennial. Stem one and a half or two feet high, ending in a long leafy panicle of drooping green flowers. Leaves two or three inches long, rough, like the rest of the herbage, with extremely minute tubercles, and more or less of short hoary hairs. Flowers like the last, 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. Fl. Brit. n. 3. Eng. Bot. t. 465. Fl. Dan. 3. 242. (Lychnis sylvatica alba nona Clutib; Ger. Em. 470.)—Flower-flakes panicked, drooping one way. Petals in two or three linear segments; their crest of two acute lobes. Leaves lanceolate, downy.—Native of dry lime-stone pastures or rocks, in various parts of Europe, flowering in June and July. It was first, in this kingdom, observed at Nottingham castle, but grows also at Dover, and various
various other places. The root is perennial, rather woody. 

Stems several, herbaceous, erect, a foot or more in height, downy; leafy below; racemose, in the first instance, above, the flower-branches florid, turned to one side, downy and viscid, panicked, or imperfectly forked, each of three or four drooping white flowers, which expand in an evening. Calyx obovate, near three-quarters of an inch wide; ten-ribbed, slightly downy. The lowest leaves are spatulate, on long stalks.

S. paradoxa. Soap-wort Catchfly. Linn. Sp. Pl. 1673. Willd. n. 13. Jacc. Hort. Vind. v. 3. 45. t. 84. (Lychnis viscosa peregrina noctiflora odorata; Zanoni. It. t. 126. t. 50.) — Panicle racemose. Petals inerally heart-shaped; their crest of two acute lobes. Calyx downy Leaves obovato-lanceolate, smooth.—Native of the south of Europe. Miller cultivated it for the Dover Catchfly, so that it requires a place in the Hortus Kewensis, though erroneously admitted into Fl. Brit. 467, as is explained at 1307 of the same work. What the older botanists found at Dover, and which may be seen in Petiver's and Badder's collections in the British Museum, is still an undetermined plant. We greatly suspect, after all the confusion that has attended it, that this Dover Catchfly may be, as Mr. Hudson made it, the true Cusubulus viscosus of Linnaeus, (see our next species but one,) a Swedish Silene, for which Tournefort's Lyciun us orientalis maxima, buglossi folio undulato, figured in his Voyage, v. 2. 148, is erroneously quoted. Botanists of late have found nothing of the true S. paradoxa; but Silene mutabilis, varying in fize and hairiness. The true S. paradoxa is a nearly smooth plant, not very unlike Saponaria officinalis in flowers, but more slender in habit. The lower leaves are inclining to spatulate; the upper are linear-lanceolate. Calyx above an inch long, downy. Petals large, pale red.

S. filiformis. Long-smooth-flowered Catchfly. Ehrh. Beitr. v. 7. 144. Pl. Select. n. 75. Willd. n. 16. Ait. n. 27. " Walld. et Kitab. Hung. v. 1. t. 8." (S. juncea; Roth Catal. v. 1. 54. Lychnis prolonisia folis et calyce; Barrel. le. 63. t. 382.) — Panicle flender, racemose. Petals in two deep, rounded, divericated segments; their crest of two acute lobes. Leaves linear-lanceolate, smooth, as well as the slightly ribbed calyx.—Barrelier says this plant grows in dry rocky situations in Tuscany. There can be no doubt as to his synonym, though entirely overlooked by the German writers, who mention Hungary as the country of their plant. This is a tall, flender, elegant, perennial species, quite smooth, with a purpel tinge on the stem and calyx. The latter is above an inch long, flender, nearly cylindrical, with ten obolote ribs; its surface even and polished, without any pubesence. 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. paradoxa, but the long racemose panicles, and smooth even calyx, afford clear marks of distinction.

S. viscosa. Clammy Hairyl Catchfly. Ait. n. 3. (Cnema
calus viscosa; Linn. Sp. Pl. 592. Fl. Suec. ed. 2. 148. Willd. Sp. Pl. v. 2. 685. Lychnis montana viscosa noliftera hirta latifolia alba, floribus albo appendicibus; Till. Pl. 105?) — Panicle simply racemose, hairy. Flowers opposite, longer than their stalks, drooping every way, without a crest. Stem simple, leafy. Lower leaves lanceolate, even, nearly smooth; upper downy, viscid; dilated and reflexed at the base.—Native of Scania and Finland, where it was gathered by Linneus; and perhaps of Tuscany; as well as of our cliffs at Dover; for the last species but one. The Finland specimen, in the Linnaean herbarium, is a foot high, with a rather stout, round, unbranched stem, leafy throughout, most downy and viscid in the upper part. Linneus says the root is biennial. The three or four pair of lower leaves are two or three inches long, pointed, quite even and entire at the margin, nearly smooth, half or three-quarters of an inch wide; as many pair above them are gradually shorter, taper-pointed, even, feebly wavy, both their surfaces viscid and denibly downy, their base greatly dilated, ovate, or almost heart-shaped, clasping the stem. The solitary simple panicles, or rather clayer, about five inches long, consists of eight or ten pair of opposite solitary flowers, on short simple stalks, accompanied by small heart-shaped bracteas, altogether very hairy, and apparently viscid, as Linneus describes them. He says the flowers are white, fragrant at night, and do not turn to one side, but droop in all directions. Calyx hardly an inch long, cylindrical, hairy, pale, with ten green ribs. Petals in two rather deep, somewhat rounded, segments, without a crest. Catchfly ovate, on a shortish stalk. We do not understand why Linneus describes the stalks as three-flowered. We have no means of knowing whether this plant was cultivated by Miller in 1739; but by his having sent S. paradoxa to Linneus for the Dover Catchfly, it is most probable that neither our visciosa, nor Tournefort's species next described, was ever in the English gardens.

S. buglossifolia. Bugloss-leaved Catchfly. (Lychnis orientalis maxima, buglossi folio undulato; Tourn. Cor. 23. Voy. v. 2. 148, with a figure.) — Panicle simply racemose, hairy. Flowers opposite, much longer than their stalks, erect, without a crest. Stem simple, leafy. Leaves undulated, hairy; the upper ones lanceolate.—Gathered by Tournefort at the foot of mount Ararat, flowering in the middle of August. By his description the root should seem perennial, as being divided at the crown into several parts. Stems several, a yard high, straight, firm, hollow, leafy, hairy and clammy, four lines in diameter. Lower leaves about five inches long, and one broad, ovato-lanceolate, acute, wavy and crisped at the edges, hairy, with a strong midrib and many veins; upper gradually smaller and narrower; the bracteas linear-lanceolate, mostly equal in length to the calyx, which is cylindrical, an inch long. Petals white, cut half way down, or more, into two rounded lobes, and apparently detitute of a crest; but Tournefort leaves that important circumstance unnoticed, while he minutely describes the green germen, and white stylos. His plant, though referred by all authors to the preceding, is unquestionably distinct. We have compared specimens.

S. amoenis. Tartarian Catchfly. Linn. Sp. Pl. 596, excluding all the synonyms, except Hort. Upl. 11. n. 11. Willd. n. 12. Ait. n. 25. (S. precumanens; Murray Comm. Gotting. v. 7. 81. t. 2.) — Panicle turned one way; the branches somewhat forked, hairy. Petals eleven half way down; their crests converging. Stem decumbent, alternately branched. Leaves lanceolate, nearly firm, simple. Native of Tartary and Siberia. We doubt whether this species has ever been cultivated in England, the plant of Mr. Blackburne's catalogue, in 1779, having doubtless been our S. maritima, then universally taken for amoenis. The latter is a spreading, branching, leafy, perennial species, with green leaves, an inch or two long, of which the upper ones are minutely downy. The panicle is two or three inches long, dense, with leafy lanceolate bracteas. Calyx pale green, with ten purplish ribs, obovate, finely hairy, rather more than half an inch long. Petals white.

SILENE.

downy. 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, Wiltshire. The stem is two or three feet high, somewhat angular. *Herbage green, finely downy and viscid; at least in the upper part. Panicled racemose, partly forked, composed of about a dozen large flowers, conspicuous for the vivid scarlet of their long lanceolate petals, filaments, and styles. 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 craft from the figure cited, which is not sufficiently explicit on this important point.

S. Nuttallii. Spanish Catchfly. Fl. Brit. n. 7. Ait. n. 12. Prodr. Fl. Græc. n. 1014. (Cucubalus Nuttallii; Linn. Sp. Pl. 594. Willd. Sp. Pl. v. 2. 688. Eng. Bot. t. 85. Fl. Dan. t. 518. Scrophulariaceae falaminicæ magnum; Ger. Em. 493.-Panicled erect, much branched, tufted. Flowers dioecious. Petals linear, undivided, without a crest. Leaves pubescent, rough.-Native of dry gravelly open pastures throughout Europe, flowering in July and August. In England it chiefly occurs in the elevated chapagne county of Cambridgeshire, Suffolk, and some parts of Norfolk, where its green panicles may easily be confounded with those of the accompanying grasses. The root is woody and perennial. *Stems erect, two feet high, slightly leafy, very viscid in the middle part of their upper joints. Leaves copious about the root, about an inch in length, on very long falks; in British specimæns they are pubescent, clothed with minute 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 *filaments are usuallly imperfect, or obliterated, in all the flowers of one root, and the *sepals in those of another; but occasionally both are perfect in the same. *Calyx ovate, hardly bigger than a grain of wheat, splitting into six teeth.

S. linifolia. Sickle-leaved Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1015. Fl. Græc. t. 433, unpublished.—Stems panicled at the top. Flowers erect. Petals in two deep rounded lobes; their crests two-lobed, blunt. Leaves linear-lanceolate, rough.—Found by Dr. Sibthorp on mount Parrnissus. The root is perennial, thick, woolly, yellowish within, much divided at the summit. *Stems numerous, about a foot high, erect, clove, leafy, roughish, quite simple, except in the flowering part, very viscid between several of the upper joints. *Leaves numerous, narrow, acute, above an inch long, minutely rough, of a glaucous green. *Flowers erect, in clove, irregular, tender panicles. *Calyx green, smooth, not quite an inch in length, ten-ribbed. *Limb of the petals flesh-coloured above; greenish, with purple veins, beneath. *Calyx on a stalk as long as itself. These flowers, and those of the following, are probably fragrant at night.

S. flatifolia. Thrift-leaved Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1016. Fl. Græc. t. 434, unpublished.—Panicled racemose, simple, clove. Flowers erect. Petals in two deep rounded lobes; their crests two-lobed, blunt. Leaves linear-lanceolate, acute, very smooth. *Calyx shorter than its stalk. *Gathered by Dr. Sibthorp in Greece.—The root appears to be perennial, and somewhat creeping. *Stems foliary, 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, filiform, narrow, glaucous, two inches long, including the stalks. *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 stalk supporting all the parts of the flower, within the calyx, is remarkable for its length, which nearly equals the petals, and exceeds the ripe calyx.

Sect. 5. Stems single-flowered.

S. auriculata. Auricled Mountain Catchfly. Sm. Prodr. Fl. Græc. Sibth. n. 1017. Fl. Græc. t. 435, unpublished.—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 Necropont. The perennial root runs deep into the earth, and is crowned by numerous, dense, rose-like tufts, of grey, ovato-lanceolate, sharply-pointed leaves, an inch long; smooth above; their cartilaginous edges fringed with white hairs. *Stems foliary, erect, simple, downy and viscid, a finger's length, bearing two or three distant pairs of smaller leaves. *Flowers erect, the size of S. maritima. *Calyx swelling upwards; its veins and segments purplish. *Limbs 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 white, tipped with pale purple; the under reticulated with purple veins. *Calyx ovate, nearly thrice the length of its stalk.


S. Pumilio. Dwarf Mountain Catchfly or Campion. Wulf. in Jacq. Coll. v. 2. 126. t. 10. Jacq. Aufl. appendix. 26. t. 2. Willd. n. 55. (Cucubalus Pumilus; Linn. Mant. 71. Caryophyllus sylvaticus octavus; Clus. Hist. v. 1. 285. C. montanus Chiff.; Ger. Em. 593. Betonica coronaria; Bœh. Hist. v. 3. 337.)—Stems single-flowered. Radical leaves linear-lanceolate, smooth. *Calyx nearly cylindric, hairy. *Petals undivided; their crest bristle-shaped. —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 greyish, or thistle-like, rather fuscous leaves, about an inch long; among which are several, foliary, partly decumbent, simple *leaves, about twice that length, bearing a pair or two of smaller filiform leaves. The *flowers are very large in proportion, rose-coloured, and, according to Arduinio, who sent specimens to Linnaeus, very fragrant, though Clausius and Wulfen describe them as without scent. The *calyx is an inch long, slightly bell-shaped, reddish, duskycoloured with soft whitish hairs. Limb of the petals rounded, wavy, but not lobed; their crest, overlooked by Arduinio, of two erect slender crimson teeth, growing pale as the flower fades. *Germen nearly or quite seolate.

They all afford ornament and variety in the clumps and borders of pleasure-grounds.

**Silenus**, in *Ancient Geography*, a people of India, placed by Pliny in the vicinity of the river Indus.

**Silenus**, in *Antiquity*, a fort of heathen divinities, the same with fathys, which were called Silenus when they came to be advanced in age.

Yet was there one principal Silenus, elder than any of the rest. Diod. Siculus says, he was the master or tutor of Bacchus, whom he discipled nobly, and followed him to the wars. He quotes an ancient poet, named Thymactas, who relates, that the Sileni afflicted Bacchus in the war he waged against the Titans; adding, that the first Silenus reigned in an island made by the river Triton, in Lybia.

He is represented as having a long tail hanging behind, which is likewise an attribute of all his posterity. The poets always mount him on an ass, always drunk, and hardly able to support himself; "titubantem annique mereoque," as Ovid (Met. i. v.) speaks. Upon all the antiques that represent him, he has the air of a drunken man dozing over his wine; and when Virgil, in one of his Eclogues, describes him, it is like a man gorged with wine as usual:

"Inflatum hefterno venas ut femper faccho."

Ancient authors, however, who are very worthy of credit, express more favourable sentiments of him. Silenus, according to their account, was a profound philosopher, whose wisdom was equal to his knowledge; and the drunkennes so often mentioned was merely mythical, signifying that he was profoundly imbered in Speculation. Cicero, Plutarch, and many others, had formed the fame 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."

Midas, hearing of the extraordinary talents of Silenus, wished for an opportunity of conversing with him. Silenus, who rambled about the country upon his ass, frequently repose near a fountain, which Midas supplied with wine; and here Midas found him, and treated him with great respect. In consequence of this intercourse, Midas availed himself of the counsels of Silenus, in founding his laws and religious ceremonies. See *Midas*.

A passage in Diogenes Laerius is laid to explain the fable of Silenus's riding on an ass: for in comparing Arif- totipole to Silenus, he says, the first was always on horseback, and the second rode upon an ass: the meaning of which is, that he made only flow, but bare, advances in philosophy; whereas the other moved at a quick pace, and now and then made a trip. The fable of the ass's ears, according to Tertullian (l. ii. de Anima), informs us, that he was endowed with great intelligence. Vossius (de Idol. l. ii.) explains that of the fountain of wine, by saying that it dignified only the desir the desire that Midas had to get Silenus into his possession, who, according to him, was king of Crete, and actually became a great friend to Silenus. He is represented as distinguished for his skill in music. He is said, not only to have invented musical instruments, but to have had the courage, like Marsyas, to challenge even Apollo himself to a trial of skill. Herodotus, speaking of Marsyas, calls him Silenus, l. vii. c. 26.

Nonius makes Silenus a son of Tellus; and gives him
three forts, Aetraeus, Maron, and Lenzus. 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 Cæsus, the father of Saturn.

Aelian (Var. Hist. l. 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 Naïs 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 יכדר, or ידרכ, Silo, the name of the Messiah, whence ידבר, Silan. 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, the Messiah shall be the instructor of the people; Silenus is made the preceptor of Bacchus. Because it was said, that our Saviour should bind his shaft to the vine, and his colt to the young vine; Silenus is made to ride on an as. Because our Saviour washed his garments in blood, as tho’ that trod the wine-press; Silenus was made to preside over those who presided over the vintage. Because it is added, his eyes were red by reason of wine; Silenus was made always fuddled. Bochart, however, advances all this with a great deal of difficulty, as he has reason, it having no warrant. He adds, that the devil invented the fable of Silenus, to turn the mysteries of our religion into ridicule. But the fable which he has given to the words, rubet oculi ex vino, &c. denite ex late abhincunt, is very forced and unnatural; as if the words signified anything 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 knew 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 Paufanias speaks (in Elac.), 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 temple which is appropriated and peculiar to himself, while Bacchus has no share in the honour of it.”

SILENTIARIUS, SILENTIARIS, an officer among the ancient Roman flaves; being, according to some authors, a slave placed over the rest, to prevent any noise and uproar, and to keep them silent.

Seneca, in his Epistles, mentioning the great care taken to keep the flaves mute, has given occasion to Lipius, Pomps, 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 noise among the flaves. As to the name and office of the silentiary, it was not established till about the time of Sallian, who is the first author that mentions it.

There were also silentarii established in the emperor’s court, called quiets minifiris, and silentarii palati; and honoured with the farther titles of clarisimi, spectabilis, de- votissimi, and in Greek συνωστικοι, q. d. most 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 Chalcedon call the body of silentarii, σχῆλα δεστομίσθιον σελεντιαρίων.

SILENUS, in Botany, a Latin name in Virgil, supposed to belong to some flender kind of willow, or other. It is used vaguely, by the earlier botanists, for different umbel- liferous plants, and retained by Gartzner, after Rivanus, for Laspiptium trilobum and aquilegifolium, which tho’ writers place in a genus by themselves. Linnaeus uses the above word, as the specific appellation of another Laspiptrium. See that article.

SILESIA, Duchy of; in Geography, a country of Europe, bounded on the N. by the marquisate of Brandenburg, on the E. by the duchy of Wawlaw 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. Silesia is environed by a chain of hills, being with respect to extent and height some of the most remarkable in all Europe. (See Sudetic Chain.) For other mountains of Silesia, and their productions, see Prus sia. 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 Rieengebirge and the Gefenck every thing is covered with ice and snow, the trees at Breflau are in full verdure even in winter. The sandy parts of the principal 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 Silesia, which, besides wheat, rye, barley, and oats, yields likewise maize or Turkey-wheat, flpt, buck-wheat, millet, linseed, peas, and beans. The culinary vegetables about Breflau, Brieg, Neiel, Frankenstein, and Lignitz, are excellent; and the vicinity of Grunberg and Lower Befthen affords plenty of fine fruits. Tho’ spots that are not fit for tillage afford good pastur 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 Munfterberg. Madder forms one of the principal articles of export. A yellow dye, called febrar, is plentiful; nor is this country deficient in tobacco plantations; but its faffron 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 Silesia, tar, pitch, and resin, are made from the pine and fir, and the larch-tree produces turpentine. From these resinous trees, and the trunks of the coarser pines, the inhabitants of the mountains make a lamp-black. Terra sigillata is found in many places, and particularly near Strigau; 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 necessarty 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 Brieg, Breflau, and Schweidnitz. Although the fluids in this country afford many fine and stout horses, the number is not sufficient; and therefore, besides those that are purchased at Frankfort 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
and lucrative, on account of the excellent quality of their wool. The wild beasts of this country, whose skins are valuable, are lynxes, foxes, weasels, otters, and beavers. The Oder furnishes salmon and sturgeon, flake, lampreys, &c. The other rivers, as well as the lakes and ponds, abound in various kinds of fish, such as pike, carp, trout, mullets, &c. Bees are bred for a supply of wax and honey, but their commodities are not in sufficient quantity to supersede the necessity of importation from Poland. Silk is in a state of increasing cultivation. The principal manufactures of Silefia are those of thread, twine, linen, flax, and damask. The chief exports are madder, mill-stones, thread, yarn, linen, wool, and woollen cloth, together with ruffs and paper. Under the dominion of the king of Prussia the commerce of Silefia has been considerably improved.

The prevalent religion in Silefia, as well as in Prussia, is the Protestant; and the bishoprics 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 neighbours the Bohemians; but those of both these races have been so much melted down into that of the Germans, that the peculiar features are minute and unimportant. Silefia has some pretensions to literary fame. The capital of Silefia is Breetlau; besides which there are only three towns which contain more than 600 inhabitants, viz., Glogau, Hircheberg, and Schweidnitz.

For other particulars, see Prussia.

Silefia affords few materials for history. Its ancient inhabitants were the Lygii and Quadi; but about the middle of the sixth century, the Slavi having overrun the country of the latter, a part of it was annexed to Poland, and called “Zlezia.” Under the Polish sovereigns, Silefia received the Polish language, manners, and usages, with the Christian religion. After having been a Slavonic province of the Polish dominion, it was feized, in the 14th 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, Briet, and Wohlaus; and his claims were so effectually supported by the march of an army into Silefia, that Maria Theresa, daughter and heiress of the emperor Charles VI., and queen of Hungary and Bohemia, by a preliminary treaty at Breetlau, which was soon followed by a ratification of the same at the peace of Berlin, did, on behalf of herself, 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 Silefia, together with the district of Kaffel, formerly belonging to Moravia, as also the county of Glatz; reserving, however, to herself the principality of Troppau and Jagerdorf, beyond the Opons, the part of the principality of Neisse bordering on Moravia, and a small district belonging to Moravia, with some frontier towns. Silefia was never immediately connected with the empire, having at no time been an imperial fief, nor obtained a fast 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 least connection with the empire; but in the year 1751, the empire becoming a guarantee to his Prussian majesty for the secure possession of the duchy of Silefia, a proviso was made for its rights confidcntial to such an engagement. Ever since the close of the twelfth century, Silefia has been divided into the Upper and Lower, and this division is still in use. Lower Silefia contains thirteen principalities, the names of which are as follow: viz., Breetlau, Briet, Glogau, Janos, Lignitz, Munsterberg, Glatz, Neffe, Oels, Sagan, Schweidnitz, Wohlaus, Trachenberg, and Carolaath; the free fandeherrschafs or lordships of Wartenberg, Militch, and Goschutz; and many minderherrschafs or inferior lordships. To Upper Silefia belong the fix principalities of Trench, Troppau, Jagerdorf, Oppeln, Ratibor, and Blitza, the free fandeherrschafs of Pfeff and Beuthen, and certain minderherrschafs. At present under two sovereignties, the capital divisions must necessarily be into that of Prussian and Bohemian. Breetlau is the capital of Silefian Silefia. The regency of Bohemian Silefia is erected at Troppau. The whole country is said to contain 180 cities and towns, 4,000 villages, and 1,890,000 inhabitants.

For other accounts of the population, see Prussia.

SILESIACA TERRA. See Terra.

SILEX, Kieselerde, German, in Mineralogy, a species of earth which is generally found in a stony slate, and from its forming nearly the whole composition of flint, it has acquired the name of flax, or sileceous 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 most abounds on the globe. Most of the stony combinations of flax 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 Silica.

SILHET, in Geography, a circar of Hindoosfan, 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 Hindoosfan, and capital of a circar, to which it gives name; 106 miles N.E. of Dacca. N. lat. 24° 52'. E. long. 91° 57'.

SILI, in Botany, a name given by the old Greeks to a plant called allo feschi.

SILJAN, in Geography, a town of Sweden, in Dalecarlia, on a lake to which it gives name; 25 miles N.W. of Falhub.

SILICA, in Ancient Geography, a town of Africa, in Interior Libya, near the river Bagradas. Potlemey.

SILICA, in Mineralogy, a species of earth, in Chemistry. In the former it is an earthy sublimate, 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 clas 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 clas 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 fused in a silver crucible, with three parts of pure potash. The fused mass 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 defitute of taste or smell. Its specific gravity is 2.6. 

Silica is not acted upon by the air, nor changed by moisture. 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 alcalies 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 glases. Indeed, when the two bodies are in one proportion, they form the purest and most perfect glases. 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 flints. Any of the acids are capable of combining with the alkali, and precipitating the silica in a state of purity, as we have before observed in the process of 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 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 crust upon it, strong enough to allow the vessel to be inverted without spilling the liquid. Some of the crystals were found to be pure silica, 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 iron.

When fluoric acid is diffused from a glases vessel, or from any other substance containing silica, this acid assumes a complete gaseous form. The moment it is absorbed by 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 flus 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 phosphoric acids have no action upon silica in the cold, but unite with it by fusion, forming transparent vitreous substances. Silica does not combine with any of the metals, but it combines with many of their oxides, forming compounds, which are called glases, enamels, or porcelains, according to their appearance.

With the oyx of lead it forms the glazing of common pottery; with oyx of iron, a dark green or black glas.

We have already spoken of its combination with the alcalies which belong to this class of compounds. When a solution of lime or barytes in water is added to a solution of fucited 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 fulibility of silica is impracticable at the heat of our hottest furnaces, yet its combination with other earths is fucile, 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 oyx, there is the most presumptive reason for thinking it so. From the small action which acids have upon it, compared with the other earths, sir Humphrey Davy at first supposed 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 potash 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 electricity. 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 fubstance, which had the characters of silica.

Little is known of the proportions in which silica combines with other bodies. Davy gives its atom as forty-five times heavier than hydrogen; and sir Humphrey Davy states the number for silica at sixty-one, which, reduced to Davy's standard, would be 30.5. But neither of these is to be depended upon.

SILICEOUS, in Mineralogy, denotes composed principally of fucile.

SILICEOUS Schistus, in Mineralogy and Geology, the horn-flet or flate of some geologists; flinty flate of Jæsnon; a rock of the nature of flate, but containing a great portion of fucileous earth. It frequently occurs in beds in clay-flete, and sometimes forms entire mountains, which are either homogeneous or porphyritic, containing crystals of felspar, and forming porphyritic flinty flate. The colour confils of various shades of grey, but it is sometimes red, approaching the nature and colour of Jasper. It is generally traversed by veins of quartz, but rarely, if ever, contains metallic veins. It is extremely hard, and breaks with difficulty; the fragments are sharp-edged, and more or less translucent in minute portions. The Lydian flate, which is used as a tell, or touch-flete, for determining the purity of metals, is nearly allied to fucileous fchiftus. This rock paffes, by gradation, into clay-flete; and when the fucile predominates, into hornfeline or chert.

SILICEOUS Earth, in Agriculture, such as is constifuted of fucileous materials.

SILICEOUS Marble, that which is of a fandy or fucileous nature. See MARL.

SILICERNIUM, among the Romans, a funeral supper, which is otherwise called exceipum.

SILICATE, in Mineralogy, a term lately introduced by professor Berzelius, to denote the combination of flic with other earths or oxides, in which the flic is suppos'd to act as an acid. These substances he denominates fublicates. As this view of the action of flic tends to throw considerable light on various processes in the mineral kingdom, it is but justice to our own countryman, Mr. Hume, a respectable scientific and practicable chemist in London, to state, that fo early as 1805, he had, in Mr. Park's Chemical Catechism, alluded the action of flic as an acidifying principle, and subsequently in the Philosophical Magazine for 1808, he distinctly and percuriously defin'd various processes, both natural and artificial, in which flic performed the part of a acid; this he attributed to the great proportion of oxygen contained in it. As flic is by far the most abundant fubstance in the composition of the globe, either pure or in combination with the other earths, its peculiar properties, and the part which it performs in the successive changes that take place in the mineral kingdom, are a sub-
ject of much interest both to the geologist and the chemical philosopher. The similarity of its effects with those of oxygen and acids, have been pointed out in a very striking manner by Mr. Hume in the paper before referred to.

There is a remarkable similarity in the effects of oxygen and filex on the metals, particularly in that process called vitrification, which is, in every meaning of the word, a complete saturation and oxidation. By means of filex, all the metals (perhaps without exception), from being the most opaque bodies in the universe, may be rendered quite transparent, allowing an endless variety of the most charming tints. It is chiefly from metallic substances that the most durable colours are obtained, particularly for staining glases, and making artificial gems. The belt 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 filex or oxygen. Even the precious stones, and the best valuable crystals and pebbles, with an infinite number of mineral productions, seem to derive their beauty and value from the action of filex on the metals. Thus, the opacity of lead is effectually changed by the sand or filex used in the composition of flint-glases, 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 filex exerts over potash and soda, and a variety of other substances which enter into the composition of glases, is a striking and well-known instance (says Mr. Hume) of its neutralizing efficacy; for no acid more completely abounds the acrimony of alkaline bodies, and disarms them of their corrosive character. The effervescence which results when filex and the alkali enter into fusion and form this tafteless 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 aërisfom fluid can be suppos'd to enter; so that the acidifying power (if the term may be applied) which appears to excite the alkaline matter, is alone due to the fand which is usually employed to form glases. Indeed vitrification seems, in all instances, to be accomplished by filex, or by oxygen, and the glases of lead, of antimony, of phosphorus, borac, or any other body, is due to the one, as much as the glases in common use is to the other of these oxygenating agents.

The power of filex, as an oxydizing, saturating, and neutralizing agent, is by no means confined to rocks, minerals, and the inanimate parts of created matter; but it pervades 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 astonishing," says Dr. Smith, "than the secretion of flinty earth by plants, a fact which is well ascertained." According to modern experiments, human hair, and probably the hair of all animals whatever, also contains filex as a constituent element.

From numberless phenomena that admit of no other interpretation, it may justly be inferred, says Mr. Hume, that nature poffefles means of converting filex into other forms, and of so interweaving it into the constitution of her varied works, that it ceases entirely to appear in its original state. Every thing connected with the progress of animal and vegetable exisfence, with the infernal secrets of the assimilating powers, or with the physiology of all organized matter, seems 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, filex, or silica, considered as an acid, poifefles the property of giving fliciates of many different degrees of saturation. The most general is that in which filex contains the same quantity of oxygen as the base; these he denominates simply fliciates. The next most general are those in which filex contains three times the oxygen of the base; these he calls trifliciates: it not unfrequently contains twice the oxygen of the base; these combinations he calls bifliciates. Silex also produces a great number of combinations with excess of base of different degrees, which he denominates subliciates, to which again he applies the appellations bi, tri; for example, bithalluminous subliciate, tri-silicium, &c. all announcing that the base contains twice or three times the oxygen of the filex.

Silex, like other acids, gives also double fliciates, partly with and partly without water of crystallization. We most frequently find, that the bases which have a tendency to produce double fliciates with other acids, do the same thing here: in the fame manner, as in the double fliciates, we again find (although with many exceptions) the same proportion between the bases as in the other previously known fliciates with double bases. Hence, for example, if in common felspar we could exchange filex for sulphur, the combination would be alumb without water.

But Nature in her rich flores, says Berzelius, exhibits a number of combinations of filex still more various, for which we have few if any analogous combinations to produce from the experiments in our laboratories. Thus we find fliciates from three to four bases, which all form one common combination, whose pure crysllalline 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 classes of crystals that are formed of many different substances lying in juxtaposition, but not chemically combined.

It often happens, also, that these numerous fliciates are not of the same degree of saturation, but that one or more of the weaker bases are subliciates, or fliciates, while one or more of the stronger are bi or tri-fliciates. 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 secret and undisturbed recesses of the mineral kingdom. As it is of importance to ascertain the quantity of oxygen in flicex, in order to determine its proportions in the different combinations of fliciates, Berzelius, from various experiments made by himself and others, estimates the proportion of oxygen to be 49.64. See Silex.

SILICULA, in Botany, the diminutives of Silica, (see that article,) is a Pouch, or pod of a short, or rounded, figure, along both the edges of whose partition the seeds are inserted; witness the Draba verna, or Whitlow-grafts, so common on walls in the spring, and the Thlaspi Burfordi, Shepherd's purée. The partition is always really parallel to the valve, though the latter are often so protruberant, as in the Thlaspi, 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 class in the Linnaean system, Tetradynamia, (see that article,) the character of which confines it in the short, or rounded, not oblong, form of the seed-velvet. See Stillicula.

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, *siliqua dulcis*. The Latins borrowed this name from the Greek *xyloglycon*, *ξυλογλυκον*, the sweet, or sweet-fruit tree.

Ibidore mispells the word *siliqua*, and making it only *sili-
con*, supposes it to be a barbarous way of spelling the word *siliqua*; 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 **Abu Ait**, in Geography, a town of Egypt; 12 miles S.S.E. of Siut.

**SILINDIUM**, in Ancient Geography, a small town of Achaia Minor, in the Troadze, near mount Ida.

**SI-LING**, in Geography, a town of China, of the third rank, in Quang-ki; 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 Scyllunte, according to Pausanias.

**SILIPICA**, in Geography, a town of South America, in the province of Cordova; 20 miles S. of St. Jago del Etero.

**SILIGUA, siliqua**, among the ancients, the third part of an obulus, or, what comes to the same, the fifth part of a drachm.

**SILIGUA Nabatea**. See Nabathæa Siligua.

**SILIGUA, siliga**, in Botany, a Pod, a foot of Pericarp.

(See that article.) The *Siliqua* is a solitary seed-velvel, of an elongated form, and dry substance, consisting of two parallel valves, separated by a parallel linear partition, or receptacle, along each of whose edges the seeds are ranged in alternate order. Examples are found in the Cruciferae, such as *Cicerarthus*, the Stock or Wall-flower; *as also in* Chelidonium, the Celandine; and Bignonia echinata, Gurt. t. 52. f. 1. This kind of seed-velvel differs from a Legume, (see that article,) in having the seeds inserted along each of its margins.

**SILIGUA.** See *Carob*.

**SILIGUASTRUM**, the appellation of the Judas-tree in Tourniére 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 Ceris.

**SILIGUASTRUM**, in Natural History, the name given by Mr. Lluyd, and others, to the bony plate of fishes, when found fossil. See Ichthyopsia.

**SILIGUATICUM**, among the Romans, a custom or toll paid for merchandise. This the Greeks called *ceratifinos*.

**SILIGUOSA**, in Botany, the second order of the Linnaean 15th clafs, Tetradynamia; which is order is characterized by the oblong form of the seed-velvel. See Siliqua and Siliquia.

**SILIGUOSÆ**, the 39th natural order, among the fragments of Linnaeus, exactly analogous to the Cruciferae of Jussieu. 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 Tanri-

**SILISTENI**, in Geography, a town of Moldavia; 10 miles S.W. of Huf.

**SILISTRIA.** See Dristra.

**SILIVRIA, or Killeeveh**, 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 houses and minarets are very handsome buildings. The lower part of the town is washed 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.

**SILLIUS ITALICUS, CAIUS**, in Biography, an Italian poet, was born about the year 15 of the Christian era. He has been supposed to have been a native of Latina 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 pleased several emperors. 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 accusations, and that he was conful 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 persons of the city without power, and without envy. It appears, likewise, that he passed 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 a time, he deferted for new ones. He collected a number of statues, books, and curiosities, 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 Ci-
cero'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 cease to flow, except in the infancy of the death of the younger of his two sons, which was in some degree compensated by the consular 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 abstaining 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 style 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. 1782. 4

**SILK, SERICUM**, a very soft, fine, bright, delicate thread; the work of an insect, called *bombyx*, 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, which spun it out of its entrails, and wound it with its feet about the little branches of trees. This in-
sect they called *ser*, from *seres*, a people in Scythia, whom we now call the Chinees, who, as they thought, bred it; whence the silk itself they called *sericum*. But this *ser* 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 them from Serica, where the worm was a native. But so far were they from profiting by the discovery, that they could not be induced to believe so fine a thread should be the work of a worm; and thereupon formed a thousand chimerical conjectures of their own.

Silk was a very scarce commodity among them for many ages: it was even sold weight for weight with gold; info-much that Vopiscus tells us, the emperor Aurelian, who died A.D. 275, refused the empress, his wife, a suit of silk, which the solicited of him with much earnestness, merely on account of its dearness.

Others, however, with greater probability, assert that it was known at Rome so early as the reign of Tiberius, about A.D. 17.

Calen, who lived about the year of our Lord 173, speaks of the rarity of silk, being no where but at Rome, and only among the rich.

Heliodorus, the emperor, who died A.D. 229, is said by some to be the first person who wore a holofernicum, 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 Perseus into Greece, about 323 years before Christ; but the manufacture of it was confined to Berytus and Tyre, in Phoenicia, whence it was dispersed over the West.

At length, two monks, coming from the Indies to Constantinople, in 555, under the encouragement of the emperor Julianus, brought with them great quantities of filk-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, Thebais, and Corinth. The Venetians, soon after this time, commencing a commerce with the Greek empire, supplied all the western parts of Europe with silks for many centuries; though sundry kinds of modern silk manufactures were unknown in those times, such as damasks, velvets, lattins, &c.

About the year 1130, Roger II. king of Sicily, established a silk manufactory at Palermo, and another in Calabria; managed by workmen, who were a part of the plunder brought from Athens, Corinth, &c. of which that prince made a conquest in his expedition to the Holy Land. By degrees, Messeray 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. Thus was, indeed, in contradiction to most other writers, makes this manufacture of silk to be introduced into Sicily two hundred years later, by Robert the Wise, king of Sicily, and count of Provence.

It appears by 33 Hen. VI. cap. 5, that there was a company of silk-workers in England so 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 1489. 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 supplied 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.

worns; and even in the year 1547, silk was scarce and dear in France; and Henry II. it is said to have been the first who wore a pair of silk knit stockings; though the first invention originally came from Spain, whence silk stockings were brought over to Henry VIII. and Edward VI. After the civil wars in France, the plantations of mulberry-trees were greatly encouraged by Henry IV. and his successors; and the produce of silk is at this day very considerable.

The great advantage which the new manufacture afforded, made our king James I. very earnest for its being introduced into England: accordingly it was recommended several times from the throne, and in the most earnest terms, particularly in the year 1618, to plant mulberry-trees, &c. for the propagation of silk-worms; but unhappily without effect; though from the various experiments we meet with in the Philosophical Transactions, and other places, it appears that the silk-worm thrives and works as well, in all respects, in England, as in any other part of Europe.

However, towards the latter end of this king's reign, i.e., about the year 1620, the broad silk manufacture was introduced into this country, and profecuted with great vigour and advantage. In 1629, the silk manufacture was become so considerable in London, that the silk-throwers of the city, and parts adjacent, were incorporated under the name of master, wardens, &c. of the silk-throwers; and in 1661, this company of silk-throwers employed above forty thousand persons. The revocation of the edict of Nantes, in 1685, contributed in a great degree to promote the silk manufacture in this kingdom; as did also the invention of the silk-throwing machine at Derby, in 1719; for an account of which, see SILK, Manufacture of.

So high in reputation was the English silk manufacture, that even in Italy, as Keyler (Travel, vol. i. p. 280.) informs us, in 1730, the English silks bore a higher price than the Italian.

The silk-worm is an insect not more remarkable for the precious matter it furnishes for divers fluffs, than for the many forms it affumes, before and after its being enveloped in the rich cod or ball which it weaves for itself. From a small egg, about the size of a pin's head, which is its first state, it becomes a pretty big worm, or caterpillar, of a whitish colour, inclining to yellow. In this state it feeds on mulberry-leaves, till, being come to maturity, it winds itself up in a silken bag, or case, about the size and shape of a pigeon's egg; and becomes metamorphosed into an aurelia: in this state it remains without any signs of life, or motion; till at length it awakes to become a butterfly, after making itself a paelage out of its silken pseulchre; and, at last, dying indeed, it prepares itself, by an egg which it calls, for a new life; which the warmth of the summer weather affilts it in refuming.

As soon as the silk-worm, or caterpillar, is arrived at the fize and strength necessary for beginning its cod, he makes his web; for it is thus they call that flight tissiz, which is the begining and ground of this admirable work. This is his first day's employment. On the second, he forms his folliculus, or ball, and covers himself almost over with silk. The third day, he is quite hid; and the following days he employs himself in thickening and strengthening his ball; always working from one single end, which he never breaks by his own fault; and which is to fine, and to long, that those who have examined it attentively, think they speak within compass, when they affirm that each ball contains silk enough to reach the length of six English miles.

In ten days' time, the ball is in its perfection; and it is now to be taken down from the branches of the mulberry-trees, where the worms have hung it. But this business requires
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 passage, 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 insects; 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 fleins. The balls are of different colours; the most common are yellow, orange-colour, isabella, or flesh-colour. There are some also of a sea-green, 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 filk.

Silk. Manufacture of. In England, where filk is not produced in any quantities to be employed by the manufacturer, he must commence his operations upon the raw filk, with no other preparation than that of being wound off into fleins or hanks from the balls, or cocoons, which the filk-worms form.

In this state the filk 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 filk, drawn from the flein, 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 filk, and which is soluble in the hot water in which the cocoons are immerged when the filk is wound off.

To prepare this raw filk for use, it is wound from the fleins 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 fresh bobbins, two or three threads are twisted together to produce a stronger thread, fit for the weaver, who warps and finally weaves the filk 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 filk is produced, the manufacturer is more properly said to commence with the operation of winding or reeling off the threads into fleins from the cocoons, or balls, in which the worms envelop themselves. These balls become an article of trade, as soon as the insects within them is killed by exposing them to heat, either of the fun, or in an oven, or by the steam of boiling water; and, in general, the breeders of filk-worms sell them, in this state, to persons who make a business of the operation of winding. In Piedmont, where capital filk is produced, it is conducted, as follows, by the aid of the filk reel represented in Plate Silk Manufactures, 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, let in brick-work, so 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-framing which fulfils its parts: there are, the reel D, upon which the filk is wound; the layer a, which directs the thread upon it; and the wheel-work c e, 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 filk is wound. The rails are parallel to the axis, and at such a distance, that they will form a proper-sized flein by the winding of the filk 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 cause 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 fleins of filk to be taken off at the end of the reel when the winding is finished.

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, c b; this, at the opposite end, carries a wheel, b, of twenty-two teeth, which gives motion to an horizontal cog-wheel of 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 a, 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 mortise 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, e, 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, so as to form one strong smooth thread; and as often as the thread of any single cocoon breaks or comes to an end, there is supplied by a new 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 so fine, as to not 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 flits up or brushes the cocoons with a wiff of birch or of rice-straw, about six inches long, cut flumpy, like a worn-out broom; the loofe threads of the cocoon stick to the wiff, and are drawn out: the then diverges these threads from the wiff, and, by drawing the ends through her fingers, cleans them from that loose filk which always surrouns the cocoon, till they come off entirely clean: this operation is called la battue: and when the threads are quite clean, she piles four or more of them, if she intends to wind fine filk, through each of the holes in the thin iron
iron bar, which is placed horizontally over the centre of the basin A; afterwards she twists the two compound threads (which consist of four cocoons each) twenty or twenty-five times round each other, that the four ends in each thread may the better join together by crossing each other, and that the thread of the filk may be round, 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 thence being conducted to the reel, are made fast to one of its rails. The child who turns the reel, 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 lying over each other upon the reel, until it has made so many revolutions in the air as to dry the gum of the filk so far, that the threads will not adhere together. After the reel is covered for about the breadth of three inches, by the gradual propagation of the layer, it returns and directs a second course of threads over the first laid, and so on until the required length for the filks is obtained. The machine winds two filks at one time. As it is essential to the production of good filk, that the thread should have lost part of its heat and gumminess before it touches the bars of the reel, the Piedmontese are by law obliged to have 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 float and not lay the threads distinctly, and that part of the filk will be glued together, whereas the cog-wheels cannot fail.

When the filks are quite dry the reel is removed from the frame, and by the folding of two of its arms the filks are taken off. A tie is made with some of the refuse filk on that part of each filk where it bore upon the bars of the reel, and another tie on the opposite part of the filk; 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 he joins on another, because the threads near the end have not above a quarter of their full thickness. The cocoons produce a very unequal length; some may be with which yield 1200 ells, whilst others will scarcely afford 200 ells. In general, the production of a cocoon may be estimated from 500 to 600 ells in length. As often as the cocoons the winds are exhausted, or break, or only diminish, the joins fresh ones to keep up the requisite number, or the proportion; because, as the cocoons wind off, and the thread becomes finer, the must join two cocoons half wound to replace a new one. Thus she can wind three new ones and two half wound, and the filk 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 reel. She must not wind off her cocoons to the last, because when they are near at an end the bulk of the worm joins in with the other threads, and makes the filk foul and gouty. The filk 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 filk always even is so great, that (excepting a thread of two cocoons, which is called such) they do not lay a filk of three, four, or six cocoons; but a filk of three to four, four to five, or six to seven cocoons. In a coarser filk it cannot be calculated even so nearly as to four cocoons more or less; they say, for example, from 12 to 15, from 15 to 20, and so on.

During the operation of winding, the woman must always have a bowl of cold water by her, to dip her fingers in, and to sprinkle frequently upon the iron bar, so that the heat of the basin may not burn the threads, also to cool her fingers every time she dips them in the hot water, and to pour into the basin when necessary, that is, when the water begins to boil. The water must be just in a proper degree of heat; for when it is too hot, the thread is dead, and has no body; and when too cold, which form the thread do not join well, and form a harsh filk. The heat of the water from which the cocoons are wound, causes that adhesion of the fibres which compose the filk: a thread can with difficulty be wound off when cold water is employed; but in this manner the adhesion is very slight, and the thread breaks with a flighty force, or the least moisture will separate the fibres; but the filk 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 filk 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 filk: these are thrown into a basket, into which the loose filk that comes off in making the battue is likewise put as waste filk, to be carded and spun into threads. The water in the basin must be changed four times a day for coarse filk, and twice only for good cocoons of fine filk; if the water is not changed, the filk will not be so bright and glossy, because the worms contained in the cocoons foul it very considerably. The reeler must endeavour to wind as much as possible with clear water, for if there are too many worms in it, the filk will be covered with a kind of dust, which afterwards attracts moths, which destroys the filk.

From the gummy or viscid material which filk 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 balloons, far more permanent than those of soap or water, and offering all the colours of the rainbow. So close, indeed, is the texture of these filthy 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 continued in a state of suspension, in an apartment, for considerably more than twenty-four hours. It is not all filk, however, that is sufficiently glutinous for this purpose; which that which is of a very deep yellow will not answer the same purpose. This filk, from its colour, is supposed to be produced by the worm in a peculiar diastase, yet this is a fact by no means uncommon.

All kind of filk which is simply drawn from the cocoons by the reeling, is called raw filk, but is denominated fine or coarse according to the number of fibres of which the thread is composed. In general, the raw filk 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 furring up. Silk-yarn, which is employed by the weavers for the woof or weft of the stuffs which they fabricate, is compos'd of

4 X 2

two
two or more threads of the raw silk, slightly twitted 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 twitted, and so combined as to obtain the greatest strength: for this purpose, each thread of raw silk is twitted separately upon itself by a mill; the twit is given in a right-handed direction, and extremely tight. By a second operation of twitting, two of these threads are combined together, the twit 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 flate of organzine, for a long time kept the art of throwing it a profound secret. It was introduced into this country by the enterprize and skill of Meffrs. 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 flate of silk 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 instruction 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 £1,000 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, bore scarcely 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 flate, consists of six different operations. 1. The silk is wound from the feet upon bobbins in the winding machines. 2. It is then twitted into different qualities. 3. It is spun or twitted on a mill in the single thread, the twit being in the direction of 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 flake by the negligence of the foreign worker. 5. It is then thrown by a mill, that is, the two threads are twitted together, either flack or hard, as the manufacturer may require; but the twit is in an opposite direction to the first twit, and it is wound at the same time in feet upon a reel. 6. The feet are twitted according to their different degrees of finenesse, and then the process is complete.

The first operation which the raw silk undergoes is winding, that is, drawing it off from the feet in which it is imported, and winding it upon wooden bobbins, in which flate 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 the threads at once, and by increasing the length it may be made to receive any number. Each of the feet is extended upon a couple reel A A, called a swit; it is composed of four small rods, fixed into an axis, and small bands of string are stretched between the arms to receive the feet, but at the same time the bands admit of winding 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 feet, because the feet, 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 swifs 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, r, 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 the weight, upon the circumference of the wheel, and the bobbin is thereby put in motion to draw off the silk from the swit. 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 cross-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 swifs 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 twitting-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 feet upon the swifs. 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 Meffrs. Gent and Clarke, for a new construction of the swifs for winding-machines; they are made with fixed 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 feet instead of the bands of string in the common swifs. These forks admit of drawing out from the tubes until the swit is sufficiently enlarged to extend it; but as they extend the feet at fixed 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 twitting of the silk is always performed by a spindle and bobbin, with a flyer, but the construction of the machine which puts the spindle in motion is frequently varied. The limits of our plate do not admit a representation of the great machines, or throwing-mills, such as are used at Derby, and at almost all the great silk-mills in England. In fig. 3. we have given a drawing of a small machine, which is familiar in the parts which act upon the silk; and indeed many mills employ such machines constructed on a large scale.
SILK.

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 artisans purchase their silk in the raw flate, and employ their wives or children to prepare it by these machines, which they call ovales, because the spindles $b, b$ are arranged in an oval frame, $G H$. $B$ is the handle by which the motion is given; it is fixed on the end of a spindle, $R$, which carries a wheel, $D$, to give motion to a pinion upon the upper end of a vertical axle, $E$: this, at the lower end, has a drum or wheel $F$, to receive an endless flasper or band, $a a$, which encompass the oval frame $G$, and gives motion to all the spindles at once. The spindles $b, b$, are placed perpendicularly in the frame $G H$, their points resting in small holes in pieces of glass, which are let into the oval plank $G$; and the spindles are also received in collars affixed to an oval frame $H$, which is supported from the plank, $G$, by blocks of wood $d$ and $a$ are small rollers, supported in the frame $G H$, in a similar manner to the spindles; their use is to confine the flasper, $a$, to press 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 twilled by a reel, $K$, which is turned by a wheel, $b$, and a pinion, $i$, upon the end of the principal spindle $R$. The threads are guided by passing through wire-eyes, fixed in an oval frame, $L$, which is supported in the frame of the machine by a single bar or rail, $//$, and this has a regular traversing motion backwards and forwards, by means of a crank, or excentrical pin, $k$, fixed in a small cog-wheel, which is turned by a pinion upon the vertical axis $E$; the opposite end of the rail, $h$, 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 silk 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, $e$, is fitted upon each spindle, by the hole through which it is 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, $b$, fixed to it: the flyer is formed into eyes at the two extremities; one is turned down, so as to fall opposite the middle of the bobbin $e$; and the other arm, $b$, is bent upwards, 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, $e$, is passed 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, $b$, 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 circumstance is regulated by the proportion of the wheel, $b$, 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, $F G$, are put loose upon the spindles at $e$, and the flyers are stuck fast upon the top of the spindles: the threads are conducted through the eyes of the flyers $b$, 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 flyers to that of the spindles represented, because one half of the number of the spindles is on the opposite side of the oval frame, so that they are hidden. With this preparation the machine is put in motion, and continues to spin the threads by the motion of the flyers, and to draw them off gradually from the bobbins, until the skeins upon the reel are made up to the requisite lengths. This is known by a train of wheel-work at $n o p$, consisting of a pinion, $n$, fixed upon the principal spindle $K$, turning a wheel, $o$, which has a pinion fixed to it, and turning a larger wheel, $p$: this has another wheel upon its spindle, with a pin fixed in it, which at every revolution raises a hammer, and strikes upon a bell, $s$, to inform the attendant that the skeins are made up to a proper length.

When this machine is employed for the full operation of twilling the organzine, the wheel, $b$, must be larger, and the pinion, $i$, smaller than represented, in order that the reel, $K$, may be turned slowly, and the threads will therefore receive a stronger and closer twist. Also, the handle $B$ is turned in an opposite direction to that in which it must move for the final throwing off the two or three twilled threads together: and as it must also move for twilling the raw threads together for the warp of silk-fluffs, and for weaving flockings, this reverse movement makes no alteration in the machine, except that it will give twist in a contrary direction; for it is always necessary, when two or more twilled threads are combined by twilling, that the twists of the original threads shall be in the opposite direction to that which unites them into one thread, in the same manner as for making ropes, organzine silk being in fact small rope, and flocking-silk or warp being only yarn. The silk which is intended to be dyed, is previously twisted very slightly in this machine, and of course in that direction which will suit the purpose for which it is ultimately intended; viz. whether for yarn or organzine.

The great mills for twilling silk, originally introduced by Mellors, Lomb, though very complicated, are simple in their operation, because the complexity arises from the great number of spindles which are actuated by the same motion, 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 17 feet; but 15 feet is the general size of the original Piedmontese machines. In the centre of the frame is a perpendicular axis or spindle, coming up through the floor of the chamber, and riling to the cying; it is put in motion by a communication of wheel-work from a water-wheel, or otherwise from a horse-wheel. The axis has upon it two, three, or four horizontal wheels, according to the height of the machine, which revolve 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 diameter, in a circle, the number being proportioned to the dimensions of the machine. The spindles are also arranged in as many different flages 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 flasper, 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 slowly by the machine, and drawn off the thread gradually from the bobbin: the flyer, being all the while in rapid motion, twills 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 reel 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 six spindles beneath each reel.

To explain this machine more clearly, we will give a description of one of thirteen feet diameter, which has four large wheels and stages 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 stages are for the finishing the twist, and also for twisting the single threads which are to be used for warp or for stocking-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 cylindric frame or lantern. Each stage contains eighty-four iron spindles, placed vertically, and supported in the stage, 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 abunder, 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 stage 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 stages of the frame 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 set into the lower circle of the stage, whilst the upper circle supports the spindle at a height of four or five inches above the point, leaving one-third of the length of the spindle projecting above, for the purpose of fitting the bobbin upon it. The upper circle of the stage 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 stage, and it is the contact of the rim of the great wheel, which, as before described, is placed upon a vertical & at right angles to the spindle, that causes the revolution 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 stages are made differently from those which we have just described, so that the segments of the rim will act upon the outside of the rollers of the spindles, instead of the inside: for this purpose the wheels are made larger than the stages in which the spindles are placed, and from the rim of the wheel small pillars rise up to support the segments, which act upon the rollers of the spindles in front or outside of the circles, instead of the inside, as is the case with the other stages, in consequence of which the spindles of these stages turn in opposite directions. The reels 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 silk operated upon by them; for the velocity with which the spindles revolve, compared with the rate at which the reels take up the thread, determines the degree of twist which the thread will have; and to render this equal, the reels which draw off the silk 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 reel, with a wire-eye to receive each thread; and the layers having a slowly reciprocating motion, distribute the threads regularly upon the reels, in a similar manner to that first described for the oval. One of these reels is placed between each of the uprights of the machine, so as to make fourteen reels in the whole circle of each stage, and every reel serves to take the silk from the bobbins of six spindles. The whole machine in the four stages contains 336 spindles.

A machine of four stages 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 silk from the reels.

The spindles in the upper stages are usually devoted to the first twisting of the single threads for the organzine, and therefore turn the reverse way, as before mentioned; and as the silk 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 reels. These bobbins are fluck in at once upon a long spindle, butted horizontally, and turned by similar wheel-work to that which actuated the reels; they have similar layers to conduct the silk regularly upon the bobbins from one end to the other, so that the operation is not at all different.

In many of the best silk-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: but the motion of the two machines is reversed to each other.

Fig. 5 represents a single spindle of a throwing machine, which, though the same in its action as the great mill, is different in its construction. G and H represent portions of the rails or circles of the stage which support the spindle, and a is a part of the rim of the great wheel of the central axis. 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, made fall to it, to press the spindle always towards the wheel. In this machine, instead of the reel, the thread is taken up by a bobbin, K, is put into a frame, on which moves on pivots, and by a weight, n, is pulled down so as to make the bobbin bear upon the edge of a wheel, h, which is kept in constant and regular motion, by the same kind of movement which turns the wheels of the great machine. The intention of this is, that the action of the wheel, h, to turn the bobbin, being communicated by pressure against the part upon which the silk is to wind, will be constant,
silk.

ftant, and will not draw more when the bobbin is large and full, or less when it is empty, as must be the case when the motion is given to the axis of the bobbin.

After the filk is twisted in a right-hand direction, if it is intended for yarn, or for dyeing; or in a left-hand direction, if it is prepared for organza; it must be wound on fresh bobbins, with two or three threads together, preparatory to twisting them into one thread. 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 filk is gathered instead of the ree, and assembled them two or three together upon another bobbin, of a proper size to be returned to the twisting mill. We have seen an attempt for a machine to perform the doubling, which is slightly represented in fig. 4.

The whole machine itself is very similar to the winding-machine, fig. 2, but instead of the twist, the bobbins from the throwing-mill are placed in front at A, fig. 4, two or three in a row. The threads from these are passed over the roll m, and beneath a piece of wood, n, both which, being covered with cloth, have the same effect to clean the filk by drawing through them, as the fingers of the washer. B is the bobbin upon which the two or three threads are to be wound together; it is turned by a wheel, E, upon which it rests, 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, e, which slides freely up and down, in a hole, through a fixed board, f. On the top of the slider, e, is an eye of wire, through which one of the single threads of filk paves its passage from the pieces m, n, to the bobbin B; there are three of these sliders, e, to each of the three threads; a lever, g, is a lever moving on the centre c; the end e is immediately beneath the small slider e, and the end v is formed to a hook, to catch into the notches which are made in the end of the bobbin B. A small counter weight, r, always causes the hook, v, of this lever to recede from the bobbin; but if any one of the three threads breaks, it suffices the slider e, which belongs to it, to descend upon the end, v, of the lever, and depress the end of the lever, so as to bring the hook, v, 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 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-mill, 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 filk is taken up by reeds instead of bobbins, and is thus made into skeins. The degree of twist varies with the purpose for which the filk is intended; and the wheels which give motion to the reeds are for this purpose adapted to the degree of twist which the filk is designed to have. The filk, being now spun, requires only the preparation of boiling to discharge the gum, and render the filk fit to receive the dye, and also to render it soft and glossy. The filk is boiled for about four hours, in a boiler filled with water, into which a small quantity of soap is put; this operation dissolves the gum, which before could be felt upon the filk, and renders it harsh. After the boiling, it is well washed in a current of clear water, and when dried, will be found to have lost about one-fourth of its weight: at the same time the volume of the filk is sensibly increased, and it has acquired that soft texture and glossiness, which are the principal beauties of filk. This change is produced by the dissolusion of the gum, which, in the first instance, was the only adhesion of the fibre to form a thread, but by the operation of the twisting the fibres are firmly united, and no longer require the gum. It is also necessary, in order to give a fine dye to the filk, that the gum should be removed, because it would prevent the entrance of the dyeing matter to the centre of the thread, and thus impair the beauty of the colour. If the filk was thus boiled before the twining, nothing but a fine entangled down or wool would be obtained, and it would require spinning, by a similar process to that of cotton, before a thread could be obtained. This, indeed, is necessary for that portion of waste filk which is drawn from the cocoons in the first operation of reeling; also for those cocoons which are reserved for breeding, and from which the moths eat their way out by holes, which render it impracticable to wind off the filk. This waste filk, when carefully spun by a spinning-wheel, is called spun filk, and the thread is not inferior to the regular filk which is wound off; indeed, the winding off the filk into a thread united by its gum, is of no advantage farther than as a preparation for spinning, from which proceeds the thread obtains its strength.

The filk is now in a state for use: if it is for flocking— weaving, or sewing, or if intended for weaving into fluff, it only requires warping to be put into the loom. The operation of warping is to put together all the threads which are to compose the warp of the intended piece of fluff, and lay them parallel, so that the warp, being put into the loom, will have no slack threads, nor any which are strained too tight. Formerly, this operation was performed by stretching the threads out at length in a field, or by extending them in a frame, and winding them backwards and forwards over pegs. The present machine now universally employed is shown in fig. 6, where A A is a trefoil or flock, which supports the small bobbins b, b, upon which the filk is wound. The number of these is equal to the number of threads which the warp of the intended piece of fluff is to have in its breadth. The threads from all these bobbins are drawn over wires d, d, which are in front of the bobbins, and are then all brought together, and passed through an opening in a piece of wood D; this conducts the threads all together upon a large reel E, which is supported in a frame FF, and turned round by means of a pulley at the lower end of its axle, from which an endless band is continued to a second wheel G, mounted on a spindle, and turned by a handle. This latter spindle is supported in a fort of fluff H, upon which a child sits down, and at the same time turns the handle and puts the reel in motion, so as to draw the warp or affilbage of threads off from the several bobbins, and lay it upon the reel E. The piece of wood D is fitted upon one of the upright pieces, F, of the frame, to slide freely up and down upon it, and is suspended by a cord, which, after passing over a pulley f, is wrapped round the spindle of the machine at c; by this means, the motion of the reel, E, draws the cord, and raises up the piece D, so as to lay the warp upon the circumference of the reel, in a regular spiral, from one end to the other, and prevent the coils lapping one upon another. When the required length of warp is wound upon the reel, the ends of all the threads are cut off, tied together, and thus drawn off from the reel and rolled up into a large ball,
in which 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 subsilence than in any other. Some information on the details of weaving mechanism will be found under our articles Drawn of Loom, Draw-Loom, Diaper, Dimity, and Dornock; 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 coating: such as is most, 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 forts, called organise and tram: the former is made by giving a throw or twist to each thread of raw spun silk singly, and then doubling two of these twisted threads together, and twisting them firmly together; this forms the warp or length of a piece when manufactured. The tram, or sheet, which makes the breadth of the piece, is formed by twisting two or more threads of raw silk. The waffe raw silk, or refuse in reeling, &c. is collected, carded, and spun, and called filo silk; this is doubled and thrown, and often made into a cheap sort of silk- stockings, which are very strong and durable.

In the French silks-works, the greatest part of this raw silk pales for little better than a kind of fine floretta; yet, when spun, it makes a bright thread, and serves for the manufacture of stuffs of moderate value and lustre. But the spun silks of the Levant, whence most of our come, are exceedingly fine and beautiful. The difference arises, however, that in France, the 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 penned 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 dyers, and as the raw silk corrupts and cuts the boiled.

Silks, thrown 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 pulled oftener or seldomer over the mill; properly, however, thrown silks are those in which the threads are pretty thick-thowed, and twilled several times.

The thrown silk comes to us chiefly from Leghorn, Genoa, Naples, and Melfina. Silks, Stich, are such as are not twilded, but are prepared, and dyed for tapestry, and other works with the needle.

Silk, Eastern or East Indian. That popularly thus called is not the work of the silk-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 southem 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 pass through Lyons, if they bring them from other places, either by land or sea. There have been computed to be 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 fixed hundred from Sicily, one thousand five hundred from Italy, three hundred from Spain, and one thousand two hundred from Languedoc, Provence, and Dauphine.

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 an unsettled 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 Luccefe, are the people who have chiefly availed themselves of it. Great quantities were yearly brought thence, especially from Melfina; part of which they used in their own manufactures, and fold 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 kind last, those of St. Lucia and Melfina 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 thrown, 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, Sayda, and from the isle of Cyprus, Candia, &c. But the principal place of commerce, especially for the silks of Persia, is Smyrna. The silks are brought hither in caravans, from the month of January to September. The caravans in January are laden with the finest silks; those of February and March being indifferent ones; the rest, the coarsest. They all come from the several provinces of Persia, chiefly those of Ghilan and Shirvan, and the city of Schemachia, situated near the edge of the Caspian sea; from which three places, a Dutch author affirms, there have not come less than thirty thousand bales of silk in a year. Ghilan produces the best and greatest quantities of silk; next to this are Shirvan and Erivan, then Mazanderan, and lastly Altarabad; but the latter is much inferior, serving only for a manufacture mixed with cotton; that of Mazanderan and Altarabad is seldom or ever exported.

Ardeuil, 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 fet out for Smyrna, Aleppo, Scanderoon, and Constantinople; and it is this city, with Schamachia, that have always been esteemed the centre of the silk trade; which has been several times attempted to be removed from Smyrna, and the Mediterrenean, in favour of Archangel, and the White sea, by carrying them across Mesopotamia, by the Volga and Dwina, two rivers that traverse the principal provinces of that vast empire.

This new course of the Persian silks into Europe was first proposed by Paolo Centurio, a Genoese, to the tzar Bazil, under the pontificate of Leo X. The French had the same design in 1628. The duke of Holstein, in 1633, sent ambassadors to the court of Persia, purely with the same view. And in 1668, the tzar Alexis Michael attempted the thing himself; but he was disappointed by the rebellion of the Collacks, and the surpreme of Altarakan.

In 1688, the commerce of Persian silks had nearly been removed from Smyrna by an earthquake, which almost overturned the whole city; and, doubtless, the removal had been effected, but for the vigorous means used by the Turks to prevent it. Smyrna, however, still remains in her ancient possession; and the several nations of Europe continue every year to send their fleets, to fetch away the silks.

Silks, China, Japan, and Indian. Several provinces of China are so fertile in mulberry-trees, and their climate is so agreeable to the nature of silk-worms, that the quantity of silks there produced is incredible; the省份 province of Tcheliang 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 Nankin and China be excellent.

The silk-trade is the principal in China, and that which employs the most hands; but the European merchants who deal in it, especially in wrought silks, are to be careful of the spinning, &c. the wale being usually very great, as the French East India company have found to their cost.

Japan would not afford fewer silks than China; but that the Japanese, a barbarous and distrustful people, have interlarded all commerce with strangers, especially with Europeans, containing with the Dutch; who are to be admitted on certain imperious terms, related by Tavernier, but which, we must own, we cannot credit. The Dutch have endeavoured to vindicate themselves from these 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 Hindoostan, which partly supply the natives, and afford a very considerable exportation to Europe. Several thousand bales of raw silk are annually imported from Bengal and China; some of which is, in this state, used for making princes' rubbish, but the greater part is prepared for the manufacturers by the silk-throws.

SILK, Linea relating to. The duties on silks and callicoses being under the same regulations with those on printed linens, the law respecting them is inserted under the article LINENS. By the 13 & 14 Car. II. c. 15. f. 2. no person shall exercise the trade of a silk-thrower, unless he hath served seven years' apprenticeship, on pain of 400. a month, half to the king, and half to him that shall sue in any court of record, or at the auzifes, or quarter-feelings of the peace. By 9 & 10 W. c. 43. no foreign silks, called callicoses or lutelfrings, shall be imported but in the port of London, on notice first given to the commissioners of the customs, and licence had from them, on pain of forfeiture, or the value; and they shall be sold, and exported again; and the owner so importing, and also the receiver and person offering to sell the same, shall forfeit 50l. Being marked and sealed by order of the commissioners, any person who shall counterfeit the customs-house seal, or that of the lutefring company, shall forfeit 50l., and be set in the pillory for two hours. And any person who shall buy and sell, and have in his custody, any callicoses or lutelfrings, sealed or marked with a counterfeit seal or mark, shall forfeit the same and 100l.

However, none but customs-house officers, or persons deputed by the lutefring company, and having writs of affiance under the seal of the exchequer, shall seize lutelfrings or alamodes within the bills of mortality. (5 Ann. c. 20.) The penalties shall be two-thirds to the king, and one-third to him that shall sue or sue in any court of record.

By 3 Geo. III. c. 21. and 5 Geo. III. c. 48. if any person shall import any ribbands, laces, or girdles, not made in Great Britain, whether the same shall be wrought of silks alone, or mixed with other materials, the said person shall be forfeited, and may be seized by any officer of the customs, in whatever importers', vendes', or retailers' hands they may be found; and the importers, and every person affilling therein, and the vendes and retailers in whose custody they shall be found, or who shall sell or expose the same to sale, or conceal with intent to prevent the forfeiture, shall forfeit respectively 200l., with costs. Half the said penalties to be to the king, and half to the officer who shall inform and prosecute.

But if any officer of the customs shall neglect or refuse, for one month after condemnation, to prosecute for effecting any person for any of the said pecuniary forfeitures, any other person may sue for and recover the same; half thereof to go to the king in like manner, and half to him who shall sue.

And when the goods seized (being out of the limits of the bills of mortality) shall not exceed the value of 20l., two juries, on information before them that such goods were seized, shall hear and determine the same, and proceed to condemnation or discharge.

After seizure, until condemnation or discharge, the said goods shall be deposited in one of the king's warehouses, if the seizure be within the bills of mortality; elsewhere, in the hands of the chief magistrate or constable; and the same shall be free to inspection, with leave of the court, judge, or juries, before whom the prosecution shall be.

And after condemnation, the said goods shall be publicly sold by the court for exportation; half of the produce by
SILK.

Spiders are usually distinguished, 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 silk-spiders, M. Bon reduces them all to two kinds; those with long legs, and those with short; which last are those which furnish the finest raw silk. The silk-spider makes a silk every whit as beautiful, glossy, and strong, as the silk-worm: it spins it from the anus; around which are five papilles, or small nipples; and behind these, two others, all mucilaginous, and furnished with spiniceters. These nipples serve as so many wire-drawing irons, to form and mould a viscous liquor, which, when dried in the air, after being drawn through them, makes the silk. Each of these nipples, M. Reaumur observes, consists of a number of lefs and infulent ones; which one may be convinced of by preffing a spider's belly between the fingers, to oblige the liquor to flow into the nipples; for by this means, applying the finger against the anus, several distinct threads will be drawn out through the several perforations of each nipple. The threads are too fine to be counted with any certainty; but M. Reaumur reckons each larger nipple may lend forth a great many.

Hence we see how the spiders make their threads bigger or smaller: for as, before they begin to spin, they always apply more or fewer of these nipples against the body, whence the web is begun; or, as they apply each more or less strongly; so, as more or fewer of the minuter nipples come to take, the thread thus spun 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 distinguished one of the fingle ones to consist of fifteen or twenty distinct threads.

The threads are of two kinds: the firlt is weak, and only serves for that kind of web with which they catch flies. The second is much stronger, and serves to wrap up their eggs in; which, by this means, are sheltered from the cold, as well as from insects, which might otherwise gnaw and defly them. These threads they wind very loosely round the eggs, resembling the balls or bags of silk-worms, which have been prepared and loosened for the distaff.

The spider-bags are of a grey colour, when new; but when turned blackish, when long exposed to the air: indeed, one might find other spiders' bags of other colours, and which would afford a better silk; but their scarcity would render the experiment difficult: for which reason, we confine ourselves to the bags of the most common spiders, which are the short-legged kind. These always find out some place, secure 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 these bags, a new silk is made, inferior in nothing to the common silk. It takes all kinds of dyes, and may be made into all kinds of stuffs. M. Bon had flocks and gloves made of it, which he presented to the Academy, and others to our Royal Society.

For the manner of preparing the bags to get the silk, it is thus: after having gathered twelve or thirteen ounces of thes bags, M. Bon had them well beaten for some time, with the hand, and a flick, to get out all the stuff; he then washed them in lukewarm water, till they left the water very clean; after this, he laid them to steep, in a large vessel, with soap, and salt petre, and gum arabic. The whole was left to boil, over a gentle fire, for three hours. The bags were next washed in warm water, to get out the soap; and after all, laid to dry some days, to fit them for

such fate to be to the king, and half to the officer who shall seize and secure the same; and the same goods shall not be delivered out of the warehouse, till security shall be given for exportation, and that the same shall not be landed again in any part of his majesty's dominions.

By 5 Geo. III. c. 48, if any foreign manufactured silk-flockings, silk-mitts, or silk-gloves, shall be imported into this kingdom, or any part of the British dominions, the same shall be forfeited, and liable to be searched for and seized as other uncustomed goods; and every person who shall import the same, or be affilling therein, the vendors and retailers in whose custody they shall be found, or who shall sell or expose the same to sale, or conceal with intent to prevent the forfeiture, shall, over and above the forfeiture of the goods, forfeit coacl, with costs; half to the king, and half to the officer who shall inform and procuce.

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. The proceedings, in all other respects, shall be in like manner as in the case of ribbands and laces above mentioned.

SILK, in Chemistry, deserves notice on account of a peculiar fault, or crystalline subsance, obtained from it by the nitric acid. In its natural state, or before it is bleached, it contains a yellow refrinous matter, from which it derives its fine golden colour. When raw silk is infused in water, a portion of gummy matter is disolved, and a light amber-coloured liquor is produced. Pure alcohol extracts a much deeper yellow colour, and makes a tincture, that loses 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 draachs of this acid are mixed with a pint of alcohol, and silk, either raw or bleached, be immered 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 distilled off silk, and the remaining liquor duly evaporated, much oxalic acid is obtained; and the refuse, if evaporated still further, yields, together with a little remaining oxalic acid, a quantity of yellow granular crystals, very bitter, not acid, and tainting the saliva and hands of all very deep yellow, not easily removed. If the liquor is previously saturated with potash, and evaporated, another yellow silky salt evaporates, which detones on coals like common nitre, and appears to be a triple combination of the former bitter substance with nitrate of potash. The first mentioned granular crystals, examined with a magnifier, appear to be composed of truncated oehedrons.

The above curious substance was discovered by Wolter, and called by him the "bitter principle." He supposes it to be generally produced by the action of nitric acid on animal matters; and it is perhaps the same substance which causes the bitterness of bile. Aikin.

The spirit of raw silk, rectified with some essentil oil, is the medicine commonly known by the name of Guite Anglische, or English Silk.

SILK, Spider. Within about a century the secret has been found in France, of procuring and preparing silk from the webs of spiders; and the using it in several manufacures has been attempted. This discovery is owing to M. Bon, in 1710, who published a dissertation on the subject, whence what follows is extracted.
for carding; which was performed by the common silk-carders, but with cards much finer than ordinary. By this means, he had a silk, of a very particular ash-colour, which was easily spun; and the thread spun from it was both stronger and finer than that of common silk; which, though 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 any 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 laying fix or seven hundred eggs, whereas the silk-worms do not live above one hundred: yet are these laid so 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 soon after. The young ones thus bred live ten or twelve months without eating, and continue in their bags without growing, till the hot weather, putting their viscous 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, shut them up in paper coffins, and pots; covering the pots with papers, which he pricked 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 fame 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 seven or 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 with very good success 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 spirit, and volatile farts, which being prepared after the same manner as that drawn from the bags of silk-worms, in making the guttae Anglicaee, 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 febrile diseases.

M. Reaumur, being appointed by the Royal Academy to make a farther inquiry into this new silk work, has raised several objections and difficulties against it; which are found in the Memoirs of the Academy for the year 1710. The sum of what he has urged amounts to this. The natural fierceness of the spiders renders them unfit to be bred and kept together; four or five thousand being distributed into cells, fifty in one, or two hundred in others, the big ones soon killed and eat the less, so that, in a short time, there were feebly left one or two in each cell; and to this inclination of mutually eating one another, M. Reaumur attributes the scarcity of spiders, considering the vast 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 luster 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, in all probability, is eighteen times thicker 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 so justly 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 luster of a solid thread. To add to this, that the spider's thread cannot be wound off, as that of the silk-worm may, but must be collected; 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 2304 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 eggs 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. fearfully yielding a twelfth part of the silk of the others: 280 of these, he shews, would not yield more than one silk-worm; 605,552 of them would fearcely yield a pound.

Silk-Grafs, in Botany, a name used for two very different genera of plants, the aloe, and dog's bane.

Silk-Tail, or Bohemian Chatterer, in Ornithology. See Roller.

Silk, Virginian, in Botany. See Periploca.

Silk-Worm, Bombyx. This insect, which is a species of the phalzena, (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 humours 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 thet and sialole is very evident in this whole chain of hearts; and it is an elegant fight to observe the manner of the vital fluid's flowing from one of them to the other. The flan 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 fud-
den palliage 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 vesels, which contain the silky 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 silk from them, all the fluid contents of these vesels hardening in the air into that sort of thread, of which we find the web or balls of this creature consist.

These creatures never are offended at any touch, of whatever kind; but they always feel a souther wind, and an extremely hot air always makes them sick. Malpighi de Bombye.

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 rife in a mountain of the same name, and lost 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° 48'. W. long. 10° 34'.

SILLA Point, a cape on the north-west coast of the island of Mindanoo. N lat. 9°. E. long. 123° 51'.

SILLABAR, or Cellebhar, 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 Bencoolen.

SILLAH-MEW, a handsome town of the Birman empire, situated on the Irawaddy. It is shaded by wide-spreading 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 in general is 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 Hernfoss.

SILLANO, a town of Etruria; 8 miles S.S.E. of Voiterra.

SILLEE, a circe of Bengal, bounded on the north by Rangpur, on the east by Pachete, on the south by Tomar, and on the west by Nagpore; its form is square, and each side is about 16 miles. Alto, the capital of the above circe; 25 miles S.E. of Rangpur. N. lat. 25° 22'. E. long. 85° 56'.

SILLESIS, 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 243/4 square miles, in 10 communes. N. lat. 48° 12'. W. long. 0° 31'.

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 Dofia.

Silllon, 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 enceinte.

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 Atha Minor, in Ionia, in the vicinity of Smyrna.

Silm, or Cilm Monou, in Geography, a country of Africa, near the river Schembro.

Silno, a town of Lithuania; 4 miles N.N.W. of Grodno.

Sil, in Ancient Geography. See Shiloh.

Siloe, Siloa, or Siloam, a fountain at the foot of the walls of Jerusalem, east, between the city and the brook Kidron, or Cedron. Joscphus (De Bell. 1. v. c. 26) says, that when Nebuchadnezzar besieged Jerusalem, the waters of this fountain increased; and that the cave 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 Isaias (ch. vii. 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.

Sil-Long, in Geography, a city of China, of the second rank, in Kuang-ni. N. lat. 24° 34'. E. long. 105° 18'.

Siloar, a town on the north-coast of the island of Sumatra. S. lat. 1° 8'. E. long. 103° 51'.

Siloxerus, in Botany, so named by Labillardiere, from roco, the sky, and oxyces, dwelling, on account of the tumid base of that part. It would be difficult to trace this derivation, without authentic information from the author himself.—Labill. Nov. Holl. v. 2. 57. —Chalce and order, Syngnoscia Polymagia-segregata. Nat. Ord. Compositeae-accumulatae. Linn. Cornyphilus, Julli.

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. Corolla uniform, dicyclic, of from two to five tubular, monopetalous, regular, pitcher-shaped, five-toothed, perfect florets. Stamens in each floret five, very short; anthers linear, united into a tube. Filaments in each floret inerely pyramidal, tuberculated; fyllve awl-shaped, swelling very much at the base; stigma two, obtuse, spreading. Pericarp none, except the permanent partial calyx. Seeds solitary to each floret, inerely pyramidal, befat 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, falcate. The scales membranous, oblong, scarcely longer than the florets.

E. Ch. Common receptacle hairy; partial clefty, 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. 299. — Native of Lewsen'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, scarcely 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 Ghidore.

Silpha,
SILPHA, in Entomology, a genus of insects of the order Coleoptera, of which the generic character is, Autenne clavate, the club perfoliate; shells margined; head prominent; thorax somewhat flattened and margined. This genus of insects, from its habits, is known by the trivial name of the Carvon-beetle. The several species are commonly found among decayed animal or vegetable substances, frequenting also dung-hills, carrion, and other offensive matter: they lay their eggs chiefly in the dead and putrid carcasses of animals. The larvae are of a lengthened shape, and of an unpleasant appearance, being generally roughened with minute spines and protuberances. There are about 120 species, in eight separate divisions or sections. The following are most worthy of notice.

Section A is characterized by a dilated and bifid Lip, and a one-toothed Jaw; in which, among others, are the following

Species.

SURINAMENSIS. Black; shells with a yellow band behind; hind-thighs toothed. It is found in South America.

* Littoralis. This is a black insect; the shells are naked, with three raised lines; thorax rounded and polished. This is an European insect, and found in our own country.

LIVIDA. This is brown; thorax, shells, and legs livid. It is found in Germany.

INDICA. This, as its name imports, is an Indian insect; it is black; the shells are marked with two ferrugious bands; thorax one-toothed before.

MICANS. Black, with a green polish; shells friate, truncate, one-toothed. This is an inhabitant of the Cape of Good Hope. Tail rufous; shells black, with three elevated flour, one-toothed at the future.

AMERICANA. This, as its name shews, is found in divers parts of America. It is depressid and black; thorax is yellow and black in the centre. The shells are ruged and immaculate.

* THORACICA. This is black; the shells are marked with a single elevated line; the thorax is tectaceous. This and the following are English insects. According to Mr. Donovan's figure and description, the shells of this species have three raised lines. It is distinguished by its red thorax, every other part being black.

* RUGOSA. Blackish; the shells are ridged with three raised lines, the thorax is ridged and minute behind. This insect consumes dead carcasses, fish, and flesh of all kinds; when caught it emits a very fetid smell.

* ANHATA. This is of a fize similar to the thoracica, but is totally black, and has the wing-features marked by three riling lines; its larva, which may be found in gardens, is of a lengthened shape, and of a black colour.

* LEVIAGA. Black; shells smooth and sub-punctured. The shells are without raised lines.

* OBSCURA. Black; the shells are punctured, with three raised lines; the thorax is truncate before. This species is figured by Donovan. The thorax has a bluefl glofs.

* OPACA. This is brown; the shells have three raised lines; the thorax is truncate before.

* SINAPATA. The thorax of this species is emarginate and rough; the shells have three raised lines, minute at the tip. This is a beautiful species; the thorax is brown, with a silvery glofs; it is rough, with raised dots.

* 4-PUNCTATA. The thorax is yellow, with a large black spot; the shells are yellow, with four black spots.

* GRISEA. Grey; the shells are smooth; the thorax is emarginate.

Section B is distinguished by an entirely rounded Lip, and a one-toothed Jaw.

4-MACULATA. Thorax and shells black, the latter with two rufous spots; the body is rufous: the antennae are ferruginous, brown before the tip, shells friate.

MULTIPUNCTATA. Rufous; shells subfriate, with numerous rufous dots. This is found chiefly in Sweden.

PICEA. Pitchy; shells friate, black, the base and band behind are ferruginous. This is a very small insect, and is found in Germany.

METALLICA. This is of a brassy colour; the legs are ferruginous. It is found in divers parts of Saxony.

C. Lip horny, entire; the Jaw is bifid.

4-NOTATA. Black; the shells are truncate, with two rufous spots. It is found in some parts of Germany. The antennae are long; the five last joints are perfoliate; the shells are a little shorter than the body; the abdomen is acute.

4-PUSTULACA. Black, polished; edge of the thorax and spots on the shells are fanguineous. It is found in New Holland; the shells are truncate, shorter than the abdomen.

AGARICA. This also is 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 truncate, shorter than the abdomen; the body is black and immaculate; the abdomen pointed.

D. Lip emarginate, conic; Jaw bifid.

FASCIATA. Black; the shells are 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 fize. This is black, and the shells are marked with two rufous spots.

* 4-PUSTULATA. Black; the shells are marked with two ferrugious dots. This is found in England, and in many other parts of Europe. The larva is long, hairy, and grey.

* 6-PUSTULATA. Black; shells friate, 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 ferrugious at the edge; spot at the base of the shells finatee, the middle one is uniform; that at the tip is small and round; the body beneath is rufous.

* NICIPENNIS. Rufous; the antennae, shells, and breast are black. This is found chiefly on trees.

* RUFIPES. This is a black insect; the head, thorax, and legs are ferruginous. The abdomen is black.

* VENCEA. This is of a fine scarlet colour; the shells are brassy and immaculate.

* RUFIFRONIS. Black; but the front, two spots on the shells, and legs, are ferrugious. 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 Lip, emarginate and crested.

* GERMANICA. Black; front and edge of the shells are ferrugious. Sometimes the shells are marked with a ferrugious spot or two. It deposits its eggs in the carcasses of other insects, and buries them under ground. It is very like the

* VESPELO. This insect, which is not uncommon in our own
own country, is the most remarkable of the European species. It is distinguished by having the wing-heaths considerably shorter than the abdomen, or as if cut off at the tips; they are also marked by two waved, orange-coloured transverse bars, the cell of the insect being black; the general length of the animal is about three-quarters of an inch. The vespillo seeks out some decaying animal substance in which it may deposit its eggs, and in order to their greater security, contrives to bury 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, so that not a trace of it has appeared above ground. The eggs are white, and of an oval shape: from these are hatched the larvae, which, when fully grown, are about an inch long, of a yellowish-white colour, with a scaly 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 unpleasant smell; it flies with strength and rapidity, and is usually seen on the wing during the hottest part of the day.

Mortarium. Black; shells marked with two ferruginous bands; the club of the antennae is black; the hind-thighs are unarmed. This is found in many parts of Germany; preying on careafes and fangi.

F. Lip square and emarginate.

* Scarabeoides. 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 size of the leaf, and is found in Germany.

Colon. Yellow; the spots on the thorax, and marginal spot on the shell, black. It is found in Sweden. The head is black; the antennae are yellow; the club is black; the thorax is downy, with six spots disposed in a fteak; the abdomen is black, edged with yellow.

* Atoma. This insect is smooth and black; the shells have crenate frrc; the legs are pale.

* Melanocephala. This is black and smooth; the shells are grey, with a common black spot at the base.

* Unipuncta. This is black; shells yellowish, with a common black spot. The shells are sometimes immaculate.

* Fimicaria. Black, immaculate; the shells are very smooth. It is found chiefly in dung.

* Minuta. This is black and small; the shells are frr; the legs of the fame colour. It is found in many parts of England.

* Pulicaria. 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 Antennae are serrate.

* Saxicorin. Smooth, polished, and of a chestnut colour; the antennae are black.

Depressa. Smooth, ferruginous; the shells are frrate, and the body is depressed. 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 sufficient to mention the following.

Insignita. Black; shells oblongly frrate, 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 size of a fohne.


Gen. Ch. Common Calyx ovate, imbricated, squarrose; its scales ovate-oblong, reflexed for about half their length, projecting on all fides, permanent. Cor. compound, radiant. Perfect florets in the disk scervs, of one petal, funnel-shaped, five-toothed; their tube scarcely more slender than the limb; female ones, in the radius, fewer, lanceolate, very long, often three-toothed. Stam. in the florets of the disk only. Filaments five, capillary, very short; anthers united into a cylindrical tube. Pist. in the florets of the disk imperfect, German thread-shaped, very slender; style thread-shaped, very long, villous; stigma fimple; in the females, German inerfely heart-shaped; style fimple, short; stigma two, bristle-shaped, the length of the style. Peric. none, except the unaltered calyx. Seeds in the disk none; in the radius solitary to each floret, somewhat membranous, inerfely heart-shaped, with a membranous, two-armed, emarginate border. Recept. chaffy, with linear fcales.

Eiff. Ch. Receptacle chaffy. Seeds compressed, inerfely heart-shaped, bordered; their down bordered, with two horns. Calyx squarrose.

Fifteen species are defined by authors, hardy herbaceous perennial plants, generally rather large, with the atpec of Sunflowers; their leaves opposite, whorled, or alternate; the flowers yellow. The horns of the seed are wanting in some of the species.

1. S. laciniatum. Jagged-leaved Silphium. Linn. Sp. Pl. 1301. Ait. n. 1. Pursh n. 1. Linn. fil. facs. 15. t. 3.—Stem hispid. Radical as well as leaf-stems pinna-tid; their segments deeply toothed.—On the banks of rivers in the western territories of North America, particularly on the Missippf, flowering from August to October. Pursh. Collins sent the seeds to Linneus. The stem is from eight to twelve feet high, simple, leafy, round, an inch thick, rough in the upper part with brilfy hairs. Leaves alternate, stalked, two feet long, and one broad, with four or five remote lobes at each side; strongly ribbed, rough. Flowers four inches wide; the ten scales of their rough calyx armed with strong taper points.


The stem is about five feet high, panicked at the top, with bright yellow, rather drooping, flowers, three inches in diameter. The radical leaves are a foot long, and nearly as broad, coriaceous, rough, sharply toothed, with very long footstalks.

4. S. perfoliatum. Square-stalked Silphium. Linn. Sp. Br. 1501. Ait. n. 3. Pursh n. 5. — Leaves opposite, triangular, thick, perfoliated. Stem square, smooth. Native of the Allegheny mountains, from Pennsylvania to Carolina, flowering from July to October, according to Mr. Pursh, who considers as a variety of this the connatum. Wild. Enum. 193. The present is a robust plant, frequent in large gardens or plantations, taller than a man. Leaves rough like a file, with bordered rough-edged footstalks, clasping the stem with their compound bases.

Flowers about two inches wide, with a smooth calyx.

5. S. connatum. Round-stalked Perfoliate Silphium. Linn. Mant. 574. Willd. n. 5. Ait. n. 4. Pursh n. 5. — Stem round, hispid. Leaves opposite, finely serrated, rough; combined at the base. — Found on the high mountains of Virginia and Carolina, flowering in August and September. Pursh. as well as Willdenow, jully infits on this being a very distinct species from the last, of which Michaux thought it a variety. The stem is round, covered in the upper part with deflexed brightly hairy. Upper leaves nearly entire, broad and perfoliate at the base. The flowers resemble those of the preceding.  


11. S. tertia. Fringed Three-leaved Silphium. Willd. n. 10. Pursh n. 11. — Stem cylindrical, smooth. Leaves three in a whorl, falked, lanceolate, slightly and minutely toothed, roughish. — Gathered at the base; the upper ones scattered and febrile. Panicle forked. Calyx fringed. — Retzius communicated to Willdenow a description of this, as a new species from North America, and Pursh saw a specimen in Mr. Lambert’s possession. The stem is to be four feet high. Lowell, as well as the uppermost, leaves scattered; those of the panicle febrile, two together. Calyx-scales in four rows. Florets of the radius broader than in the last; but those of the disk are shorter. Retzius.

12. S. florid-choripipum. Violet-stalked Silphium. Willd. n. 11. Pursh n. 12. — Stem cylindrical, smooth. Leaves about four in a whorl, lanceolate, rough, nearly entire, almofit febrile; fringed at the base; the upper ones scattered. Panicle forked. — Willdenow was indebted to Retzius for this likewise, but Mr. Lyon is said to have met with it in Carolina and Georgia, flowering in August and September. Mr. Pursh, who had seen this plant alive, says it resembles the preceding, but is at first sight distinguished from the purple smooth stem. By the description of Retzius, the specimen of S. trifoliatum in the Linnaean herbarium should seem rather to belong to the present species. See its description above.


S. folidegmoide, Linn. Sp. Br. 1302, proves the same plant as Rudbeckia opipartifolia, Sp. Br. 1296, under each of which names it lies in the Linnaean herbarium. It is also Heliocneus levis, Sp. Br. 1278, adopted from Gronovius; and is Willdenow’s Buphthalmum bethanайдes, n. 19, to which last genus it had originally been referred by Linnaeus in his Horia Uphehena. Finally this plant is now called Heliope levis in Pursh. p. 563, after Peronon. See Rud- 

BECKIA.


Silphium, in Gardening, contains plants of the tall-growing, herbaceous, perennial kind, of which the species cultivated are, the jagged-leaved silphium (S. hecinatum); the broad-leaved silphium (S. teretinimum); the hairy-stalked silphium (S. afferens); and the three-leaved silphium (S. trifoliatum).
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.

Silphium, in Ancient Geography, a country of Libya, which took its name from the plant. It commenced eastward towards Aziris and the isle of Platea, and extended westward as far as the Syris.

Silnostadt, in Geography, a town of Germany, in the county of WermSaturday; 3 miles N.E. of WermSaturday.

Silva, a river of Ruflia, which runs into the Kama, near the town of Silva, in the government of Perm.—Allo, a river of Ruflia, which runs into the Tchufovata, 16 miles N.E. of Perm.—Allo, a town of Ruflia, in the government of Perm; 12 miles N.W. of Solkmik.

Silva Fisa, a town of Switzerland, in the bilingual 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 Sibbah-Bloom mountains, and takes a northerly direction. It has this name in Beaufort's and Arrowsmith's maps, but is called the Frankford river by Mr. Longfield, in his report to the Bog commissioners, from the small town of Frankford, which it passes. Mr. Longfield represents it as capable of being easily made navigable for canal boats, and also of being made to contribute to the drainage of the said bogs between which it flows.

In one part of its course, a little before it joins the Briuna, the Macartney aqueduct, a part of the Grand Canal, paffes over it.

Silver, in the Arts, Manufactures and Commerce, and in Domestic Economy, is a white malleable metal, fusible 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 affay 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 muriatic 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 flarta. The ores of silver are accompanied by calcareous spar and sulphate of barytes, and sometimes with quartz, horn-flone, jasper, and fluorspar. 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 Allemont 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, possesses 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 reticulated. 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 flake-like malleable of considerable size. In the year 1750, there was found in the famous mine of Hemmels Furt, 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 Albini, in his "Meinichische Berg Arconicke," p. 30, "that at Schweibrice, in 1748, 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 centres of silver: a centner is 110 lbs."

(Jameison's Mineralogy.) Native silver is fusible into a globule, which is not altered by a continuation 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 brazi-yellow; it often contains a considerable proportion of gold. The flones which form the mass of native silver in the mine are very numerous; it sometimes appears to be infiltrated into the filaments, sometimes to vegetate on the surface, and in other instances to be intimately combined with the sublimate of the flone. It is found in almost all the silver-mines that are worked in Europe or America; but the mafles discovered in America are not so large as some which have been found in Europe. The pace, a most abundant ore in Peru and Mexico, confits of minute particles of native silver, intermixed with brown ody of iron; but the particles are too small to be seen without a lens, and bear but a very small proportion to the mass. Silver rarely occurs in detached grains, like gold or platina.

Antimonial silver-ore is composed of silver combined with antimony, without any other sublimate. Its colour is tarnished; it has a thinning metallic luster, 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 striated; its specific gravity is from 9.4 to 9.8. It melts easily before the blowpipe, giving a white smoke from the ody of antimony, and leaving a globule of silver. Its constituent 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 calcareous spar and sulphate of barytes, and is accompanied by galena and native silver. The foliated structure of antimonial silver differentiates it from white cobalt-ore, which has a granular structure; it differs also from arsenical pyrites, both by its structure and softness; the latter is extremely hard. Antimonial silver yields to the knife.

Arsenicel 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 small, globular, and kidney-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 this ore are given by Klaproth as under:

| Silver   | - | - | 16 |
| Arsenic  | 35 |
| Iron     | 44 |
| Antimony | - | - | 4 |

Arsenic silver-ore usually occurs with native arsenic; dark red silver-ore, brittle silver-glance, lead-glance, and brown blende, in calcareous spar. It is a scarce mineral.

Corrosive silver-ore, or Horn-ore; Argent muriaticus, Fr. This mineral is distinguished by its translucency; it has a waxy or glistening 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, passing into greenish or reddish-blue or brown; it acquires a brownish tarnish. Horn-ore occurs crystallized in small cubes, and is sometimes, though rarely, angular and capillary; it is more common in laminae or small masses, 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 4.75 to 4.80. Horn silver-ore is accompanied with native silver, black silver-ore, brown oxide 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 substances; but the latter may be considered as accidental. Horn-ore is rather a fœtida mine.

Vitreous silver-ore; Silver-glance, or sulphurified silver; Glafierus, Werner; Argent sulphureus, Haüy. 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 an iridescent 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 7.2: its constituent parts are from 73 to 85 silver, and from 15 to 25 of sulphur. When heated 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 very frequently to 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, calcarious spar, and quartz. It is found in almost all silver-mines in various parts of the globe.

Brittle vitreous silver-ore; Brod glafier, Werner; Argent noir, Haüy; differs from the former by its brittlenefs, 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 glistening; the lustre is metallic. It occurs massive and disseminated, and in thin small plates, and frequently crystallized in six-sided prisms, variously terminated, and in rectangular four-sided tables: the latter crystals frequently intersect each other, forming the cellular structure. The tabular crystals are generally minute. The fracture of the massive vitreous ore is uneven; that of the crystals imperfectly conchoidal. This ore is soft, brittle, and fusible by the blowpipe; the sulphur, arsenic, and antimony, are partly volatilized, and a globule of imperfectly malleable silver, accompanied with a brownish scoria, remains. According to Klaproth, the brittle vitreous silver-ore, from a mine near Freyberg, contained:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Silver</td>
<td>60</td>
</tr>
<tr>
<td>Sulphur</td>
<td></td>
</tr>
<tr>
<td>Antimony</td>
<td>20.3</td>
</tr>
<tr>
<td>Iron</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>11.7</td>
</tr>
<tr>
<td>Oxygen</td>
<td>11.5</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>54.27</td>
</tr>
<tr>
<td></td>
<td>16.15</td>
</tr>
<tr>
<td></td>
<td>17.75</td>
</tr>
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<td></td>
<td>11.85</td>
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</tbody>
</table>

Black sulphurised silver-ore; Silber schwarz, Werner; differs from vitreous silver-ore by its want of lustre: it occurs massive, corroded, and in powder; 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; Roth gläser, Werner; Argent rouge, and Argent antimonious sulphure, 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 cochineal-red. It occurs massive, disseminated, and in thin plates, and crystallized in hexahedral prisms, variously terminated, and in dodecahedrons, with triangular faces, nearly similar to the crystallization of calcarious spar, called dog-tooth spar. The primitive form of the crystal, according to Haüy, is an obtuse rhomboid, whose plane angles are 104° 28' and 76° 22', and the inclination of the faces 109° 58' and 70° 32'. The fracture is usually uneven, and imperfectly conchoidal: its lustre externally is shining and metallic; internally glistening, sometimes metallic. It is brittle, soft, yielding easily to the knife. Before the blowpipe it gives out a copious smoke, with an arsentic smell, and leaves a globule of silver. Its specific gravity is about 6.6. There are several minerals which have a red colour, and may at first sight be confounded with red silver, as the fulphuret of arsenic, or realgar; but this mineral becomes yellow when powdered. Cinnabar has a greater refulbance, but the specific gravity is 7, and it is entirely volatilized by the blowpipe. Red oxyd of copper has a specific gravity of 3.9, and is usually accompanied with native copper, malachite, and brown iron ocelite; it also effervesces 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. Proust 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 Vauquelin, are:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>54.27</td>
</tr>
<tr>
<td>Antimony</td>
<td>16.15</td>
</tr>
<tr>
<td>Sulphur</td>
<td>17.75</td>
</tr>
<tr>
<td>Oxygen</td>
<td>11.85</td>
</tr>
</tbody>
</table>

According to
According to the analysis of Proud, 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, sulphuret 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 Deux-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>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>Mercury</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>64</td>
</tr>
</tbody>
</table>

White silver-ore has a near resemblance to compact galena. The colour is a light lead-grey, palling to steel-grey; it occurs massive and disseminated, and is generally intermixed with cubic galena. The fracture is mottled commonly even, but sometimes fine-grained and uneven, and also fibrous; the internal lustre is glinting and metallic; the streak shining. It is soft and brittle. The specific gravity is 5.3. Some mineralogists think this ore should be classed with the argentiferous ores of lead. According to Klaproth, different specimens from Hemmels Furil, near Freyberg, contain, of the

<table>
<thead>
<tr>
<th>Dark-white silver-ore</th>
<th>Light-white silver-ore</th>
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<tbody>
<tr>
<td>Lead</td>
<td>48</td>
</tr>
<tr>
<td>Silver</td>
<td>20.40</td>
</tr>
<tr>
<td>Antimony</td>
<td>7.88</td>
</tr>
<tr>
<td>Iron</td>
<td>2.25</td>
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<tr>
<td>Sulphur</td>
<td>12.25</td>
</tr>
<tr>
<td>Alumine</td>
<td>7</td>
</tr>
<tr>
<td>Silex</td>
<td>0.25</td>
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</tbody>
</table>

Carbonate of Silver.—This ore has hitherto been only discovered in the silver-mine of Wincellaus, in Swabia: it occurs sometimes in masses, and sometimes disseminated through other minerals. Its colour is a greyish-black; its fracture uneven, with a glinting 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

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Silver</td>
<td>72.5</td>
</tr>
<tr>
<td>Carbonate of antimony</td>
<td>17.5</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>- 12</td>
</tr>
</tbody>
</table>

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 masses; the fracture is fine-grained, uneven, with a glinting metallic lustre; it is soft and rather brittle; before the blowpipe metallic globules appear on the addition of borax, which unite; the bottom is brittle, and of a tin-white colour; the flux acquires an amber colour. According to Klaproth this ore contains

<p>| | |</p>
<table>
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</thead>
<tbody>
<tr>
<td>Lead</td>
<td>- 33</td>
</tr>
<tr>
<td>Bismuth</td>
<td>- 27</td>
</tr>
<tr>
<td>Silver</td>
<td>- 15</td>
</tr>
<tr>
<td>Iron</td>
<td>- 4.3</td>
</tr>
<tr>
<td>Sulphur</td>
<td>- 16.3</td>
</tr>
<tr>
<td>Copper</td>
<td>0.9</td>
</tr>
</tbody>
</table>

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 thousands 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. Millar 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 those counties from Mr. Mawes, author of Travels in Brazil, who visited them in the summer of 1815.

From the lead-mines of Ben-Aliden, 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 few weeks, the silver extracted from the lead procured here exceeded six thousand ounces. The works are extensive, and said 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 promised at one time an ample recompense to the adventurers.

The Hurland copper-mine, near Redruth, has produced a considerable quantity of native silver in a small vein, branching from the principal vein. Some of the fibres of silver were more than four inches long.

There is a lead-mine near Truro worked at this time, and a considerable quantity of silver is extracted from the lead, as it yields 100 ounces per ton.

Near Penzance, on the north coast of Cornwall, there was a mine formerly worked close to the sea, which produced lead-ores in various rates, and a portion of horn-silver, fine specimens of which are in various cabinets. Mr. Mawe found some specimens of this rare mineral among the refuse of the mine.

At Comb-Martin, 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, 65, or 80 ounces of silver per ton. Some few rare instances have occurred in the north-west part of Yorkshire, of their exceeding the latter amount. On the average, the argentiferous lead that is calculated to extract the silver does not contain 20 ounces per ton; for some it has been calculated at 17 ounces.

According to Lehmann, there are no known lead-ores in the world but what contain silver, except that of Villoch, in Carinthia. (Lehmann fur Lesc Mines.) But according to Dr. Watton, 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 15l. per ton. The price of lead is now 25l. per ton, and though silver be more 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 fifth 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, should continue in possession of the same, notwithstanding its being claimed as a royal mine, from its containing silver or gold; but it is further enacted, that the crown, or persons claiming under it, should have the privilege of purchasing all the ore which should be raised out of such mine, at the following prices, when made clean and merchantable: for copper-ore, at the rate of 16l. per ton; for tin-ore, except that of Devonshire and Cornwall, 40l.; for iron-ore, 40l.; and for lead-ores, 9l. 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. 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 Derbyshire lead-ores.

It appears from Hollinghead's Chronicle, that silver was formerly extracted from lead in various parts of the island. In the reign of Edward I. 1600 pounds weight of silver was obtained in the course of three years, from a mine in Devonshire, which had been discovered towards the beginning of his reign: this mine is called a silver-mine by the old writers, but it appears to have been a mine of lead that contained silver. The lead-mines in Cardiganshire have at different periods afforded great quantities of silver; Sir Hugh Middleton is said to have cleared from his two thousand pounds per month, and to have been enabled thereby to undertake the great work of bringing the New River from Ware to London. The same mines 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 minted at Shrewsbury. Sir J. Pettie's Essay on Metal Works.

A mint for the coining of Welsh silver had been previously established at Aberystwith; the indenture was granted to Thomas Buful, for the coining of half-crowns, shillings, fixpence, two-pence, and pennies, and the money was to be flanked with the ottrich feathers on both sides. In 1671 nearly 3000 ounces of this Welsh bullion were minted at one time at the Tower. Weblin, 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-ore had been procured. One of the places was Bronchithore Moor, in the parish of Skiddawh; the ore held about the value of 67 pounds of silver in 2 tons; the other was at Skelhornefield, in the parish of Giburn; it had formerly belonged to a person of the name of Pudsey, who is supposed to have coined it, as there were many shillings in that country which the common people called Pudsey shillings. There are several melting-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 subsequeut 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 concavity 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 driven during the process. The French smelters cover the surface of the ashes 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 blast 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 flue 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 light 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
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 spiritting, which might be avoided by the former mode.

The silver thus extractd 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 oxydation by the first procefs is converted into litharge, and absorbed by the ashes of the cupel.

The last portions of litharge in the firft procefs 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 sold for a pigment, or converted into red lead. The loss of lead by this procefs differs considerably, according to the quality of the lead. The litharge commonly obtained from three tons of lead amounts to 58 hundred weight; but when it is again reduced to a metallic state it seldom contains more than 21 hundred weight of lead, the loss on three tons being about eight hundred weight. The Dutch are paid to extract the silver from the same quantum of lead, with a loss of only 51 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-flake 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 albites, epidote, and calcareous 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 Voilges, 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 historians, as from the numerous vestiges of ancient workings, that the operations were continued on a considerable extent. The most remarkable mine was that at Guadalâlcar, 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 Freiberg, 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 inclde 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-stone. The mines of Schneeberg, in Misnia, and of Hartz, in Hanover, contain argentiferous lead, accompanied with proper silver-ores.

Hungary.—The mines of Schemnitz and Cremnitz, in Hungary, have been long celebrated, both for the richness 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 clay, mixed with quartz or fhoil, or particles of calcareous fpar. "To this rock baron Born has given the name of the metalliferous rocks, fachum metalliferum; 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 foot-vein, it is joined with an argentiferous white vein, which runs along with it on the hanging side, and from the place of junction the vein is found to contain silver. In this white clay are occasionally found nodules of fpar and mafes of quartz, which yield from four to five ounces of silver in the hundred weight. The second great vein at Schenmiz has nearly the fame characters as the firl. 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 Schenmiz, 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 fame 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 Schenmiz. The valley in which this place is situated is bounded on one fide by the fame 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 fiding or lower fide. The vein is grey quartz, mixed with auriferous pyrites. The firl fteam or fire-engine established in the Lower Hungarian mines was erected at Konigberg, in 1725, by Isaac Porter, an Eng-lish engineer, who was then in the imperial service.

Bohemia.—The circle of Sazis, in Bohemia, abound in various metallic ores, among which the ores of silver occasionally predominate. The prevailing rocks are gneifs and argillaceous fentus. The veins at Carkarineberg traverse gneifs, and generally run in a north and fouth 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-stone is also of the fame kind of rock, but occasionally alluming the characters of a variety of granite. It is observed, that the vein, which seldom exceeds a foot in width, diminishes in thickfews when the containing rocks become harder; and when the fides are found incrusted with a ferruginous clay, it appears to be richer in ores. Fiffures from the fides of the vein are found to improve it: a fine white clay, with quartz.
quartz imbedded in it, indicates rich ore; but a coarse clay, destitute of quartz, especially when it increases in quantity, and occupies the whole vein, renders it unproductive, or entirely barren. The ores of the vein now described are rich silver and copper pyrites, with fluor spar, blende, various copper-ores, and sometimes native silver and copper.

Josachimihal, a place in the same circle, has been long celebrated on account of its valuable mines. The prevailing rocks are described as grey micaeous and quartzose clay-flate, which at a great depth became more of an argillaceous nature, soft, foliated, and of a black colour. The mountains around this place have a gentle declivity towards the south, but run in lofty 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 Josachimihal. 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 1,600 fathoms; but including its several branches, its whole length is 4,500 fathoms. The depth under the highest point of the mountain is 170 fathoms: the second great level, which runs through the space of 3,600 fathoms, and in a direct line 1,500 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 350 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-planes are a whitish or blueish clay, argillaceous flate, and reddish horn-flate, or petro-filce, 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-planes, and allures 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-flate or calcareous spar; and white silver-ore has sometimes but rarely appeared.

The silver-mines of Besslau, in the circle of Tabor, are in hills of a gentle declivity, and composed of grey or bluish clay-flate, in which appear figures of greenish limestone, or semi-indurated pot-flate. 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 reddish-coloured felspar, with galena, blende, and a little silver; but from the part where a vein containing white arsenical 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 thickest. It is chiefly enriched by an undulating black clay fillure, which appears sometimes in the hanging side, and then it produces red and white silver-ore. When crofted 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 Wettmania, are about 28 English miles from Upfal. The ore is an argen-
tiforous galena, yielding from one mark to a mark and a half of silver per quintal; it is in compact lime-flate, and has been worked to the depth of 150 fathoms. The average profits amount to about 400 cl. and one-eighth is paid to the king.

Porter's Travels.

Norway.—The silver-mines of Konigberg, in Norway, are situated in mountains of moderate height, composed of nearly vertical beds of mica-flate with garnets, and of grey quartz mixed with fine black mica, and a little lime-flate and red horn-flate. 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 lime-flate, sometimes intermixed with flour spar. Enormous masses of native silver have sometimes been found in this mine; one is mentioned as weighing 2,200 lbs. The common ores are native silver and vitreous silver. The veins are most productive in the ferruginous rock. The annual produce is about 5,000 cl., weight of silver.

Asia.—The silver-mines of Zmeof are situated in that part of the Altanian chain of mountains which lies between the Oby and Irtysh, from 50° to 52° north latitude. The annual produce has been stated at 60,000 marks of silver, which is alloyed with about 3 per cent. of gold. The mines of Nerteflink in Daouria, near the river Anur, yield argentiferous galenas, producing about 30,000 marks of silver, and containing 14 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 Patrin, that there are silver-mines on the frontiers of China. Patrin, Hilt. des Mines.

America.—The most productive silver-mines in the world are those of South America and New Spain. Those of Peru, for many years after its conquest by the Spaniards, 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 these 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></th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viceroyalty of Peru</td>
<td>782</td>
<td>140,478</td>
</tr>
<tr>
<td>Viceroyalty of New Spain</td>
<td>1,009</td>
<td>137,712</td>
</tr>
<tr>
<td>Capitania of Chili</td>
<td>2,807</td>
<td>66,827</td>
</tr>
<tr>
<td>Capitania of Buenos Ayres</td>
<td>506</td>
<td>110,764</td>
</tr>
<tr>
<td>Viceroyalty of Grenada</td>
<td>4,774</td>
<td></td>
</tr>
<tr>
<td>Viceroyalty of Brazil</td>
<td>6,873</td>
<td></td>
</tr>
</tbody>
</table>

Kilogrammes 17,291 995,581

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 45,780 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 sterling, including not only the registered gold and silver, but that which may be suppressed to be smuggled. This estimate is only two-fifths of the real annual amount.

The mountain of Potosi has furnished, since its discovery in 1545, a mass of silver equal in value to 234,093,840 cl. sterling.
SILVER.

The mountain is 18 miles in circumference; it is composed of slate, but has a conical covering of porphyry, which gives it the form of a fugar-loaf, or basaltic hill; it rises 657 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 Mendicta, which traverse primitive slate, were filled with native silver, and silver-ores throughout their whole extent. The metallic mafes rose in ridges or crests above the surface, the sides of the vein having been destroyed either by water or by some other cause. In 1445, minerals containing from 80 to 90 marces of silver 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 1607, 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 still in a flourishing state: for from 1574 to the year 1789, the mean quantity of silver in the ores has diminished in the proportion of 170 to 1; while the absolute quantity of silver extracted from the mines of Potofo has only diminished in the proportion of 4 to 1.

About six miles from Pacho is the mountain Jauvichora: it is distinguished 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 intermixed with pure silver. This flone does not yield more than nine marces of silver in 500 lbs.; but there is a friable white clay met with in the middle of this mass of ore, which yields from 200 to 1000 marces of silver in every 50 cwt. The mountain is penetrated in all directions, without any attention to security; so 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 silver.

The veins of silver at Potofo are in slate, which Humboldt considered as primitive: this slate is covered with a clay porphyry, containing garnets. The mines of Gualgayoc, in Peru, are in the Alpine lime-flone. The veins which furnish nearly all the silver exported from Vera Cruz are in flate, porphyry, grauwacke, and Alpine lime-flone: the principal of these veins are those of Guanxato, Zacatecas, and Catore. The vein of Guanxato yields more than one-fourth of the silver of Mexico, and a fifth part of the total produce of America. This vein is, in some parts, from 147 to 150 feet in length, including the branches, and has been wrought from Santa Isabel to San Bruno to Buena-Vista, a length of 42,000 feet. The most celebrated mines in Mexico are elevated from 6000 to 9000 feet above the level of the sea. In the Andes, the mines of Potofo, Ocuro, Pas, Pacho, and Gualgayoc, are in regions higher than the loftiest summits of the Pyrenees. A mass of rich silver-ore has been discovered near the small town of Michiampa, at the absolute height of 13,450 feet. The great elevation of the Mexican mines is peculiarly 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 present contains the greatest quantity of silver lies between the twenty-second 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 other side of the equator. In the vast extent which separates the mines of La Paz and Potofo from those of Mexico, there are no others which throw into circulation a great mass of the precious metals, but those of Pasco and Chota. The isthmus of Panama and the mountains of Guatemala contain, for a length of 600 leagues, vast tracts of ground, in which no vein has hitherto been worked with success.

The province of Quito, and the eastern 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, say Humboldt, be correct to infer that these countries, which have been convulsed and torn by volcanoes, are destitute of the precious metals. Numerous metallic repositories may be concealed by beds of bafalt, and other rocks of supposed volcanic origin. It should, however, be remarked, that some of the rocks, which Humboldt enumerates as very metalliciferous, are by other geologists considered of volcanic origin, particularly clink-flone-porphyry, and other porphyries containing hornblende, but distinguished by the absence of quartz and common felspar.

The mines of Huantajaya are celebrated for the great quantities of native silver they formerly produced. They are situated in an arid desert, and surrounded by rock-fall, near the shores of the Pacific ocean, at no great distance from the small port of Yquique, in the vicinity of Lima. These mines are remarkable for the great elevation of silver-mines in Spanish America, being placed on a low and gentle declivity. Their produce is native silver, vitreous silver, and horn silver; the annual amount is about 30,000 lbs. of silver, or 80,000 marces.

The silver-mining operations of Chili, according to Humboldt, are in general not productive; but the vein at Uspallata contains pasos to 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, describes the vein at Uspallata, on the Andes, as being nine feet in thickness. It has been traced 90 miles, and is supposed to extend 300 miles. From the main vein there are branches on each side, which extend to the neighbouring mountains: some of these branches are 30 miles in length. This is the largest metallic vein which is at present known in the world.

According to Humboldt, the greatest part of the silver extracted from the bowels of the earth in Peru is furnished by a species of ore called the pasos, of an earthy appearance, which M. Klaproth analysed, and was found to consist of almost imperceptible particles of native silver with the brown oxide of iron. In Mexico, on the contrary, the greatest quantity of silver annually brought into circulation is derived from vitreous silver-ore, grey silver-ore, horn-ore, and black and red silver-ores. Native silver is not extracted in sufficient quantity to form any considerable proportion of the total produce of the mines of New Spain. It is, says this traveller, a very common prejudice in Europe, that great masses of native silver are very common in the mines of Mexico and Peru, and that in general the mines of mineralized silver, destined to amalgamation, or to smelting, contain more ounces, or marces of silver, to the quintal, than the silver-ores of Saxony or Hungary; but he adds, I was surprised to find that the number of poor mines greatly exceeds those of the mines which, in Europe, would be esteemed rich. It is at first difficult to conceive how the famous mine of Valenciana, in Mexico, can regularly supply 30,000 marces of silver per month, as the vein consists of sulphuretted silver, disseminated in almost imperceptible particles through the matrix. In the formation of these veins, it should appear that the distribution of silver has been very unequal, being sometimes concentrated at one point, and at other times disseminated in the vein through the matrix or gangue; for, in the midst of the poorest ores are
are found considerable masses of native silver. Although the new continent has not hitherto produced single 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 in masses, but in particles disseminated through the enormous quantity of the ore called pocos. The result of a general investigation of the richness of different mines is, that the mean richness of the different ores 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-fifths per quintal. It had formerly been ascertained, that no ores were worked in Mexico that did not contain one-third part of silver. The silver-ores of Peru are not richer on the average than those of Mexico. The district of Guanaxto has before been mentioned as furnishing more than one-fourth of the silver annually extracted in America, the riches of the mines here being superior to the celebrated repository at 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 annual average from 1786 to the year 1802, has been 556,000 mares, or 364,911 lbs. troy; and in thirty-eight years the weight of gold and silver, from the same vein, has been 12,700,000 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 some parts of its course it is parallel between the bed, or strata of the rock. It passes through both slate and porphyry, and is metalliciferous 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 stated at from 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 destitute 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 164 to 196 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 repository 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 Mestizoe can be fined to work in the mines. The Mexican miner gains from 11. to 17. 42. troy per week of fixed 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 indecent manner on leaving the mine. They frequently conceal fragments of native silver and silver-ores in their hair, under their arm-pits, in their mouths, and even in the anus, into which they force cylinders of clay containing the metal. These cylinders are called longanas. A regifter is kept of the silver found in different parts of the body. In the mine of Valenciana, the value of these stolen minerals, a great part inclosed in the longanas, amounted, from the year 1774 to 1787, to 30,000l. sterling.

The silver is extracted from its ores in New Spain by amalgamation with mercury, and by smelting; the proportion of silver extracted by mercury is $3\frac{1}{2}$ to 1 of that extracted by smelting; and as fuel is becoming scarce, the quantity of silver extracted by amalgamation increases, the smelting being very imperfectly conducted.

The Mexican miners do not appear to follow any fixed principle in the selection of minerals destined to smelting or amalgamation; for in one district they smelt the same ores, which in another they believe can only be managed with mercury; and it is frequently the abundance or scarcity of mercury which determines the miner in the choice of his method. In general they smelt the argentiferous galena, and the mixed minerals of blende and vitreous copper. The pocos, the vitreous, red, and corneous silver-ores, the grey copper-ore rich in silver, and the meagre ores, differentiated in small quantities in the matrix, they find it more profitable to amalgamate.

All the metallic wealth of the Spanish colonies is in the hands of individuals. The government polities no other mine than that of Huancaya Velica in Peru, which has been long abandoned. The individual receivers from the king a grant of a certain number of metzures, on the direction 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 11½ 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 smelting, or amalgamation, performed with much skill; for, 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 process, the Mexicans waste eight times more than would be necessary, were the process 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 killograrnmes. 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 4000 lbs. troy.

<table>
<thead>
<tr>
<th>Region</th>
<th>Gold.</th>
<th>Silver.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>1497</td>
<td>524700</td>
</tr>
<tr>
<td>Northern Asia</td>
<td>538</td>
<td>21700</td>
</tr>
<tr>
<td>America</td>
<td>17794</td>
<td>795581</td>
</tr>
</tbody>
</table>

The killogramme, it has been before stated, is rather more than 2 lb. 8 oz. troy. It is impossible to value the quantity of gold and silver annually extracted on the whole globe; for we are unacquainted with 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 formerly 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.

Affray and Analysis of Silver-Ores.—Pure native silver requires no other alloy than fuson, 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 is precipitated and filtered. The so-called silver-ores may be treated with potash, by fuson in a crucible : the alloy of silver and gold is first obtained, and the two metals may be separated by the processes 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 disintegrated.

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 saline impurities 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 the part dissolved, muriate of soda is to be added, which precipitates the silver. This precipitate being washed and dried, will give \( \frac{77}{100} \) per cent. of pure silver. To the liquid from which the last was precipitated add a solution of potash: a light red 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 45 or 44. This is shown by treating the arseniate of iron with charcoal exposed to a red heat; the arsenic is reduced, and sublimates, while the black oxyd 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 oxyd of antimony, affording \( \frac{77}{100} \) of pure antimony. What remains in solution, after the last substance is separated by the water, may be precipitated by pure potash, and will be found to be oxyd 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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>12.25</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><strong>Total</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

The sulphurised 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 cupelled 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 rediduum is left equal to \( \frac{78}{80} \) 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; add to the solution an excess of ammonia, and a greyish-white precipitate will be left, which is the oxyd 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 oxyd of antimony, of a brown colour.

Klaproth found 100 grains of this ore to yield as follows:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Amount</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>5</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 silky crystals. 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 \( \frac{4}{5} \) of metallic lead. The remaining liquid being supersaturated with ammonia, as in the analysis of the brittle silver-ore, a light-brown precipitate is formed: this precipitate is oxyd of iron and alumine. To separate the latter, dissolve the precipitate in nitric acid: separate the iron by prussian of potash, or prussiate of lime, and afterwards the alumine with soda. The prussian of iron, heated to a red heat, is decomposed, leaving the black oxyd of iron, which contains \( \frac{4}{5} \) 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 crystals of muriate of lead; obtaining, by this means, a solution of the muriates of lead and antimony.
mony. The residuum is sulphur. The muriatic solution deposits crystals of muriate of lead on cooling. When no more crystals fall down, these crystals are to be added to those obtained before. These, being heated in an alys crucible with twice their weight of black flux, afford metallic lead. This lead, however, treated in the usual way on the cupel, affords a small portion of silver. The solution still contains a small portion of muriate of lead and the antimony. By adding a solution of Glauber's salt, the lead is precipitated in the state of sulphate, affording 1/10 of its weight of metallic lead. The antimony, which is the last, may be precipitated by affusion of water. The precipitate, being washed, dried, and ignited, is the pure oxide of antimony, yielding on its reduction 3/4 of the metal. The analysis of the light white silver-ore, by Klaproth, gives of

\[
\begin{array}{ccc}
\text{Silver} & - & - \\
\text{Lead} & - & 20.4 \\
\text{Antimony} & - & 48.06 \\
\text{Iron} & - & 7.88 \\
\text{Sulphur} & - & 2.25 \\
\text{Alumina} & - & 12.25 \\
\text{Silex} & - & 7 \\
\hline
\end{array}
\]

\[
98.09
\]

The dark silver-ore, by the same, is

\[
\begin{array}{ccc}
\text{Silver} & - & 9.25 \\
\text{Lead} & - & 41 \\
\text{Antimony} & - & 21.5 \\
\text{Iron} & - & 1.75 \\
\text{Sulphur} & - & 22 \\
\text{Alumina} & - & 1 \\
\text{Silex} & - & 0.75 \\
\hline
\end{array}
\]

\[
97.25
\]

The corneous silver-ore, which is muriate of silver, is easily reduced in the dry way by fusling it with soda, in a crucible capable of fusling 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 residuum 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 oxide of iron. To the nitric solution, from the mass first 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 alumine 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 residuum 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 dark masses which was dissolved in water may be considered as muriate of potash, the acid of which is another ingredient of the analysis, and will be equal to 1/3 of the salt.

Physical and Chemical Properties of Silver.—Silver, when pure and newly polished, is of a splendid white colour, and becomes more white when the polish is deadened. Its hardness is nearly equal to that of gold. At a heat visibly red in the dark, it can be worked with great facility by the hammer into various articles, in the manner of working iron. After being rolled into very thin sheets, it can be beaten into leaves of 1/40th of an inch in thickness, and can be drawn into wire thinner than a human hair. A wire of 1/50th of an inch will require 336 lbs. to break it, when exerted in the direction of its length. At a temperature short of redness, these pieces can be united either by the hammer, or by pressing them together with friction by a steel burnisher.

It melts at the temperature of 28° of Wedgwood, or 471° of Fahrenheit. If the heat be raised the metal becomes more liquid, and boils. This is occasioned by its assuming the elastic form, in which it flares and air is condensed at 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 just at the point of congelation, a small explosion ensues, giving to the surface of the button an appearance as if some elastic fluid had been diffiguated from it. It has been discovered by Mr. Samuel Lucas, of Sheffield, that the elastic fluid which is separated, producing the phenomenon in question, is pure oxygen gas.

By keeping silver long in a state of fusion, at a very high temperature, it becomes oxidized.

Macquer converted silver into a vitreous oxyd by exposing it to the heat of a porcelain furnace.

Silver is readily inflamed by electricity, and converted into an oxyd of a greenish-yellow colour.

The most direct way to obtain the oxyd 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 oxyd. 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 flame, at a red heat the combination soon takes place, and the mass fuses, forming a sulphuret of silver of a violet colour, sometimes in crystals 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 existing in the atmosphere is capable of foun communicating a yellow, and ultimately a purple colour to polished silver.

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Mr. Proust found this tarnishing matter to be a phosphuret of silver. The thinneft coat of gum, or of varnish, completely defends the surface of silver from tarnifhing.

Silver combines with phofphorus, forming a phosphuret of silver. This combination is effected by heating in a crucible equal parts of silver and phofphoric glaft, with one-fourth their weight of charcoal powder, or, what is better, saw-dust. This compound is of a white colour. It is brittle, but may be cut with a knife. It is, like the fulphuret, decompofed by heat.

Silver combines with feveral 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. These, like all other compounds, are doubtlefs definite, and hence we fhould 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 flated by Mufchenbroeck, that the hardreft 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 greenifh tinge. This alloy is more furfible than gold, and hence is employed as a folder for that metal.

Silver does not form any striking 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 fusion. This fact is corroborated by the circumftance, that silver can fcarceely 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 efccfes. For the other alloys of silver, see the refpective metals.

Salts of Silver. — These confift of the oxyd of silver combined with an acid, fome of which only are fufible in water. The prefence of the fufible falks of silver is easily detected by muriatic acid, or any fufible faine compound with that acid, by occafioning a fene white precipitate, which foon changes to a purple colour when expofed to the fun's light.

The infufible falks of silver have the property of coating bright copper with silver, when rubbed upon it with a little molifture. Salts of mercury would give the fame white appearance, but this would be diftinguifhed from silver by being capable of difpofition by heat. Salts of silver become black with the hydrofulphures of the alkalies. 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 mass, sparingly fufible in water, except an excefs of sulphuric acid be prefent. The latter, on evaporation, affords fyllals of a brilliant fiverly white- nefs, in the form of needles or fine prifms.

This falt is fufible in nitric acid.

When heated, it firft fufes, and if the heat be raised, it is decomposed, fulphuric acid and oxygen efcapeing, leav- ing the silver in its metallic form.

This falt is decomposed by the alkalies and earths, and all thofe fufible falks, the acids of which form fufible 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 composed of one atom each of acid and bafe, then, by Dr. Wollaston's table, the proportions would be 25.5 acid, and 74.5 oxyd of silver. Dalton's numbers would give very nearly the fame refult.

Sulphate of Silver. — This falt, like the laft, is sparingly fufible in water. In other refpects, it is but little known.

Nitrate of Silver. — The nitric acid acts with considerable violence on silver, affording red fuffocating flames, occafioned by the copious difengagement of nitric oxyd. If the acid and the silver be pure, the folution becomes clear and co- lourles, without residuum: if the acid contains muriatic acid, which is often the cafe with the acid of the shops, then a dense white powder will fall down, which becomes purple in the funs-flone, and is the muriate of silver: if the silver contains gold, a purple powder will be left at the bottom of the vefsel: if it contains copper, the folution will be of a green colour, of greater or lefs intensity, depending upon the quantity of that metal.

The folution of silver affords crystals on evaporation: they are of a prismatic form, but differ in their number of fides; they do not change by expofure to the air, but are very fufible in water. These crystals, when heated, firft melt; the heat being raised, the water of cryftalization efcape, but the mass still remains liquid: in this flate it is frequently cast into moulds, in which it affumes a folid form on cooling. These flicks, which are employed in furgery under the name of lunar caftic, are of a grey colour, and when broken exhibit a cryftalline appearance.

A more violent heat than that required for its fusion decomposes it, nitrous gas and oxygen being difengaged.

This decomposition is much more rapid when it is heated in contact with inflammble matter. If thrown upon burning crals, it detonates.

If flk, cotton, leather, ivory, and many other bodies, be moistened with nitrate of silver, and the part be afterwards moifened, when a stream of hydrogen gas is applied to it the silver becomes reduced, and appears with its metallic lufure. A flick of phofphorus dipped in nitrate of silver foon becomes coated with metallic silver.

This falt has the property of detonating with fulphur or phofphorus, by being struck fharply with a hammer.

Nitrate of silver is decomposed by all the earths which form falks, and by the alkalies, 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 silver precipitate the oxyd by means of lime-water: separate the oxyd, and dry it upon blotting-paper: upon this oxyd pour pure caftic ammonia: let this remain for twelve hours. If a pellicle be formed upon the surface, add a little more ammonia, which will take it up. A black precipitate will be found at the bottom of the vefsel, 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 feparate parts of blotting-paper, to dry. When dry, the lighteft touch or rubbing motion causes a violent explosion. Thofe unac- cuftomed to it should begin with the smalllefs poffible quantities, as ferior accidents have happened by exploding it in too large quantities. The liquid part from which the fubftance 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 de- composed, and the gaseous products difengaged: in a little time, small brilliant cryftals of the fame fubftance appear: thefe
these frequently detonate with such violence, as to break the vessel in which they are contained.

The theory of these appearances is obvious: the oxygen of the silver combines with the hydrogen of the ammonia, forming water, which, with the azotic gas of the flame, are in an instant rendered so highly clyclic by the caloric set free, as to produce the explosive effect so conspicuous in this substance. It is needless to say that the silver is left in the metallic form.

Nitrate of silver is decomposed by all those metals having a superior attraction for oxygen. The oxygen of the silver is given to the decomposing metal, which also combines with the acid. Copper, so employed, precipitates the silver in a white metallic powder, the result being nitrate of copper in the place of nitrate of silver. The precipitate is not pure silver, some copper will always be detected when the precipitate is re-decomposed.

Mercury has also the property of precipitating silver from the nitrate, producing the appearance which has been termed the arbor Diane. Lemery recommends one part of silver to be dissolved 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 vegetation, 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 state of electricity being negative, that of the mercury being positively, 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.

Nitrate of Silver.—When nitric acid, or any soluble muriate, is added to nitrate of silver, a dense and blueish-white precipitate is thrown down, which is muriate of silver. Although white when it is just precipitated, it soon attains 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 nitric acid. The latter, on combining with the silver, forms the salt in question.

When this 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 horn-like appearance, from which it has been called luna coerulea, or horn-silver. If fused with a great heat in a crucible, it becomes thin a fluid as to sink through the pores of the crucible. It is not decomposed by any of the acids nor the alkalis, but when heated with the carbonates of potash or soda, the acid is disengaged. It diffuses in caustic ammonia, forming a transparent solution: this, by exposure to the air, undergoes considerable change. A pellicle forms on the surface, which is frizz of a blueish colour, and ultimately black. This pellicle, on examination, is found to be muriate of ammonia and reduced silver. Those who with Sir Humphrey Davy hold oxyymuriatic acid to be a simple body under the name of chlorine, consider this substance as a compound of the latter substance with metallic silver. Sir Humphrey gives it the name of argentum, and Dr. Thomson, more confidently, chlorid of silver.

The composition of this salt, according to Proust, is

<table>
<thead>
<tr>
<th>Muriatic acid</th>
<th>18</th>
<th>Oxyd of silver</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

By the atomic theory it should be constituted by 102 + 7.5 = 107.5 of oxyd of silver, and 24 muriatic acid, which would give

<table>
<thead>
<tr>
<th>Oxyd of silver</th>
<th>81.7</th>
<th>Muriatic acid</th>
<th>18.3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sir Humphrey considers it as a compound of one proportion of chlorine, 67, and one proportion of silver, 205, which will give

<table>
<thead>
<tr>
<th>Silver</th>
<th>-</th>
<th>Chlorine</th>
<th>75.3</th>
<th>24.7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Considering the 24.7 of chlorine as oxyymuriatic acid, which would be 18.8 muriatic acid, and 5.9 oxygen; then giving this oxygen to 75.3 of silver, would give 81.2 of oxyd 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 iodin or potash, instead of a solution of muriate of iodin (common salt). The following will be a receipt which cannot fail of success: dissolve 30 grains of lunar caustic 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 distil half an ounce of gum arabic. Moisten the part to be marked with the latter, and dry it till the writing will not run. The letters will first appear of a blueish-white, but become perfectly black by exposure to light.

The fluors, borate, phosphate, carbonate, and arseniate of silver, are insoluble powders, having no striking properties, or but little known. The arseniate is formed by adding arseniate of potash to any soluble salt of silver. It falls down in the form of powder of a yellow colour. Its insolubility, and its conspicuous appearance, have been taken advantage of by employing nitrate of silver as a test for arsenic.

The chromate of silver is an insoluble salt, of a red 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 oxyd of silver. The solution affords prismatic crystals.

The salt of the salts are but little known.

Silver, in Medicine, is called luna, 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 anthelmintic, and as a purgative remedy for dropsies, and in many other invertebrate uncereus diseases.

The method of making this is: dissolve an ounce of pure nitre in distilled water; then dissolve 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 homogeneous liquid; evaporate this to a pellicle, and crystals resembling 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 crystals be dried upon a paper, and then placed in a glas 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 arise; 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 use in medicine, and has furnished the dishonest practitioners 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 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 mafs, consisting of the falls of silver and nitre, is to be reduced to a fine powder: this powder, applied to ulcers, acts in the manner of the lapis internalis, or silver-sulphate, only much milder; but for internal use, the quantity of two grains of it is to be ground to a fine powder, with fixed grains of loaf-sugar, in a glass mortar; this is 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 stomack, drinking after them four or five 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 obilinate uccerous 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 corrosive on the stomack; but this inconvenience is greatly alleviated by rob of juniper. Boerh. Chem. part ii. p. 297.

However, with this affluence, it is at best a dangerous medicine, and as such is deferredly excluded from practice. Lewis.

Silver, Tincture 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 matsraf; 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 assumes a beautiful sickly-blue colour, and becomes an ingredient in several medicines. This is also called potable silver, argentum potabile.

Silver is likewise converted into crystals, by means of the fame spirit of nitre; and this is called vitriol of silver.

The lapis internalis argentous is nothing but the crystals of silver melted with a gentle heat in a crucible; and then poured into iron moulds. See Caustic, Lunar.

Silver Aiz. See AlE.

Silver Bulbs, in Botany. See Anthyllis; which see. See also BARBIS 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 internalis 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 internalis; 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 internalis.

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 suppos'd 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 upon its forming 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 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 gilding 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 tansey; a plant which grows naturally upon cold stiff land
in most parts, and is a sure mark of the feility of the soil. Its stalks spread upon the ground, and send out roots from their joints; by which means, and by frequent shedding of its seeds, as it flowers during the whole summer, it soon over-runs, and fills the land in a great distance. Its leaves are composed of several lobes or wings, which are generally placed along the mid-rib, and terminated by an odd one; they are jagged at their edges, and are of a silvery colour, especially on their under side. It has been noticed by Mr. Ray, that the root is somewhat of the tap-rooted or parsnip kind, and that hogs are very fond of feeding upon it.

**Silver.** See *White-hart Silver*.

**Silver Wire.** is silver drawn through the holes of a wire-drawing iron, and by this means reduced to the fineness of a thread or hair. The manner of drawing it, see 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 Roses.** a cluster of rocks, 10 miles S. of Grand Cayes.

**Silver Creek.** a river of America, in Kentucky, which runs into the river Kentucky, N. lat. 35° 41'. W. long. 84° 40'.

**Silver-grain.** in Vegetable Physiology, is described by Mr. Knight, Phil. Trans. for 1801, 344. 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 less during spring and summer, than in autumn and winter; whence the greater brittleness of wood in the former seasons." 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 a different width in different kinds, lying between, and preying upon, the sap-vesseis of the *albicum*. It may be observed, that in the oak "every tube is touched by them at short distances, and slightly diverted from its course. If thefe," continues Mr. Knight, "are expansible 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 pro-
pel the sap to the extremities of the branches; and their resilient temper, after the tree has ceased to live, inclines me to believe, that they are not made to be idle whilst it con-
tinues alive." In support of this opinion, we would remark, that the plates in question are found where the spiral coats of the sap-vesseis either no longer exit, or have lost their direction. See *Circulation of the Sap*.

**Silvering.** the covering of any work with a thin coating of silver. This operation is recommended by two circumstances; viz. the superior beauty of silver to that of the cheaper metals, and also its superior wholesomeness to copper, brass, or lead, for culinary purposes, 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 speckle, 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 subjacent 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 mallic, sanguis, the gums animi or copalis, and white rosin; to be put over it.

The varnish recommended in silvering leather may be applied to other purpofes. See *Lacquer*.

The silver powder, called argentum muscum, may be either tempered, in the manner of the shell-gold, with gum-water, or rubbed over a ground properly sized; and it will take a very good polish from the dog's tooth or burnifher; and hold its colour much better with a flight coat of varnish over it, than any true silver powder or leaf.

The sizes for silvering, when they are used for this pur-
pofe, ought not to be mixed, as in the cafe of gold, with yellow, or box aramnicus, but with some white sublacune, whose effect may prevent any small failures in covering the ground with the silver from being seen. This may be done with flake-white, or white-lead, when the sizes formed of oil are used; but whiting, or tobacco-pipe clay, with a little lamp-black added to it, is the proper matter in the burnifh size for silvering, or wherever the glovers' or parchment size is used.

It is universal 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 amalgamation, by nitrate of silver, and by silver in sublimate. The first mode is performed by adding plates of copper to a solution of nitrate of silver, which will precipitate the silver in its metallic flate, 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 sal ammoniac two ounces, and one drachm 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 scouring 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 closely and expedi-
tiously. 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 ad-
hers firmly to the copper, in a state capable of receiving a high polish. The second method of silvering is by lamina cornea. For this purpose, prepare the lamina cornea in the usual manner, by pouring a solution of common salt into nitrate of silver, as long as any precipitation occurs, and boil-
ing the mixture; then mix the white curdy matter thus obtained with three parts of good pearl-ash, 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 flone, in order to remove any greafe, and then moistened with salt and water, a little of the composition, being now rubbed on with the finger, will presently 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 Cornea*.) The third mode of performing this operation is by means of silver in sublimate; 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 this 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 and better method, called French plating, consists in burnifhing down upon the surface of the copper succellutive layers of lead-silver to any required thick-
ness. Although the silver in this operation is more foodi
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 plat- ing, 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, &c.; also Handmaid to the Arts, vol. i. p. 471, &c. See Gilding of Metals.

The following is the recipe in practice with button-makers 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 oz. 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, which first 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 burnished, 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 consistence 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 similar pulp. The surface of the copper or brass 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 paste, 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 varnished to prevent its tarnishing, as the silver is too thin to bear cleaning. See Button.

Silvering of Leather. See Lacquer and Japanners’ Gilding.

The proceeding in silvering the leather is in all respects the same 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 purpose is only parchment size, made warm, and laid on with a sponge. However, the more hard and transparent the varnishes are, and the more they are of a refined nature, the more brilliant and white, and the more durable, will be the silver and polished appearance of the silvered leather. Some, instead of the parchment size, use that of finglas.

Silvering of Mirrors, is the application of a coating of quicksilver to their posterior surface, in the manner briefly described under the article Looking-Glafs. The management of the silvering is, in this case, extremely simple, and is thus detailed in Aikin’s Dictionary. A perfectly flat slab of free-base (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 riving a few inches on three sides, and cut down even with the rim on the fourth. A small channel or gutter is cut at the bottom of the wooden frame, serving to convey the waste mercury down into a vessel below, let to catch it. The slab is also fixed on a centre pivot, so that one end may be raised by wedges (and of course the other depressed) at pleasure, when working freely in the box.

The slab being first laid quite horizontal, and covered with grey paper, stretched tight over it, a sheet of tin-foil, a little bigger than the plate to be silvered, is spread over it, and every crease smoothed down carefully; a little mercury is then laid upon it, and spread over with a tight roll of cloth, immediately after which much mercury is poured over it as will lie on the flat surface without spilling. That part of the slab which is opposite the cut-down side of the wooden frame is then covered with parchment, and the glass plate is lifted up with care and slid in (holding it quite horizontally) over the parchment, and lodged on the surface of the slab. The particular care required here is, that the surface of the glass should from the first just dip into the surface of the mercury (skimming 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 glass and the metal, and also any little dust of oxide floating on the mercury is swept off before the plate without interfering. The plate being then let go, sinks on the tin-foil, squeezing out the superfluous mercury, which passes 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 situation for a day, the edge of the fome slab being gradually increased to favour the dripping of the mercury. The plate is then very cautiously removed, touching it only by the edges and upper side, and the under side is found uniformly covered with a soft pasty amalgam, confiding of the tin-leaf thoroughly soaked with the quicksilver, and about the thicken of parchment. It is then set up in a wooden frame, and allowed to remain there for several days, the edge of its position being gradually increased, till the amalgam is sufficiently hardened to adhere firmly as not to be removed by slight scratches, after which the plate is filched and fit for framing.

It is a considerable time before the amalgam has acquired its utmost degree of hardness, so that globules of mercury will often drip from new mirrors some time after they have been let up in rooms; and violent concussions of the air, such as from the firing of cannon, will often detach portions of the amalgam. These can never be perfectly replaced by any patching, as the lines of junction with the amal- gam will always be marked by white flaws, even when looking into the glass. See Foliating of Looking-Glafs.


SILVERIUS, pope, in Biography, the son of pope Hormifidas, was placed in the pontifical chair in the year 536, upon the death of Agapetus. Belifarius, the famous general of Julian, having soon after taken possession of Rome, the emperor Theodora resolved to take this opportunity of reëstablishing Athanarius, patriarch of Constantinople, and his party, who had been condemned for hereby by the council of Chalcedon. She wrote to Silverius, urging him to recognize Athanarius as lawful bishop, to which he gave a positive refusal. Upon this the emperor made an engagement with the deacon Vigilis, that he should be raised to the popedom on condition that he would anathematize the council of Chalcedon, and re-admit Athanarius and his party; and she at the same time sent orders to Belifarius to depose Silverius. To furnish a pretext for this act, an accusation of treason was brought against the pope, as having invited the Goths to repel themselves of Rome. This change was most probably invented for the purpose, and without the smallest foundation; and Belifarius, without acting upon it, sent for Silverius, and endeavoured by perfuasion
persuasion to get him to comply with the emperor's requisition, but he remained firm. Finding, however, that he had not strength to oppose his enemies, he took sanctuary in a church; but being artfully drawn from it, he was stript of the emblems of dignity, and exiled in the year after he had been elected pope. When arrived at Patara, a city in Lycia, 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 Constantinople, and from his representation, Julianus ordered the cause to be re-heard. Silverius, immediately on receiving this order, went to Rome, where his main conduct and personal appearance greatly disconcerted Vigilius, who had intruded into his chair. Through the intrigues, however, of Vigilius with Antonina, the wife of Dafianius, Silverius was put into his hands, and carried to the island of Palmaria, on the coast of Liguria, where he died, from want or hardship, in or about June, in the year 538; though Eoranius maintains that he held a synod of four bishops in the island, at which he excommunicated Vigilius, 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 Dunally, 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 1000 inhabitants; formerly more considerable than at present, and from the year 1188 to 1580 a bishop's see, which was afterwards removed to Faro; 15 miles E.N.E. of Lagos. N. lat. 37° 10'. W. long. 8° 21'.—Alfo, 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 Silvester 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 not by the pope, nor did the latter preside 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. Silvester died in 335; after having held the papal see nearly twenty-one years.

SILVester II., Pope, previously named Gerbert, was born of an obscure family in Auvignon, in the 10th century. At an early age he entered himself as a monk in the monastery of St. Gerard, Aurillac. 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 its 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 Otho I., 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 Otho II. at Pavia, who took him to Ravenna, where he held a solemn deputation on a mathematical question with a Saxon, very eminent for his learning. He was afterwards made preceptor to Otho III., who succeeded to the imperial crown while he was still a minor. In the year 991, Hugh Capet promoted him to the archbishopric of Rheims; but this elevation was a source of disquiet to him, and after much contention, he was obliged to resign the see to Arnulf, the natural son of Lothaire, king of France, who had been formerly deposed from it. This was in the year 997, and at the same time Otho III. conferred upon him the archbishopric of Ravenna; and on the death of pope Gregory V. in 999, he was elected to the papal dignity, when he assumed the name of Silvester. The acts of his pontificate were few, and not at all important. In the year 1000 he is said to have conferred on Stephen I., King of Hungary, the royal title, with the famous crown, the palladium of that kingdom, and to have constituted him perpetual legate of the holy see, with power to dispense all ecclesiastical benefices. An extraordinary influence of ecclesiastical vigour in this popedom is mentioned by Ademar, 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 Limousin, having imprisoned Grimouald, bishop of that city, for taking part in a disputed monasticity, and afterwards released him, the bishop repaired to Rome, and complained to the pope, who cited Guy to his presence. The cause being heard, the count was condemned by the pope and senate to be bound 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. Silvester died in the year 1002. 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 fell under the suspicion of magical practices, and several ridiculous stories are related to this purpose. There were, however, persons who knew how to appreciate his character: he is mentioned by Otho "as a most learned man, and eminent in the three branches of philosophy." He wrote a great number of letters on various topics, of which 150 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 Coccus Silvestris, a term used by some authors to express the coccus Polonicus; and by others, for a coarse or bad kind of cochineal, produced in the province of Guatemala, in New Spain; it is by some supposed to be the seed of a plant, but is, in reality, an insect, as the true cochineal is, only that the scarlet colour it yields is greatly inferior to the other. See COCHINEAL.

SILVIUM, in Ancient Geography, a place of Italy, in Puccetia, E. of Venula. The name is formed from Silva, a grove found in this place, and probably the "Saltus Banthii" mentioned by Horace.

SILUM, in Geography, a small island in the Adriatic. N. lat. 44° 59'. E. long. 14° 56'.

SILURES, or, according to the orthography of Poblény, Silvres, in Ancient Geography, a people of the isle of Albion, who policed, besides the two English counties of Hereford and Monmouth, Radnorshire, Brecknockshire, and Glamorganshire, in South Wales. The northern part
of Herefordshire has been supposed by some to belong to the Ordovices. The name of this ancient Britton nation is derived, by some of our antiquaries, from cael, a wood, and urs, men, because they inhabited a woody country; and by others, from the British words as heuil uir, 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 posterity have not degenerated from them. The Silures were unquestionably one of the bravest of the ancient Britton 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 Oltorius 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 Oltorius. But all their efforts were at last in vain. They were repulsed by Aulus Didius, further weakened by Petilius Cerealis, and at last totally subdued by Julius Frontinus, in the reign of Vespasion. 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 Wlffk, 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 splendour, but also of great beauty and magnificence. This is evident from the description which is given us of its ruins by Geraldus 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 ancient splendour are yet remaining; flately palaces, which formerly, with their gilded 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 flately 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, stoves, &c." This description of Caer-Leion was composed in the twelfth century, and therefore we have no reason to be surprised that its ruins are now so entirely destroyed, that they are hardly discernible. On the banks of the river Wlffk, besides Ica Silurum, there stood two other Roman towns; Burrium, now Ulftk, and Gobannium, now Abergavenny. Venta Silurum, now Caer-Gwent, near Chepflow, 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 Kenchelter, 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 eighteen rays; body elongated, compressed, without scales, mucous; lateral line near the back; the first ray of the dorsal or pectoral fins serrated, with recurved 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, five; 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 ωρ, to move or fish, and ωπα, 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 flexible; 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 of the head, near the nostrils, a very strong subcri, 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 flexible; fins unarmed. It inhabits the rivers of Surinam. This is denominated by some naturalists the tabolivaceous silurus. It is transparently 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 distillute of spiny 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 spiny rays; the first ray of the pectoral is serrate; the anal fin is long, and connected with the caudal.

Chilenis. Second dorsal fin flexible; 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 flexible; first ray of the dorsal and pectoral fins frotaceous. It inhabits South America.

Callichtys. 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 referrors, for the purpose of making its escape.

Section
Section C. Six Cirri.

Species.

Silurus, or European Silurus. This is also called the great or common silurus, and may be considered as the largest of all European river-fish, growing in some cases, to the length of eight, ten, twelve, or even fifteen feet, and to the weight of 300 pounds. Its more general length, however, is from two to four feet. The head is broad and depressed; the body thick, and of a lengthened form, with the abdomen very thick and short. It is of a sluggish disposition, being rarely observed in motion, and comparatively lying half imbedded in the soft bottom of the rivers which it frequents, under the projecting roots of trees, rocks, logs, or other substan"
Cornutus. 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 snout 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.

Inberbis. 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 accipens, but by the generality of writers fluvius.

Silurus Mons, in Ancient Geography, a mountain of Hilpmania, in the vicinity of Bactica.

Silicum, or Cyama. In Architecture, a term used by Wolhus, and some other writers, for what we otherwise call cymatio, or finial of the cornices.

Sim, in Geography, a river of Ruffia, which runs into the Yenije; 6 miles N. of Balagovetshenki. N. lat. 60° 10'. E. long. 90° 40'.

Sima, or Cyama, in Architecture, a term used by Wolhus, and some other writers, for what we otherwise call cymatio, or finial of the cornices.

Simaba, in Botany, the name of a shrub in Guiana, described by Aublet. 400 t. 153; for which, being barbary, Schreber has substituted the more legitimate, if not more harmonious, one of Zwinglea; see that article hereafter.

Simæthus, 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 Leonia, and which was celebrated by the poets. The nymph Thalia, after her amours with Jupiter, is said to have been converted into this stream, which, to avoid the rage of Juno, sunk under ground near mount Ætna, and continued this subterranean course to the sea. In the time of the Romans it was navigable. It takes its source on the N. side of Ætna, and surrounding the west skirts of the mountain, falls into the sea near the ruins of the ancient Morgantia. It does not now sink under ground; but0 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 croffles, beads, sants, &c. and is sold at very high prices to the superfluous 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 Tauromintus; but it was broke in upon, at a remote period, by the lavas of Ætna, 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.

Simalischeva, in Geography, a town of Ruffia, in the government of Kolivan; 40 miles S.S.E. of Kolivan.

Simana, in Ancient Geography, a town of Asia, 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 Pinfuera 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 Hindooftan, 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° 40'.

Simaria, a town of Naples, in Calabria Ultra; 4 miles E.N.E. of St. Severina.

Simarona, a name given by the Spaniards in America to a species of vanilla, called also baylard-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. They 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 Havana.

Simarouba, or Simaruba, in Botany, is the bark of the roots of a tree, first imported into Europe in the year 1713, but not long ago botanically ascertained to be a species of the Quina; which i.e.

Simarouba, or Simaruba, in the 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 taste is bitter, but not disagreeable. Macerated in water, or in rectified spirit, it quickly impregnates both menhirs with its bitternes, and with a yellow tinture. It seems to give out its virtue more perfectly to cold, than to boiling water; the cold infusion being rather stronger in taste than the decoction, which has a transparent yellow colour whitties hot, grows turbid and of a reddish-brown as it cools. The milky appearance, which Jussieu finds it communicates to boiling water, Dr. Wright has not observed in the decoction of any of the specimens which he has examined.

The bark was first sent from Guiana to France, in 1713, to the count de Porchartrain, then secretary of state, as a remedy of great efficacy in dyentury. In the years 1718 and 1723, an epidemic flux prevailed very generally in France, which refilled all the medicines usually employed in such cases; small doses of ippecacuana, mild purgatives, and all astringents, were found to aggravate, rather than to relieve, the disease: under these circumstances, recoupe was had to the cortex simaruba, which proved remarkably successful, and first established its medical character in Europe. Dr. Wright says, "most authors who have written on the simaruba, agree, that in fluxes it restores the left tone of the intestines, allays their spasmodic motions, promotes the feconations by urine and perspiration, removes that lowness of spirits attending dyenteryes, and dispels the patient to sleep; the gripes and teneurums are taken off, and the fobs are changed to their natural colour and confections. In a moderate dose it occasions no disturbance or uneasiness, but in large does it produces sickness at the stomach and vomiting."
SIM

"Modern physicians have found from experience, that this medicine is only successful in the third stage of dysentery, where there is no fever, where too the stomach is no way hurt, and where the gripes and teneftums are only continued by a weakness of the bowels. In such cases, Dr. munro 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 sir J. Pringle, Dr. Hock Saunders, and many others, preferred the cortex Sinaruba in old and obstinate dysenteries and diarrhoeas, especially those brought on from warm climates. Fluxes of this sort, which were brought home from the siege of Martinico and the Havana, were completely and speedily cured by this bark. The urine, which in those cafes had been high-coloured and feanty, was now voided in great abundance, and perpiration reftored. Dr. James Lind, at Haslar Hospital, says, that the Sinaruba produced these effects sooner, and more certainly, when given in such quantity as to nauseate the stomach. Dr. Hock Saunders remarks, that if the Sinaruba 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 Sinaruba bark will soon be in more general use."

Dr. Wright recommends two drachms 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 stomach is reconciled to this medicine, the quantity of the bark may be increased to three drachms. To this decoction some join aromatics, others a few drops of laudanum to each dose.

Dr. Cullen says, that the virtues ascribed to Sinaruba have not been ascertained by his own experience, or that of the practitioners in Scotland. Woodv. Med. Bot.

SIMAROW, in Geography, a town of Hindooftan, in the province of Bengal. 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 foreres magnus.

SIMAS, in Ancient Geography, a promontory in the Euxine sea, on which Venus had a statue.

SIMATIUM, or Simaex, in Architecture. See Cyrmatium.

Simatium and cymatium are generally confounded together, yet they ought to be distinguished; the latter being the genus, and the former the species.

Simatium, or fana, camous, according to Felibien, is the last and uppermost member of grand corniches, called particularly the great doucie, or gula velata; and by the Greeks, ephitheta.

In the antique buildings, the simatium, at the top of the Doric cornice, is generally in form of a cavetto, or femicocia; as we see particularly in the theatre of Marcellus. This some modern architects have imitated; but, in the Ionic order, the simatium is always a doucie.

The simatium, or doucie, then, is distinguished from the other kinds of cymatia, by its being camous or flat-squared.

SIMBALATH, in the Materia Medica, a name given by Avicenna and others to the pikkenard, or nardus Indica.

The exact interpretation of the word is spiigeras, and Avicenna, under this general name, distinguished it into several kinds; the first he calls albarlin, or nardin. It has been supposed by some that he means the Indian pikkenard by this word; but, on the contrary, it appears plainly that he means the Celtic nard: he calls it the nardus Romani orbis, and says that it is of European growth. After this he mentions the Asiatic nards of several kinds, which are only the Indian pikkenard, growing in different places, and such as used to be brought thence in different degrees of perfection.

SIMBANI, in Geography, a tract of country in Asia, abounding with woods, and uncultivated, lying between the kingdom of Woolli to the north-west, Fouta Torra to the north, Bondou to the north-east, and Tenda to the south-west.

SIMBING, a town of Africa, in Ludamar; 5 miles S.W. of Jarra.

SIMBIRSK, a town of Russia, and capital of a government, on the Volga; 380 miles E.S.E. of Moscov. N. lat. 54° 25'. E. long. 48° 30'.

SIMBIRSKOE, a government of Russia, bounded on the north by Kazanfko, on the west by Nizegorodfsko and Penzensko, on the south by the government of Saratov, and on the east by Uphemfko; about 180 miles from east to west, and 140 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.

SIMBULETA, in Botany, altered by Forkall from the Arabic Symbola enunem.—Fork. Ägypt.-Arab. 115. Juff. 418.—Clais Didymia; Order probably Angioferna. Nat. Ord. uncertain.


Defer. "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. Clavet terminal, four inches in length. Flowers solitary, drooping, on short stalks, with a short, linear, leafy bracteate under each. Calyx a perianth of one leaf, bell-shaped, permanent, in five linear equal segments. Corolla of one petal, ringed, white; tube bell-shaped, longer than the calyx; upper lip of the limb reflexed, cleft, lower long, three-lobed, bright, its middle lobe inflexed. Filaments four, inserted into the corolla, two of them long. Anthers four, black, united into a quadrangular compressed plate. Germen ovate. Style thread-shaped. Stigma capitit, ovate, nearly globose, oblique. Fruit not observed. The aspect of the plant is exactly that of a Refeda or Polygala; it moreover approaches the character of Columnea, so to the combined anthers, but differs in many other respects." Found on mount Kurna, and no where else, by Forkall, whose description has not enabled any learned botanist to guess at the plant; except that Jussieu thinks it may be akin to Vo roneja, or to Anellet's Pinpeca. 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 Glencoe, and communicating with Lake Huron. It has a few small islands; and several good harbours.

SIMELIUM, a Latin term, used by some to signify a table, with ranges of little cavities in it, for the dispensing of medals in chronological order.

The word is but ill written; it should rather be cimemum, as being formed of the Greek axiœnas, curiosities, or a cabinet of precious things.

We more usuallty say, a cabinet of medals, than a simeli-

SIMENAI, in Geography, a town of Phœlia, in the province of Oberland; 8 miles E. of Salfeld.

SIMEON, in Scripture Biography, a son of Jacob and Leah, born in the year 1757 B.C. (Gen. xxix. 37.) Simeon and Levi revenged the affront, sustained by the death of their half-brother Dinah, on the part of Shechem, the son of Hamor, by entering the town of Shechem, and killing all the men they found; after which they brought away Dinah, in the year 1759 B.C. (Gen. xxxiv. 25.) It has been supposed that Simeon was the most cruel to his brother Joseph, and that he advised his brethren to sell him. (Gen. xxxix. 20.) The conjecture is founded on the circumstance of his being detained prisoner in Egypt (Gen. xiii. 24.), and of his being treated with greater rigour by Joseph than the rest of his brethren. Jacob, on his deathbed, manifested peculiar indignation against Simeon and Levi. (See Gen. xix. 5.) Accordingly the tribes of Simeon and Levi were dispersed in Israel. Levi had no compact lot or portion; and Simeon received for his portion only a district dismembered from the tribe of Judah (John, xix. 1, 2, etc.), and some other lands which were over-run by those of this tribe on the mountains of Seir, and in the desert of Edom. (1 Chron. iv. 24, 39, 42.) The Tar-gum of Jerusalem, and the rabbins, who have been followed by some of the fathers, have affirmed, that the greater part of the feribes 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-rude so as to be an occasion of honor; 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 22,200, the rest having died in the desert. (Num. xxi. 14.) The portion of Simeon was west and south of that of Judah; having the tribe of Dan and the Philistines north, the Mediterranean west, and Arabia Petrae south. Josh. xiv. 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 him 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 jilt, the son of Hillel, and master of Gamaliel, whose disciple St. Paul was.

Simeon, or Simeon, 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 accused before Atticus, the governor of Palestine; and having endured many sufferings with a fortitude which astonished obervers, 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 Latin 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 interruption excited by Barchochba, 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 work, entitled "Sohar," which is an explication of the five books of Moses. 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 not 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, furthmore, Metaphrastus, 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 translating, 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 352 at Sifon, a town on the borders between Syria and Cilicia. He was the son of a shepherd, and followed the same 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 48. 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 passed 47 years upon his pillars, exposed to all the inclemency of the feasons. 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 a 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.
The madness remained in vogue till the twelfth century, when it was suppressed.

SIMON BEN JOCHAI. See CABALA.

SIMERCHÉT, in Geography, a town of Bohemia, in the circle of Bohlelaw; 4 miles N. of Michnik.

SIMEREN, a river of Syria, which runs into the Euphrates, at Romkala.

SIMERING, a town of Austria; 4 miles S.S.E. of Vienna.

SIMI, or SYMI, an island in the Mediterranean, between the island of Rhodes and the continent of Asia; 6 miles N. of Rhodes. N. lat. 36° 36'; E. long. 37° 34'.

SIMIA, in Natural History, a genus of the class 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 tusks are solitary, longer, and more remote; the grinders obtuse. The animals of this genus greatly resemble man in the uvula, 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, lascivi- ous, thieving, gregarious, and the prey of leopards and serpents, the latter pursuing them to the fummits 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 from thence to Ethiopia: a single species is found beyond that line, in the province of Barbary: they are found in all parts of Asia, 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 Isthmus of Darien as far as Paraguay.

These animals, from the structure of their members, have many actions in common with the human kind; all of them are fierce and untameable; some are of a milder nature, and will shew 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 molt abroad, the feathered tribe discover singular fagacity in fixing their nests beyond the reach of these invaders.

Mr. Ray first distinguished the animals of this genus into three classes, viz. the Simi, or apes, such as wanted tails; the cercopithecus, or monkeys, such as had tails; and papionees, 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 monkeys, into such as had prehensile tails, and such as had not.

The genus is divided into the following sections:

Section A. Apes without tail.

--- B. Baboons with short tails.

--- C. Monkeys. Tails long, not prehensile; checks pouched; haunches naked.

--- D. Satyrs. Tails prehensile; no cheek-pouches; their haunches are covered.

--- E. Sagons. Tails not prehensile; no cheek-pouches; haunches covered.

Of the whole genus, says Dr. Shaw, it may be observed that the baboons are commonly of a ferocious and follen disposition. The larger apes are also of a malignant temper, except the orang-outang and the gibbons. The monkeys, properly so called, are extremely various in their dispositions; 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 so nearly allied 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 Tail.

Species.

THALLODYTES, or Angola brawny. The generic character is, that the head is conic, body brawny, back and shoulders hairy, the tail of the body smooth.

SATYRUS; Orang-outang. Rufty-brown, hair of the fore-arms revered, haunches covered. Besides 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 Asia, 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 as 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 of the 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 disgalling ferocity which is often conspicuous in some of the larger baboons and monkeys. 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 peculiarly great ferocity in its native state, and is considered a very dangerous animal, capable of readily overpowering the strongest man. Its swiftness is equal to its strength; and hence it can rarely be obtained in its full-grown state.
M. Volfmaer's account of the manners of the orang-outang brought into Holland in 1776, and prefented to the prince of Orange, is nearly as follows. It was a female, about 2½ Rhenish feet. It shewed no symptoms of fercenefs and malignity, and was of rather a melancholy appearance. It was fond of company, and shewed a marked preference to thofe who took daily care of it, of which it seemed very fenfible. When the company retired, it would frequently throw itself on the ground, as if in defpair, uttering lamentable cries, and tearing in pieces the linen within its reach. Its keeper having fometimes been accustomed to fit near it on the ground, it took the hay off its bed and laid it by its fide, and feemed, by every demonstration, to invite him to be feated near. Its ufual manner of walking was on all fours, but it could walk on its two hinder feet only. One morning it got unchains, and was seen to ascend the beams and rafters of the building with wonderful agility, and it was with the utmoft diftinction retaken and secured. During its rate of liberty it had taken out the cork from a bottle of Malaga wine, which it drank to the faft drop. It would eat every thing that was offered, but was not obferved to hunt for insects like other monfies; it was fond of eggs, but fifth and roasted meat feemed its favourite food. It had been taught to eat with a fpoon and fork. Its common drink was water, but it would drink any kind of wine. At the approach of night it lay down to fleep, and prepared its bed by faking well the hay on which it fpt, and putting it in proper order, and lafly covering it with a coverlet. This animal lived five months in Holland. On its firft 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 cheftnut-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 fenfle-colour. It was imported from the ifland of Borneo. See Orang-outang.

In Dr. Gmelin's edition of the Syllena Naturæ, fays Dr. Shaw, the smaller variety, or the jockey, in its lefs fhaggy or more naked flate, is given as a distinct species under the name of S. troglodytes. The print publifhed many years paft, by the name of Chimpanzee, is of this kind. (See Chimpanzee.) The animal defcribed in the 59th volume of the Phil. Tranf, is by Gmelin referred to the orang-outang; but Mr. Pennant defcribes it under the title of GoIok. It has a pointed face; long and flenfer 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 Mavat, in the interior parts of Bengal. In its manners it is gentle and modest, diftinguifhed from the orang-outang by its flenfer form. In colour it is entirely black. In the Philofophical Tranfactions the defcription is as follows. "The animal is faid to be the height of a man, the teeth white as pearls; the arms in due proportion, and the body very gentle.""}

**SIMIA.**

**Sylvenus; Pigmy.** Haunches naked; head roundish; arms shorter. It inhabits Africa and the ifland of Ceylon. It is mild and easily tame: it uties threatening gestures when it is angry, chatters when pleased,举止 the manner of the Hottentots, and drinks from the palm of the hand. The face is fhort and flat; the forehead tranfverely projecting at the regions of the eye-brows; the fkin is rough; the hair on the head and fore-arms reverfed: it is about eighteen inches high.

**Inuus;** denominated by Buffon the Magot, and by Pen- nant the Barbary Ape. Its haunches are naked, and the head oblong. Inhabits Africa, is fond of the open air, deformed, dirty, and melancholy. It is a good deal remem- bles the S. sylvenus, but its fmit is longer, colour paler, nails rounded, and is about three feet and a half high. This is what is commonly feen in the exhibition of fuch kind of animals: it is not remarkable for docility or good temper: but, by force of difcipline, 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 fwarthy fenfle-colour. The hands and feet have nails re- fembling the human. It is delitute 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 Reynocephali: 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 provifions. The females carry their young in their arms, and will leap from tree to tree with them.

**Sylla; or Hog-faced Ape.** Nefe blunt, truncate, re- fembling that of a hog.

**Section B. Baboons with short Tails.** See Baboon.

**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 refeembling whiskers; hair on the body olive-black; belly reddish-yellow: it is about two feet high. This species is figured by Mr. Ed- wards, who was in poffefion of the living animal, and who, in order to compare his fpecimen with a much larger animal of the fame species, carried it to Bartholomew fair, and he faid they feemed highly delighted with each other's company, though it was the firft time of their meeting: the belt figure of this species is faid to be that given by Buffon.

**Apesia; Little Baboon.** Thumb clofe to the fingers; nails oblong, thumb-nails rounded; haunches covered. This is an inhabitant of India. The nails are oblong and com- preffed, except the thumb and great toe-nails, which refeemle of a man; the tail is scarcely an inch long; the face is brown, with a few fattered hairs.

**Sphinx; Great Baboon.** Mouth with whiskers; nails acuminate; haunches naked. This is found in the ifland of Borneo; it is lafievous, robust, and fierce; it feeds on fruits.
fruits and seeds; it makes great havoc in the produce of cultivated lands. The head is oblong, resembing that of a dog, but more obtuse; the neck is long; the tail is short and erect; the cheeks, red, edged with purple; it is from three to four feet high, in its sitting posture. It is extremely strong and muscular in its upper parts, and slender towards the middle. It is, says Dr. Shaw, ferocious in its manners, and its appearance is at once grotesque and formidable. The region surrounding the tail to a considerable distance on each side is bare and callous. It is a native of Borneo, and inhabits the hotter parts of Africa.

Mormon; Tufted Ape. Beard thin; cheeks tumid, naked, blue, obliquely-furrowed; haunches naked, red. It inhabits India. This, in 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 face is long, with the front end 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 whithish-yellow. On the top of the front 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.

Maimon; Ribbed-nose Ape. Beard thin; checks blue, friate; haunches naked. It inhabits Guinea; weeps and groans 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, 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.

Porcaria; 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.

Sylvatica; 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 blackish-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 longish, 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 sylvatica, and is found in Africa. Above the eyes are several long dusky hairs: it is about two feet high.

Cineræa; Cinereous Baboon. The face of this is dusky; the beard is of a pale brown; the crown is variegated with yellow; the body is cinereous. It is found in divers parts of Africa, and is about two feet high.

Cynosurus; Dog-tailed Monkey. It has no beard; the face is long; the forehead high; it has a whitish band over the eyes; male genitals coloured; the nails are convex. It is about two feet high, and is said to be faithless, ruffleged, and lascivious. The face of this animal appears uncommonly mild and placid. It was very fond of fruit, which it would occasionally rub over its body in a very ridiculous style.

Hamadryas; Tartarian Monkey. This is described as cinereous; the ears are hairy; the nails sharpish; 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 almost hidden in fur; the hair on the sides of the head, 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 fore-head is prominent, terminating in a ridge. It inhabits the Cape of Good Hope, is very gregarious, pillages gardens, and is watchful of fur-prize; 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.

Vetter; Lowando. The beard is black; the body is white. There is a variety with a white beard. It is found in Ceylon, is wild, ferocious, and milchious. The tulks 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.

Silus; 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 bulky beard, 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...
hands are purple; the tail is long, ending in a dirty white tuft.

**Faunus; 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 flesh-coloured; forehead with a grey band, instead of eye-brows; the ears are large, thin, 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 callosities behind, ridged blind nostrils, and arched tail. This by Pennant is called the Hare-lipped monkey, who includes in the species the cynomolgus and cynomolgus of Linneus. 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 hare 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 nostrils 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. inuus, 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 middling size, and of a reddish colour on the upper parts, as if fanged, and marked with white specks; the belly and chin are whitish; the tail is long. According to Linneus, it is of the size of a large cat, and is black, spotted with white; the hind part of the back is ferruginous; 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.

**Sabea; 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 Verde islands, the Cape of 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 hair is long and reversed; the eye-brows are black and bristly; the tail is straight, as long as the body, and hoary; the feet are cinereous; the nails round, those of the hands ovate. It is about the size of a cat.

**Cephus; Mouflache.** Tailed; cheeks bearded; crown yellowish; feet black; tail rufy 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 transverse 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 maltachias.

**Æthiops; 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 broad; 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 bushy hair; it is about eighteen inches high.

**Aegula; Egret.** This is tailed, the beard is scanty; the colour is grey; crown with an erect tuft of hair reveried

**Simia.**

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 flatish, whitish, naked; the nose is deprest, short, and dilatant 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, bristly, 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 future 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, beardless, 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 head is hairy; the mouth short; the orbits naked; the irides 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 sheding 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 nails of the thumbs 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.

**Nemeus; 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 same 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 bezor 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 shoulders 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;
SIMIA.

Regalis. To this species there is no thumb; the head, cheeks, throat, and shoulders, are covered with long coarse flowing hairs. It inhabits the forests of Sierra Leona. The head is small; the face is short, black, naked; the toes are long and slender; the nails are narrow and pointed; the tail is long, covered with snow-white hairs, and a tuft at the end; the body and limbs are slender; it is three feet high. The skin of this animal, by the natives, made into pouches and gun-cases.

BODIA; Bay Monkey. This has no thumbs; the tail is long, slender, and black; the body and limbs are slender. It inhabits Sierra Leona. The crown is black; the back is of a deep bay; limbs on the outside black; checks, under parts of the body, and legs, of a bright bay.

Fusca; Brown Monkey. The tail shorter than the body, alternately annulate with dark and light-brown. The face is flat; the cheeks and forehead are covered with long hairs; the body above is of a tawny-brown, belly cinereous; hands black and naked.

Section D. Tails prehensile; no Cheek-pouches; Hands covered. These are denominated

SATIAGUS.

Beelzebul, or Bearded Black Monkey. By Pennant 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. For the account given of this animal by Maregrave, see BEELZEBUL.

Senticulus; 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 is as large as a middling-sized calf. This, which by some has been regarded as a variety of the S. beelzebul, is denominated by Mr. Pennant the Royal monkey. There were formerly two in the Leverian 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 strongly prehensile. This species is common in Cayenne, but very rare in Brazil: on the contrary, the former species is very common in Brazil, but is not found in Guiana. 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 Allouates, or Howlers, inhabit the moist forests, in the neighbourhood of waters or marshes. They are commonly found in the woody islets of large flooded savannahs, 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 as if the forests 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 strong and varied, that one often imagines it produced by several of the animals at once, and is surprised to find only two or three, and sometimes only one. The allouate seldom lives long in a state of captivity: in a manner loses its voice, or at least does not exert it in the same manner as when wild. The male is larger than the female, which latter always carries her young on her back.

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5 C "Nothing
"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 life remains, and sometimes even after death, they remain clinging to the branches by the hands and tail. The sportman is often chastised at having lost his time and ammunition for such wretched game; for, in spite of the testimony of some travellers, the flesh is not at all good; it is almost 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, beardless, and without a thumb, hence its trivial name. This animal is distinguished by the graci- lity 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, chattering, and throwing down dry ficks, swinging by their tails from the boughs, and endeavouring to intimidate the passengers by a variety of menacing gestures. This is the Coatta 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 chneft.

**FATUCELLUS.** The horned supajou 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, fides, 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 blunt; the tail is spiral.

**APELLA.** Brown Supajou, or Sajou of Buffon. This also is without tail and beard; the body is brown; the feet are black.

**CAPUCINA;** Capuchin Monkey, or Saj of Buffon, and Weeper of Pennant. This has no beard; the skin is brown; the hair and limbs are black; the tail is flabby and the haunches 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 retractile wrinkle just under the hair of the forehead; the tail is long, always curved, and covered with long flabby 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 Yelp like a puppy; it carries the tail spirally rolled up, which is often coiled round the neck: it smells of mufk.

**SCUREA;** Orange Monkey, or Saimiri of Buffon. Beardless; the hind part of the head is prominent; the nails of the four smaller toes ungulate; the haunches are covered. The body is of a greenish-grey, under parts whitish; the legs and arms are rufy; the tail is flabby, 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 bluish-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 rides by lying on its belly. It looks full in the face of such as speak to it. It is impatient of European climates.

**MORTA.** Without beard, but it has a tail; it is of a cheenut colour; the face is brown; the tail is naked and fraly. It is found in different parts of America. It differs from the S. sciuereae only in being left, and on that account it has been supposed to be of the same species.

**VARIIGATA.** The hair on the fides 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 Haunches are covered. These are denominated**

**SAGONIS.**

**PITHECA;** 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 flabby. It inhabits South America; is very amusing, and easily tamed. It is entirely of a dusky brown colour, with a flight ferruginous cal, except on the head and face. This is the Saki of Buffon.

**JACCUUS;** Striated Monkey, or Ouilitt of Buffon, and Sanglin or Cagui minor of Edwards. This is tailed; its ears are hairy, broad; tail curved, very hairy; nails fubulate, throfe of the thumbs and great toes are rounded. There is a variety, which is of a yellowish colour, fimpling like mufk. It inhabits Brazil; is active, reffles, climbing like a squirrel; it feeds on infeets, fruits, milk, bread, and small birds; it gnaws the barks of trees, is untameable, biting, tormenting cats by fixing under their bellies, and eruis a hifing cry.

**OEDIPUS;** Red-tailed Monkey. This is tailed and beardless; locks hanging; the tail is red; nails fubulate. 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 iris is rufy; the ears are roundish, black, and naked; nails fubulate, 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. jaccus; it fmes of mufk, and the voice reffembles that of a mouse.

**ROSALIA;** Silky Monkey. Tailed; beardless; the head is hairy; circumference of the face and feet are red; the nails are fubulate. This fpecies derives its trivial name from the appearance of its hair, which is very fine, foft, long, and of a bright yellow colour, reffembling yellow filk. Round the face the hair is much longer than in other parts, fo as to form a large mane, like that of a lion; near the face this mane is of a red-diff colour, and it grows paler as it recedes from the cheeks; the face itself is of a dusky purple; the ears are round and naked; the hands and feet are also naked, and of the fame dull purple colour as 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 Marikina of Buffon.

Midas; Tamarin. This species is tailless; beardless; the upper lip is cleft; the ears are square and naked; the nails are fimbriate. The tamarin, or great-eared monkey, is about the size of a squirrel; it is coal-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 flesh-coloured; the ears are very large, naked, of a squarish form, and of a dusky flesh-colour; the tail is very long and black. It inhabits the hotter parts of South America. The claws are small and sharp. It sometimes varies in having the face black, instead of flesh-coloured.

Sima Marina, the Sea-Ape, in Ichthyology, a name used by Bellonius, and some other authors, for the fish called vulpes marina, a kind of shark, remarkable for its long tail, from which probably it had both one and the other of these names. See Sea-Fox.


SIMICUS, in Biography, 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 Phrases attribute this instrument to Pythocleus. He also informs us, that the Argians fixed 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 Lycanor of Samos; but Nichomachus gives it to Pythagoras. So many claimants to the fame inventions destroy all evidence to whom they belong.

SIMILAR, in Arithmetic and Geometry, the same with like.

Those things are said to be similar, or like, which cannot be distinguished but by their comprehension; 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 discerned and conceived, without alluming 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 fame with those in B.

Since a quantity cannot be underounded otherwise, than by alluming some other quantity to which it may be referred; similar things, notwithstanding their similitude, may differ in quantity; and unless, 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, 1° all squares must be similar rectangles. 2°. 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 equiangular, the corresponding sides containing the equal angles are proportional, equiangular 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 Archs. See Arch.

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 XIII. Geometry, fig. 14.) are similar, when any line S P 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 Mac-aulay's Fluxions, art. 122.

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 correspondent 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 Solid Figures.

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 little cubes may be
be so ranged, as to make similar and rectangular parallelepipeds.

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 Similius Animalibus.

Similar Dishes, in Medicine, denotes a disease of some simple, solid part of the body; as of a fibre, with regard to its tension, or fluidity; 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 shall reckon ten, viz. the bones, cartilages, ligaments, membranes, fibres, nerves, arteries, veins, flesh, and skin; each of which we shall under its proper article.

Dr. Grew, in his Anatomy of Plants, observes, that these have likewise their similar and organic 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-folds, &c.; so that in every similitude three things are requisite; two things that are compared together; and a third, in which the likenesses or similarity between them consists.

The difference between a simile and a comparison consists in this, that simile properly belongs to what we call the quality 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 comparifon which are expressed in a similitude. See Metaphor and Parable.

SIMILITUDE, in Arithmetick, Geometry, &c. denotes the relation of two things similar to each other, or which are only distinguishable by comprence.

The notion of similitude, which now makes some figure in geometry, &c. is owing to M. Leibnitz: it will be rendered easy by the following instance. Suppose two watches perfectly alike, the one belonging to Caus, the other to Gracchus. If now Caus pull out his watch in presence of Gracchus, 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, Gracchus distinguishes Caus’s watch from his own by their comprence; 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. Woldin, in lieu of it, substitutes 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 ambagies.

SIMILOR is a name given to an alloy of red copper and zinc, made in the best proportions to imitate the colour of gold. See Gold-coloured Metal.

SIMIRA, in Botany, Aubl. Guiana. 1701, t. 65. Juss. 205, the Guiana name of a shrub, belonging to the natural order of Rubiaceae, and the Pentandria Monogynia 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 falcheted sword, with a convex edge; not now used.

SIMLEE, in Geography, a town of Hindoostan, in Guzerat; 17 miles N. of Champaner.

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 esteemed, and denominated by him. He taught mathematics with great reputation, illustrating his lefions 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; "Valleviae Descriptio," being an account of the Valais, and the adjacent alps; and an abridge-ment of the Bibliotheca of Conrad Gexner, with the life of that distinguished perfon. In this last work he has not only given a good summary 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 Hindoostan, in Orissa; 15 miles N.W. of Boid.

SIMMEN, or Siben, 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 Spiez. The valley through which this lake runs, and which has on each side stupendous rocks, is called "Simmental," and is divided by it into the Upper and Lower. The inhabitants of some few parts of this valley grow 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 sort 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 sort 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 Rhine and Morelle, late capital of a duchy of the same name, veiled in the electorat of the Rhine. The place contains 1460, and the canton 8611 inhabitants, in 31 communes. The territory of the district contains 10272½ kilometres; 26 miles S.S.W. of Coblenz,—Alto, a river of France, which falls 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° 38'. W. long. 86° 10'.

SIMO, a town of Sweden, in East Bothnia, on a river of the same name, which runs into the gulf of Bothnia; 80 miles E. of Ulea.

SIMOGU, a town of Hindoostan, in Myfore, on the Tumbarada; 93 miles W. of Servingapatam. N. lat. 13° 21'. E. long. 75° 46'.

SIMOJOSIKI, 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 Afta Minor, in the Lesser Phrygia, the source of which was in mount Idas, and which discharges itself into the Xanthus, or the Scamander, according to Pliny. The source of the Simois lies S.W. of Courtys; it flows nearly to the W., traverses a space of from twelve to fifteen leagues; receives the Andrias above Inchavi, and several other rivulets, and discharges
discharges itself into the Hellepont, half a league to the N.N.E. of cape Sigeum. This dream is not now sufficiently considerable to deserve the name of river; it is rather a torrent swelled by the rains, at the end of the autumn, in winter, and in the spring, or by the sudden melting of the snow, which falls on mount Ida and Cotylus. Its bed is tolerably wide, but its waters are seldom abundant, and in summer it is almost dry, since a pacha has turned aside the stream of the Seameander, and directed its waters into the Aegean sea. See Scamander.

SIMON, in Biography, a name that frequently occurs in ancient history: some of the principal persons who sustained this appellation are as follow; viz.

Simon the Just, high-priest of the Jews, was the son and successor of Onias I. and promoted to this dignity A.M. 3702, or 3703. He died A.M. 3711, before A.D. 293. — Also, Simon, son of Onias II., advanced to the high-priesthood A.M. 3805, B.C. 199. In his time, A.M. 3787, Ptolemy Philopater came to Jerusalem, and attempted to enter the interior parts of the temple, where no one but the high-priest ought to have entered. Simon opposed him, and prevented his design. He is supposed to have been the person to whom the book of Ecclesiasticus gives a high encomium. His successor was Onias III.

Simon Maccabaeus, surnamed Thaddæus, the son of Mattathias, and brother of Judas and Jonathan, was chief, prince, and pontiff of the Jews from A.M. 3860 to 3869, B.C. 135. He gave proofs of his valor in the battle between Judas Maccabæus and Nicæor (2 Macc. viii. 22, 23.), and on another occasion (2 Macc. xiv. 17.) In consequence of his judgment and valor, which were signalized in a variety of ways, he was made governor of the whole coast of the Mediterranean sea, from Tyre to the frontiers of Egypt, by the young king Antiochus Theos. He also took Bethbura and Joppa, and built Aïda, in the plain called Sephela. When Tryphon had slain Jonathan and his two sons, and having marched into Syria, put to death the young king Antiochus Theos, and usurped his kingdom, Simon supported his competitor, Demetrius Nicator, who, at his request, confirmed the ancient franchises of Judea, and granted freedom from tribute. After this he took Gaza, and the Syrians that were in the citadel of Jerusalem capitulated to him. His administration was singularly prudent, and it was his great object to render his nation prosperous and secure. With this view he made a harbour at Joppa, for the improvement of the trade of the Jews, and he extended the limits of his country. He also renewed the alliance of the Jews with the Romans and the Lacedæmonians; and the whole Jewish nation acknowledged their obligations to him by various tokens of respect, and particularly by recompensing him and his children as perpetual prince and pontiff of their nation. When Demetrius Nicator was taken by the Parthians, Antiochus Sidetes, king of Syria, the brother of Demetrius, applied to him for succours against Tryphon, and not only confirmed the grants of his brother, but allowed him the privilege of coining money, remitted to him all debts owing to the kings of Syria, and declared Jerusalem to be a free and an holy city. Simon sent him men and money to assist him in the reduction of Dora, in which Tryphon had flung himself up. But Antiochus would not receive them, nor would he confirm the articles of his treaty with Simon. He also demanded the surrender of several places, and a thousand talents of silver, threatening, in case of refusal, to enter Judea with troops, and to treat him as an enemy. Simon disregarded his threats; nevertheless he offered a hundred talents for the cities of Joppa and Gaza, of which he had made himself master, because they occasioned great calamities to his country. The army of Antiochus, which he had sent to the coasts of the Mediterranean, was defeated by John Hyrcanus, the son of Simon; and three years afterwards Simon visited the cities of Judea, and came to the castle of Doco or Dagon, where his son-in-law Ptolemy, son of Ambus, refuted. But Ptolemy, though he entertained him magnificently, caused him, in the midst of the entertainment, to be assassinated, together with his two sons Mattathias and Judas, hoping thus to become master of Jerusalem, and of the whole country. But John Hyrcanus arrived first at Jerusalem. Calmet.

Simon the Canaanite, or Simon Zelotes, was an apostle of Jesus Christ. Zelotes, the appellation given to him by St. Luke (vi. 15. Acts, i. 13.) seems to be a translation of the surname Canaanite, given to him by the other evangelists. (Matt. x. 4. Mark, iii. 18.) Some learned persons have supposed, that the term Zelotes denoted his zeal in embracing the gospel of Jesus Christ; but others think, that he was of a sect called Zealots, mentioned by Josephus, (De Bell. i. iv. c. 2. i. vi. c. 1.) It does not appear where he preached, or where he died. Some have asserted that he travelled through Egypt, Cyrenica, and Africa; that he preached in Mauritania and Libya, and that he propagated the gospel in Britain, closing his life by martyrdom, on the crux, which he endured with incredible courage. Others assert, that he suffered martyrdom in the city of Susin, in Persia, on the 28th of October, on which day the Latin church celebrates his festival. The Greeks honour him June 1, and say, that he was Nathanael, the bridesgroom at the marriage of Cana.

Simon Magus, or the Sorcerer, was a native, as it is said, of the village of Gitton, in the country of Samaria. His history is recited Acts, viii. 5—15. 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 abominations, applying himself more than ever to magic, and taking pride in opposing the apostles, and propagating his errors. It is laid by several of the ancient fathers, that at Rome, whither he arrived in the time of the emperor Claudius, about A.D. 41, he was honoured as a deity by the Romans, and by the senate itself, and that a statue was decreed to him in the vale of Tyber, with this inscription: "Simoni Deo Sanèto." This fact, however, is disputed by several able critics. It appears, that under the reign of Nero he acquired great reputation by his enchantments; 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, in a fiery chariot, by the assistance of two demons, but that by the prayers of St. Peter he was defeated by his demons, fell down and broke his legs, and afterwards, overcome by sorrow and 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 Simoniæni; which see.

Simon, a disciple of Socrates, whose occupation was that of a leather-dresser at Athens, and whose shop was restored to by Socrates and his friends. He is said to have been the friend who published the Socratic Dialogues; but none are extant. Simon so much valued freedom of inquiry, that when Pericles invited him to make his house his residence, with the promise of an ample recompense, 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 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 contributed several learned dissertations to the Memoirs of that body; and he read before it several parts of a medallion 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 1648. 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 purveyed 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 1661, when his singular turn of thinking, and unaccommodating temper, involved him in differences, which had nearly caused him to abandon the society for that of the Jésuits. 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 presiding 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 Jews at Metz, who had been accused of sacrificing the child of Christian parents. In 1674 he published, under the name Riccard Simeon, "A Treatise on the Ceremonies and Customs at 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 Comparison 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 enthusiasticly fond. He was accustomed to express his sense of the advantages of liberty by repeating the words "Alterius ne fit qui suus effe potest." For the purpose of enjoying still more liberty, he resigned 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 regarded as one of those, who have much contributed to the free and learned discussions 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 Version du Nouveau Testament;" "Histoire critique des principaux Commentateurs du Nouveau Testament;" "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 1793, 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 Lyfes, was called Lyfodia.

Simon, M., inventor of pedals for the harp, or harp à pedale. 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 peron who calls him by it; but this, though recorded by authors of credit, meets with no faith among thejudicious readers.

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 station for ships to lie in; for although the road without it affords good anchorage, it is too open, and but ill-circumferenced 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° 25'; E. long. 18° 29'. In April 1769, the day of the S. end of the magnetic needle was 46° 47', and variation of the compasses 22° 16' W. On the full and change days it was high water at 5 55' apparent time; the tide rose and fell 3 feet 3 inches; at the neat tides it rose 4 feet 1 inch. Cook's Third Voyage, vol. iii.

SIMONETTA, GIOVANNI, in Biography, an historian, was a native of Caslargo, in Sicily. In 1441 he entered into the service of Francesco Sforza, duke of Milan, of which prince his brother Cicco was the confidential minister. After the death of Francesco, he attached himself to his son Galeazzo Maria, to whom he, with his brother, continued so faithful, that when Ludovico Sforza unfurled the dukedom, they were arrested and sent prisoners to Pavia. Cicco, 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 Francesco Sforza from 1423 to 1466, which is 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 peron 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
a feat of ancient heretics, the first that ever disturbed Christianiry; if they might be said to do so, who were little more than mere philosophers, and chiefly made profession of magic.

Simon Magnus, so often mentioned in the Acts, was their leader, and died under the emperor Nero; St. Peter still surviving; so that Clemens Alexandrinus is mistaken, when he makes Simon posterior to Marcion.

This impious man, says Moheim, is not to be ranked among the number of those who corrupted with their errors the purity or simplicity of the Christian doctrine, nor is he to be considered as the parent and chief of the heretical tribe; but he is rather to be placed in the number of those who were enemies to the progress and advancement of Christiarty. For it is manifest from all the records we have concerning him, that after his defection from the Christians, in consequence of the severe rebuke which he received from the apostle Peter, he retained not the least attachment to Christ; but opposed himself openly to the divine Saviour, and assumed to himself blaspemously the title of the supreme power of God. Orig. adv. Cellum. lib. v. p. 272. ed. Spenceri.

Simon was by birth a Samaritan, or a Jew; when he had studied philosophy at Alexandria, he made a public profession of magic, and perjured the Samaritans, by fictitious miracles, that he had received from God the power of commanding and restraining those evil beings by which mankind were tormented. As for his doctrines, Moheim 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 prefixed, and thus shared the empire of the universe with the supreme and beneficent 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 numerous train of attendants. From this pernicious doctrine, the other errors attributed to him concerning fate, the indifference of human actions, the impurity of the human body, the power of magic, and similar extravagancies, flow naturally, as from their true and genuine source.

He rejected the law of Moses, 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 reclined the great and most powerful of the divine saints; that another saint of the female sex, the mother of all human souls, dwelt in the person of his mistresses Helena; 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 Helena from their power and dominion. Moihn. Eccl. Hist. vol. i.

This fact is said to have continued to the fourth century. Justin, in his Apolog. 2, says that in his time, i.e. about A.D. 150, almost all the Samaritans, and some few others elsewhere, acknowledged Simon as the greatest of the gods. Clemens Alexandrinus (Shan. l. ii.) says that his followers worshipped him. About the year 249 this fact was reduced to about thirty persons, according to Origen (Cant. Cellum. l. i.); and elsewhere (l. v.), he says that they were quite extinct. But it appears from other testimonies, that some of them remained even at the beginning of the fifth century. Eusebius (Hist. Eccl. l. i. c. i.) speaks of Simonians, that mingled themselves among the Catholics, and received Catholic baptism; but who afterward spread in secret the venom of their doctrine. Several were discovered and expelled the church about the beginning of the fourth century. See Gnostics.

Simonides, in Biography, a celebrated Grecian poet, born in the isle of Chios, was the son of Leoprepes, and flourished in the fifth century before the Christian era. He excelled in various kinds of poetry, but especially in the elegiac, for which, as we learn from Horace and Quintilian, he was almost proverbially famous in antiquity. One of his most famous compositions was entitled "The Lamentations," 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 cruel 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 breast,
Without one bitter thought to break thy rest.
While in pales, shimmering, interrupted light
The moon but shows the horrors of the night.
Didst thou but know, sweet innocent! our woer,
Not opiate's pow'r thy eyes lids now could close.
Sleep on, sweet babe! ye waves in silence roll,
And lull, O lull to rest! my tortur'd soul."

Simonides was endowed with a most extraordinary memory, and some have attributed to him the invention of the art of recollecting by localizing ideas, which has lately been brought into fashion in this country. The introduction of some of the compound letters of the Greek alphabet is also ascribed to him. He lived to an advanced age, and at the age of eighty gained a prize for poetry. According to Piny, Simonides added the eighth string to the lyre. In his old age, perhaps from seeing the respect which money procured to such as had lost the charms of youth, and power of attaching mankind by other means, he became somewhat mercenary and avaricious. He was frequently employed by the victors at the games to write panegyrics and odes in their praise, before his pupil Pindar had exercised his talents in their behalf; but Simonides would never gratify their vanity in this particular, till he had first tied them down to a stipulated sum for his trouble; and, upon being upbraided for his meanness, he said, that he had two coffers, in one of which he had, for many years, put his pecuniary rewards; the other was for honours, verbal thanks, and promises; that the first was pretty well filled, but the last remained always empty. And he made no scruple to confess, in his old age, that all the enjoyments of life, the love of money was the only one of which time had not deprived him. It is mentioned as a subject of displeasure, that Simonides was one of the first who wrote verses for money, and that he travelled through the cities of Asia, selling elegies on the victors in the public games. He paid a visit, in advanced life, to Hiero, king of Syracuse, to whom he gave the celebrated anfwer respecting the nature of God that has been handed down from generation to generation to the present time in the writings of Cicero. Hiero having asked his opinion on the subject, he requested a day to consider of it; when this was expired, he doubled the time, and thus he did repeatedly, till the monarch desired to know his reason for this proceeding: "It is," said he, "because the longer I reflect on the question, the more difficult it appears to be." He was reported to be extremely avaricious; he was, however, justly ranked among the philosophers and poets, and though sensible of the value of money, he knew what was more valuable. Undergoing shipwreck on a voyage, while the other passengers encumbered themselves with their most valuable effects, he left his behind him, saying, "I carry with me all that is mine;" and when he arrived safe at Cla-
zomene, his fellow sufferers being either drowned or pil-
laged, he met with a citizen acquainted with his poetry, who
liberally supplied all his wants. It was a witty reply which
this author made to Hero's queen, who demanded of him
whether knowledge or wealth was most to be preferred:
"Wealth," said he; "for I see every day learned men at
the doors of the rich." When he was accused of being
so fordid, as to sell part of the provisions with which his
table was furnished by Hero, he said he had done it, in order
to "display to the world the magnificence of that prince,
and his own frugality." In justification of his passion for
wealth, he said, "I choose rather to be useful to my enemies
after I am dead, than burdenfome to my friends while I am
living." He is said to have been sufficiently eloquent to re-
concile two princes extremely irritated against each other,
and actually at war. He was unquestionably one of the
most conspicuous characters of his time. Of his numerous
works only a few fragments remain, which are published in
the Corpus Poetarum Graecarum.

SIMONOR, in Geography, a small island in the Soolo
Archipelago. N. lat. 4° 59'. E. long. 119° 50'.

SIMONOKI. See XIMONOKI.

SIMONTORNY, or SIMON THORN, a town of Hun-
gary, situated on the Sarand, with a strong castle, taken by
the Imperialists in the year 1686; 32 miles S.S.W. of
Buda. N. lat. 46° 50'. E. long. 18° 25'.

SIMONY, SIMONIA, the crime of trafficking with sacred
things; particularly the corrupt presentation of any one to
an ecclesiastical benefice for money, gift, or reward.
The word is borrowed from Simon Magnus, who is men-
tioned in the Acts of the Apostles, as offering to buy the
power of working miracles with money; though the pur-
chasing of holy orders seems to approach nearer to his
offence.

By the English canons, anno 1229, simony is not only
committed by an agreement for money in hand, or to be
paid yearly; but by any other profit or emolument; any
reward, gift, or benefit, directly or indirectly; or by reason
of any promise, grant, bond, &c. and this either in the
acceptance of a living, or in an exchange or refignation.

Simony was by the canon law a very grievous crime
and it is so much the more odious, because, as Sir Edward
Coke observes, it is ever accompanied with perjury; for
the preference is sworn to have committed no simony.
However, it was not an offence punishable in a criminal way
at the common law; it being thought sufficient to leave
the clerk to ecclesiastical cenfures: but many acts of par-
liament have been made to restrain it by means of civil for-
feitures. Thus the statute of 31 Eliz. c. 6, enacts that,
if any patron, for money, or any other corrupt consideration
or promise, directly or indirectly given, shall prefer, admit,
impute, induce, induct, install, or collate any person to an eccle-
siastical benefice or dignity; such presentation shall be void,
and the patron be rendered incapable of ever enjoying the
same benefice, and the crown shall prefer to it for
that turn only; moreover, both the giver and taker shall
forfeit two years' value of the benefice or dignity; one
moity to the king, and the other to any one who will sue
for the same. If persons also corruptly resign or exchange
their benefices, both the giver and taker shall, in like
manner, forfeit double the value of the money, or other
corrupt consideration.

Further, by the statute 12 Ann. cl. 2. c. 12, if any
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 be preferred 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
judge Blackstone, seem to be clearly settled.
1. That to purchase a presentation, the living being ac-
tually 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 preferred 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 a simoniacal contract 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-refidence, or
taking any other living, are not simoniacal, there being no cor-
crupt consideration therein, but such as is only for the good
of the public. So all 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 transactio may be fair, the
law will not fuppose 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 fow the bond
simoniacal, and therefore void. Neither will the patron be
suffered to make an ill use of such a general bond of refigna-
tion; 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-refidence, plurality of livings, or gross immorality
in the incumbent. Blackf. Comm. b. 3.

Simony is also committed by buying or selling the facra-
ment, baptism, ordination, or abolition; as well as by
the nomination and collation to a benefice, a place in
monastery, or the like.

By 31 Eliz. cap. 6, persons who shall corruptly ordain
or benefice 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 eccle-
siastical preferment for seven years afterwards. See Pre-
fentation.

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.

Cafellis distinguish three kinds of simony; viz.

Simony, Mental, is that which is refiricted to the mere
will and inclination, without ever breaking forth into act.
As when a precent is made to a collator, without taking
any notice, that we expect a benefit from him. This
kind of simony is only punifiable in foro conscientiae.

Simony,
SIMONY, Conventional, is where there is an express act, and a formal bargain, though it never come to an execution.

SIMONY, Real, is where the convention is executed on both sides; which last is the most criminal of all. The canonical penalty of simony is deposition in a cleric, and excommunication in a layman.

It is a maxim among the Romanist canonists, that there is no simony in the court of Rome; because the pope affixes there an absolute sovereign: they also say, that resignations in favor are not to be admitted but by the pope, as 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 services.

SIMONY of Money, or Per manus 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.

SIMONY of the Tongue, or Per manus a lingua, confists in flattering the collaborator, or making one's self agreeable by complaisance and commendation.

SIMONY of Services, or Per manus ab obequo, confists in doing for them good offices to obtain a benefice.

It was agreed by all the jurists, Trin. oct. Jac. primi, that if the patron presigned any person to a benefice with care, for money; such pretention, &c. is void, though the preteniente were not privy to it; and the flatutae gives the preteniente to the king: but this is now repealed.

SIMORI, in Geography, a town of Naples, in Calabria Ultra; 13 miles N.E. of Squillace.

SIMORRE, a town of France, in the department of the Gers; 13 miles S.E. of Auch.

SIMPLA NOBLA, in Botany. See Phyllis.

SIMPLAR, Simplar, in Antiquity, a Roman folder, who had only single pay. Thus called, in opposition to the duplicae, or such as had double pay.

SIMPLE, Simplex, 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 system or theory has prevail'd, which has held 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 confitl of hard unchangeable particles or atoms, which are not practically divisible. And the general forms of the crystallas of compound matter go far to shew, that these atoms are spheres, a form the best calculated for motion, and under which they would be the least likely to change. How many varieties of these unchangeable spherical particles there exi%, 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 Rep, 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 smply knowing of what elements they are composed. The use of experiment will be to find out the elements of a compound, and rudely guess at its proportions; but the exact proportion will require to be determined by calculations, which will render chemistry as complete as astronomy.

There is the greatest reason to believe, that the atoms of simple matter attract each other by the same laws with gravitation. Sir Izaac Newton supposes, that in gold, which in his time was considered the densest body, the pores or interstices between its particles 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 calorick they contain. If these atoms were to be finally defeated by the calorick, they would come in contact; and if they were spheres, the resulting sppecific gravity would be $\frac{4}{3}$ of the specific gravity of the atoms themselves. The calorick, on the contrary, if defeated by the atoms, would, from its repellent property, be dispersed to an unlimited extent. When, however, these 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 calorick in a less ratio than the repulsion of the calorick, 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 $\frac{1}{3}$, $\frac{2}{3}$, &c. and the repulsion $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, &c. Therefore, the calorick at each point, to make the atoms stand in equilibrium at these respective distances, will be $1, 2, 3, &c.$ for $1 \times 1 = \frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, &c. 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 condened 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 cease 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, those bodies considered as elements are divided into two classes; the one called combustible or inflammable, and the other supporters of composition; because in combining with the first class, much light and heat are developed.

The first class, which is by far the most 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 Jodine, or Jodine, which has been published in Dr. Thomson's Annals, we shall be hardly warranted in drawing this line between the combustible bodies, and those
SIMPLE BODIES.

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 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. The 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 is now 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 sublimate 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; then continue the evaporation to dryness. This residuum is now to be introduced into a gla's retort, or a long-necked matrafs, 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 shining opaque crystals of the appearance of plumbeago. These crystals are pure jodine. Jodine, in the solid 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 rhomboid 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 4.948 at the common temperature, and water being 1. It fuses at 225° of Fahrenheit, and assumes the elastic form at 374° or 356°; 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 oxides, and with hydrogen it forms an acid resembling the muriatic acid, the compound formed by hydrogen with chlorine. It is that of these, 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 sulphurettdedt 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...
by their combining with certain inflammable bases. He is of opinion, that most of the vegetable acids do not owe their acidity to oxygen combined with hydrogen and carbon, but to the carbon acting the part of oxygen with hydrogen, as sulphur, chlorine, and iodine do with the same.

According to this view, we shall give some of the facts attendant on chlorine, iodine, and sulfur, 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 chlorures, iodures, and sulphures; as chloruret of potassium, ioduret of zinc, sulphuret of iron, and so on. When they form acids with hydrogen, they are termed hydrochloric, hydroiodic, and hydro sulphuric. The acids formed by their combinations with oxygen he terms chloric, jodic, and sulphuric acids. The chloric acid is the same with what has been called the hyperoxymuriatic acid, and forms with potash what has been termed hyperoxymuriate of potash. The jodic acid forms a compound with potash, having similar properties, and affording a large quantity of difposable oxygen.

The hydrochlorates are the salts which have been called muriates, and have some resemblance to the hydrates, a set of salts formed by the acid arising from the union of iodine with hydrogen, and the different saline bases.

The hydroacid 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 hydroacid. The water is decomposed, the oxygen of which combines with the phosphorus to form phosphoric acid, and the hydrogen with the iodine, forming the hydroacid. 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 to 1 of phosphorus, then hydro 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 insoluble substance which has been called oxyd of phosphorus.

In all these, the hydric acid is evolved in fumes smelling like muriatic acid, and may be collected, like it, in the gaseous form. This gas is about 60 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 yet free the iodine, such as the sulphuric and nitric acids, and many of the oxys, by which water and iodures are formed. It is also decomposed by the superior attraction of iodine for other bodies, letting the hydrogen free. Such is the case with most of the metals.

The compounds of the hydroacid with different saline bases form salts, resembling the hydrochlorates (muriates) and the hydro sulphates. The other binary compounds of iodine, and the different combustible bodies which are called iodures, are very conspicuous. Most of these are insoluble in water. Those metals which decompose water, form soluble iodures; as in these instances the ioduret becomes an hydro iodate.

Another set of compounds results from iodine, which we have already called iodates. Iodine 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 potash, soda, barytes, flor- sial, lime, and magnesia, when water is present. The changes are precisely what take place, when chlorine is sublimated for iodine. Two salts are formed with the base employed; the one with chloric or jodic acid, and the other with hydrochloric or hydroiodic acid.

When iodine in vapour is passed through a solution of potash, four atoms of iodine decompose four atoms of water, by which four atoms of hydro iodic acid are produced. These unite with four atoms of potash, forming as many compound atoms of hydrates of potash. The 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 ioduret of potash, united to five atoms of oxygen, constituting an atom of jodurate of potash. It will appear, therefore, that during the formation of any of the iodates or the chlorates, that for every atom of such iodate or chlorate there will be formed, at the same time, four atoms of an hydrate or hydrochlorate.

In the example above illustrated, an atom of iodate of potash will be 1 atom of iodine (117) + 1 atom of potassium (37·5) + 5 atoms of oxygen (5 x 7·5) = 192. The 4 atoms of hydrate of potash will consist of 4 atoms of hydro iodate acid (4 x (117 + 1)) + 4 atoms of potash (4 x (37·5 + 1·5)) = 472 + 180 = 652. The ratio, therefore, of the iodate of potash to the hydrate will be 192 to 652, or 100 to 340 nearly. In the crystalline form, however, the hydrate of potash does not exist, but is converted into ioduret of potash, which will consist of an atom of iodine (117) added to an atom of potash (37·5) added to 187·5, and 187·5 x 4 = 750, the quantity of the crystallized ioduret to the iodate, which will be 100 to the latter to 322 of the former nearly.

It is rather out of place to enter into the particulars of bodies; but this last fact, 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 fluorine, than that it is in all probability a body combining with hydrogen to form fluoric 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 chlorides, as being more agreeable to the termination in the word oxyd; and we supposes would adopt, for similar combinations of iodine, jodides; and we should expect, from the sulphates being analogous, that they would be called phosphides, 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 sulphates, viz. chlorures, jodures; and for the combinations of carbon and azote with the same bodies, they would use carbures, azoures, or, what is better, nitroesures. We see no objection to this termination for all the binary compounds not pollelling acidity, as in fact there would be no other change than that of altering oxyd into oxyduret. The acids would still retain their terminations, oxy and oxyet, distinguishing those which do not contain oxygen by the acidifying substance. The salts, 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 1260.

Simple Leaves. See Leaf.

The term simple is also technically applied to some other parts of a plant. A simple calyx is used in the columnarous order, in opposition to the double one of Malvæ, 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 structure, but merely adequate to perform its requisite functions. This end is sufficiently answered by a rather obtuse, though not dilated, figure, jut 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 Fecundation of Plants.

A simple stem, or stalk, is destitute of branches, or subdivisions. Such also is simple pabulence, the hairs of which are unbranched and straight; not felated, entangled, or hooked.

Simple, in French Music, 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 triad, or in a more remote manner, that is, when the founds, that are not bals, 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, Interpol, Sounds, and Triple. See the substantives.

Simple Equation, Fraction, and Surd, in Algebra. See the substantives.

Simple Quantities, are those which consist of one term only; as $a + b$, $a - b$, or $a b c$; accordingly they are opposed to compound quantities.

Simple Glands, in Anatomy. See Glands.

Simple Anatomy and Excentricity, in Agriculture. See the substantives.

Simple Form, Modes, Necessity, Opposition, and Proposition, in Logic and Metaphysics. See the substantives.

Simple Average, Benefice, Church, Deposit, Exchange, Fee, Force, Larceny, Requisition, and Vandalism. See the substantives.

Simple Contract, Deeds 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 unsealed, which are capable of a more easy proof, and (therefore only) better than a verbal promise.

Simple Diachylon, Diacodium, Diasorum, Diasprium, Dropus, Fomentation, Hydrocol, Mixture, Osmum, and Waters. See the substantives.

Simple Fencing. See Fencing.

Simple Flank and TENAILE, in Fortification. See the substantives.

In Geometry, we say, the most simple demonstrations are the best.

In Grammar, we have simple words, or primitives; and compounds, which have some particle added to them.

In Jurisprudence, they say a simple donation, in opposition to a mutual or reciprocal one; a simple sale, in opposition to that made with a reservation of the faculty of redemption; and simple homage, in opposition to liege homage.

Simple Fossils, in Natural History. See Fossils.

Simple Machines, Motion, Pendulum, and Wheel, in Mechanics. See the substantives.

The simplest machines are always the most esteemed.

Simple Vision, in Optics. See Vision.

In Pharmacology, there are simple remedies, and compounds; the former of which are usually preferable to the latter.

Simple Taste, in Physiology. See Taste.

Simple History and Style, in Rhetoric. See the substantives.

Simple Fracture and Ulcer, in Surgery. See the substantives.

SIMPLER'S Joy, in Botany. See Verena.

SIMPLEX Oculus, in Surgery, the name of a bandage for the eye.

Simplicity, in Ethics. See Sincerity.

Simplicity, in Music. There is much cast about simplicity in music, among the exclusive admirers of old things, and lamentation for the loss of our old melodies to the songs of Chancer, Gover, Lydgate, and others, of which the words are full extant. But if we may judge by what has escaped the ravages of time, of a later date, the loss of our musical compositions of this period may be supported without much affliction. We may perhaps heighten that affliction considerably by censoring modern refinements, and extolling the charms of ancient simplicity; but simplicity in melody, beyond a certain limit, is unworthy of the name that is bestowed upon it, and encourageth so much upon the rude and savage boundaries of uncouthness and vulgarity, as to be wholly separated from proportion and grace, which should alone characterise what is truly simple in all the arts: for though they may be enabled by the concealement of labour and pedantry, they are always degraded by an alliance with coarse and barbarous nature.

Old melodies, when we find them, and can ascertain their dates, are curious historical facts in the annals of the musical art; and afford us more satisfaction information concerning our ancient national tane, than all the verbal descriptions in prose and verse can do. And it must be owned, that though the natives of Scotland, Ireland, and Wales, can boast of national tunes, both plaintive and spirited, that are characteristic, pleasing, and distinct from each other, the English have not a melody which they can call their own, except the hornpipe and Cheshire-round. The hornpipe, indeed, was in all probability British, or Welsh, as the pip-corn, or pipe of Cornwall, was an armoric instrument and tune, brought thither by the Britons, driven to that part of the island, and into Britany and Wales, by the Saxons. The Cheshire-round is a melody of the same kind. See Hornpipe, and plate of National Tunes.

SIMPPLICIUS, Pope, in Biography, a native of Tivoli, was elected to the pontificate in September 457, on the death of Hilary. During the time of his pontificate the see of Rome, great commotions excited in the eastern and western empire. The latter terminated in the perfidy of Augustulus, who was dethroned by Odoacer, king of the Heruli, an Arian. In the East the emperor Zeno was dethroned by Bafilicinus, who declared against the council of Chalcedon. Simplicius does not appear to have been personally molested in these changes, but he was frequently called upon to exert himself in defence of the claims of his see, and of the orthodox faith. He moreover extended and strengthened
SIMPLIFIED, in Ecclesiastical Matters, is the taking away of a cure of souls from a benefice, and dispening the beneficiary from residence.

Several benefices, which have been simplified, now require residence; and many others, which required residence, have been simplified.

Some use the word in a more extensive signification, viz. for the shortening a relation, &c. or retrenching every thing not precisely necessary. When the matter of fact shall be simplified, and stripped of its vain circumstances, the court will see, &c.

SIMPLE, in Rhetoric, a figure which comprehends both the anaphora and epistrophe. In this figure the several members begin and end with the same word. Thus St. Paul: Are they Hebrews? So am I. Are they Israelites? So am I. Are they the seed of Abraham? So am I. 2 Cor. xi. 22.

SIMPLON, in Geography, a mountain of Switzerland, over which is a passage from the Valais to the duchy of Milan; 6597 feet above the level of the sea; 31 miles E. of Sion.

SIMPLUDIA RIA, in Antiquity, a kind of funeral honours paid to the deceased at their obsequies.

The word is formed from the Latin simplex, and ludus; whence simpliciaria, or simpliciaria, q. d. simple games. Some will have simpliciaria to be the funerals at which games were exhibited; such is the sentiment of Paulus Diaconus. Fellus says, they were those, in the games of which nothing was seen but dancers and leapers, called coritores, who, according to M. Dacier, were persons who run along the masts and yards of vessels or boats, called corbe.

In other respects, these two authors agree as to the kind of funerals called simpliciaria; viz. that they were opposite to those called indelica; in which, besides the dancers and leapers observed in the simpliciaria, there were defiltores, or people who vaulted on horses; or perhaps horse-races, in which the cavaliers leaped from horse to horse at full speed.

SIMPSON, Thomas, in Biography, a celebrated self-taught mathematician, was born at Market Bosworth in Leicestershire, in 1716. 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 ardour of disposition, which excited him to nobler pursuits. At an early period he gave indications of his turn for study, by eagerly perusing every book that fell in his way, and omitting no opportunity to acquire instructions from others. His father, finding that he was thus led to neglect his work, endeavoured to restrain 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 resided at Nuneaton, where he continued some time working at his trade, and improving his knowledge. Here he became acquainted with a traveling pedlar, who lodged in the same house, and who, to the profession 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, Cocke's Arithmetic to Simpson, to which was subjoined a short appendix on Algebra; and a book on Genitures, by Partridge, the almanac-maker. These books he studied so closely, that on the pedlar's return, he was astonished 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 fatuity. 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 evening. He became a writer in the Lady's Diary in the year 1736: his first questions were inserted in verse, and are of that kind as shew 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 emoluments, 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 1736. When he arrived at the capital, unknown and without recommendation, he for some time followed his business in Spitalfields, and taught mathematics in the evening, and at other spare hours. His exertions were attended with such successes, 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 "Essays on several curious and interesting Subjects in speculative and mixed Mathematics," printed in 1740. Soon after the publication of this book, he was chosen 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 fame Subject, with Answers to some personal and malignant Representations in the Preface to it." In 1743 he published his "Mathematical Diflertations on a variety of phicile 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 treatises of more modern date. The first edition of this book occasioned some controversy between Mr. Thomas Simpson and Dr. Robert Simson, the author of a well-known edition of Euclid's Elements. See SIMSON.

In the year 1748, Mr. Simpson published "Trigonometry, plane and spherical, with the Construction and Application of Logarithms." In 1750 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 1755 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 interell 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 subscription 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 51st 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 railed 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 belt 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 Leiceter, 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 Leicetershire, and afterwards an academy at Warrington, for the education of young men devoted to the ministry. From Warrington Mr. Simpson went, in 1765, 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 pursued his studies in a private manner among his relations, till the month of April 1772, when he settled at Nottingham, and from thence removed, in 1777, to Walthamstow, 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 considerable reputation, but he is chiefly known as a critic on the Holy Scriptures. His principal work is entitled "Essays on the Language of Scripture," two volumes octavo. Besides this he published many other works, among which are "An Essay to shew that Christianity is belit conveyed in the Historic Form."

SIMPSON, Christopher, an English musician of the seventeenth century, extremely admired for his performance on the viol da gamba, or six-stringed-baye, and general knowledge of music. The bafe-viol with six stringes, and a fretted finger-board, was in such general favour in his time, that almost all the first musicians of our country, whose 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 Loofemore.

Simpson, during the last years of the Ufurpation, published a treatise on this instrument, entitled "The Division Violit, or an Introduction to the playing upon a Ground." But this instrument, like the lute, without which no concert could subsist, was soon after so totally banished, that its form and construction were scarcely known, till the arrival of Abel in England, whose taste, knowledge, and expression upon it were so exquisite, that, instead of renovating its use, they seem to have kept lovers of music at an awful distance from the instrument, and in utter despair of ever approaching such excellence. The instrument itself, however, was so nafal, that this great musician, with all his science and power of hand, could not prevent his moit en-
thusiastic admirers from lamenting that he had not, early in life, applied himself to the violin cello.

But if its general use had continued, or were restored, this book of Simpson, from the universal change of taste and style of every species of music, would be of but little use to a student on that instrument now; when rapid divisions, of no other merit than the difficulty of executing them, have been totally supplanting by vocal expression, learned modulation, and that rich harmony to which the number of its strings is favourable. Rough, but warm encomiastic verses, are prefixed to Simpson's works by Dr. Colman, John Jenkins, Mathew Lock, and others, which only shew what with perishable materials musical fame is built!

A translation of this book into Latin, for the use of foreigners, with the original text on the opposite page, was published by the author in 1665, under the title of "Chelys Minutionum; Edition secunda," thin folio.

Besides these, Simpson published, in 1667, "A Compendium of practical Music, in five Parts, containing 1. The Rudiments of Song. 2. The Principles of Composition. 3. The Use of Figures. 4. The Form of Figurate Defects. 5. The Contrivance of Canon."

Whoever expects to learn the whole principles of an art by a single book, or, indeed, any number of books, without oral instruction, or great study, practice, and experience, must be disappointed. This compendium, like most others of the kind, more frequently generates new doubts and perplexities, than removes the old. However, something is to be learned from moff books; and what a student is unable to find in one, if out of the reach of a master, must be sought for in another.

Simpson, in his younger days, served in the royal army, raised for Charles I. by Cavendish, duke of Newcastle; he was a Roman Catholic, and patronized by Sir Robert Bolles, of Leicesters-Place, with whom he resided during the Interregnum. He seems to have been in close friendship with Jenkins and Lock, as, on all occasions, they reciprocally praise each other.

Simpson, Redmond, an eminent performer on the hautbois. He was a natural son of Dubourg, the famous performer on the violins, and served an apprenticeship to Low, the hautbois player and copyist. Simpson, when out of his time, improved in the performance on his instrument so much, as to be thought, till the arrival of Fischer, superior to all the hautbois players of his time, except T. Vincent, the disciple of Martini. On the death of Richard Vincent, in 1777, first hautbois, during more than thirty years, of Covent Garden playhouse, and of Vauxhall gardens, father of the first husband of Miss Burchell, Simpson was engaged as first hautbois at Covent Garden, and in a few years rendered himself so useful in bringing out musical performances at that theatre, that he was appointed joint manager; and was an active and important perfonage at the meetings of the musical fund; was one of the affiduous directors at the commemoration of Handel, in 1784; had a turn for bufinesses; and after ceasing to play in public, he was often useful in flats, calculating, and settling the accounts of the society, to the time of his death, in January 1787. He was buried in the cloister of Westminster Abbey, his funeral being attended by the principal professors in London.

Simpson, in Agriculture, a provincial term applied to groundsel, a troublesome weed in some soils.

SIMPSON'S Island, in Geography, a small island in the South Pacific ocean, discovered by captain Carteret in 1767; 4 miles W. from Carteret island. S. lat. 6° 20'. E. long. 15° 20'.

SIMPULUM, among the Romans, a vessel with a long handle, and made like a crust. It was used in sacrifices and libations, for taking a very little wine at a time.

SIMRAR, in Geography, a town of Hindostan, in Oude; 24 miles E.S.E. of Fyzabad.

SIMREE, a town of Bengal; 32 miles N.N.W. of Boghpiur.

SIMSAT, a town of Asiatic Turkey, in the government of Diarbekir; 54 miles W. of Diarbekir.

SIMSBURY, a post-town of America, in Hartford county, Connecticut; 14 miles N.W. of Hartford. Copper-ore has been found in this place. It contains 1966 inhabitants; 386 miles from Washington.

SIMSIA, in Botany, 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 continuator, since 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. 152. Prodr. Nov. Holl. v. 1. 367.


Gen. Ch. Cal. none, unless the corolla be taken for such. Cor. Petals four, inferior, linear-oblong, equal, deciduous; reflexed at the extremity. Nectary none. Stam. Filaments four, awl-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. Pjfl. German superior, obovate; style cylindrical; stigma dilated, concave. Peric. Nut inversly conical, of one cell, naked.


A New Holland genus of smooth shrubs, of humble growth. Leaves alternate, thread-shaped, forked; their foliage dilated at the base. Flowers small, yellow, smooth, compositing small, globoso, terminal heads, disposed either in clusters or panicles, with or without a short common involucrum, and with a minute bractea under each flower. Two species only are mentioned.


2. S. anethifolia. Fennel-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 sea-shores of the fame country.

SIMSKÅLÀ, Oster and Weijer, in Geography, two small islands in the Baltic, E. of Aland, about four miles apart. N. lat. 60° 21'. E. long. 20° 8'.

SIMSON, Ronard, in Biography, was born in the year 1687, 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 a sick relation in the clafs 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, say...
say 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 restricted himself to a very moderate use of the cordial, fearing that he should soon exhaust the stock which so limited and abstract a science was capable of yielding; at length, however, his views were diffipated on this head, for he found that the more he learned, and the farther he advanced, the more there was to learn, and a still 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 tasks, 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 offixed 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 algebraic formula into an analogous geometrical theorem. In fo little respect did he come at last to consider algebraic analysis, as to denominate it a mere mechanical knack, in which he would say 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 Glasgow. 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 spake 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 substituting geometrical figures for the quantities which are observed in the phenomena of nature. He was accustomed to say, that the 39th proposition of the first book of the Principia, was the most important proposition that had ever been exhibited to the physico-mathematical philosopher, and he used to illustrate to the higher classes of his pupils, the superior strength of the geometrical over the algebraic analysis, by comparing the solution given by Newton, of the inerter problem of centripetal forces, in the 423rd proposition of that book, with the one given by John Bernoulli, in the Memoirs of the Academy of Sciences at Paris, for the year 1743.

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 leaned too much to analysis. His method of teaching was simple and perspicuous, his elocution clear, and his manner easy and imperious. 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 periplicity 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 recovery of this method. His first task was the restitution of Euclid's Porisms, from the scanty and mutilated account of that work in a single passage of Pappus.

He, however, succeeded, and so early as 1718, feems to have been in possession of this method of investigation, which was confirmed by the eminent geometers of antiquity as their surest 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 unremitting industry to restore those choice porisms 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 Porisms of Euclid had now only an occasional share of his attention. The Loci Plani of Apollonius were the next task 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 geometry; he withheld the impress several years, and it was with extreme reluctance that he yielded to the entreaties of his mathematical friends in publishing the work in 1745, with some emendations, in those cases 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 considered 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 considered as a complete restitution of the celebrated work of Apollonius Pergaeus, 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 seriusly 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 also, 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 preserved, 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 lovers
lovers of geometry are ready gratefully to acknowledge their obligations to him for his edition, which contains the Elements and the Data, and which has gone through many impressions in quarto and octavo, in the Latin and English languages.

Another work on which Dr. Simfon bestowed great labor and pains, was the Scenio Determinata of Apollonius, which, though begun early, was not given to the world till after his death, when it was printed with the work on Periems of Euclid, at the expense of the late earl Stanhope, who was himself deeply read in mathematics, and who for many years had kept up a constant correspondence with Dr. Simfon; and at the death of the professor, in 1768, the noble lord engaged Mr. Clow, 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 as the restorer of ancient geometry.

"The life of a literary man," says his biographer, "feldom marked with much variety; and a mathematician immersed in study, is more abstractive, perhaps, than any other person from the ordinary occurrences of life, and even the ordinary topics of conversation. Such was the case with Dr. Simfon. 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 sacred to him and his guests. He enjoyed a long course of uninterrupted health, but towards the close of 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. Simfon's notes. It is open for the public benefit, but the use of it is limited by particular rules and restrictions. Dr. Simfon was of a good nature, 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 feldom made the first advances towards acquaintance, he always behaved with great affability to strangers." See Dr. William Trail's Account of the Life and Writings of Dr. Simfon.

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 Puckooe.

SIMULIYA, a town of Bengal; 25 miles N.N.E. of Dacca.

SIMUS, in Ichthyology, the name used by some authors for the nalu, or nate, a fish common in the large rivers in Germany, and somewhat resembling our chub, and in some respects our common rudd.

SIMYRA, SIMHAN, in Ancient Geography, a town of Vol. XXXII.
occasions; and our first parents, after their transgression, received such deep traces in the brain, by the impression of sensible 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 foul 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 sensible 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 matters of the mind and heart of the child.

Imputed original sin denotes that guilt or obligation to punishment, to which all the polterity of Adam are subject, by the imputation of his transgression. This is called the guilt of Adam's first sin, in which the finfulness of that state into which man fell is partly to consist; 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 descending from him by ordinary generation, finned 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 their infancy, fall into a state of annihilation, excepting those who are the seed of God's people, who, by virtue of the blessings of the covenant made with Abraham, and the promise to the seed of the rightous, 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 state of infants, and therefore can assert 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 sense 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. Ridgley'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 descendent;—that infants are plainly liable to defea 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 feats of defeas and death were undoubtedly derived to children from their immediate parents, and from them may be traced up to the first defeased 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 confutated criminals, 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 descend 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 disfavored 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 Rebel and pursue what is agreeable to the flesh, arising from the bodily constitution transmitted to them by their parent. 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...
affections are so depraved, that they are inclined only to the evil, and that all mankind are by nature subject to the wrath of God, such kind of corruption is consistent neither with scripture nor with right reason. The scripture, he says, teaches no such doctrine, as that which charges infants with a moral corruption, that is truly and properly sin. (See Deut. i. 39. Jonah, iv. 11. Romans, i. 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 sin. Besides, it cannot be conceived, how this fin 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, immediately indulged, may become sinful, but is not sinful in itself. Moreover, no sin is liable to punishment, which is involuntary; but original corruption is involuntary. Limborch explains many texts, and refutes many arguments urged by the advocates of original sin. Another writer, (Dr. Taylor,) who has taken a lead in this controversy, on the fame fide of the question, proceeds, in the examination of the doctrine of original sin, 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 thrice in the New Testament. The first passage is Gen. ii. 17. In this passage, he says, death is opposed to life, and must be no understand. But not one word occurs in this text relating to Adam's povertv. 2. The consequences of the transgression of Adam and Eve are related in Gen. iii. from the 7th verse to the end of the chapter. The natural consequences were shame and fear, the common effects of guilt, which was personal, and could belong only to them alone. 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 povertv then included in his pains 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 diflution which all mankind undergo, when they cease to live in this world. It is also observed, that we, their povertv, are in fact subject to the same afflictions and mortality here inflicted by sentence upon our first parents; but they are not inflicted as punishments for their sin, because punishment includes guilt; but we neither are, nor in the nature of things could be, guilty of their sin. We may suffer by their sin, and actually do suffer by it; but we are not punished for their sin, because we are not guilty of it; and this suffering is eventually a good. Accordingly it appears evident in our world, that the increase of natural evil (at least in some degree) is the lessening of moral evil.

3. The third text occurs in the New Testament, viz.: 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 sin: that as all men die, all men are mortal; all lose their life in Adam, and from him our mortality commences; and it is equally undeniable, that by Christ came the resurrection of the dead. From this place we cannot conclude, says our author, that any other evil or death came upon mankind in consequence of Adam's first transgression, besides that death from which all mankind shall be delivered at the resurrection, whatever that death be.

4. The most difficult passage is which occurs in Rom. v. 12—19. A popular advocate of the doctrine of original sin (Dr. Watts) thinks, that Adam's being a federal head, and our deriving a sinful nature from him, may be collected from this text. In this passage our author apprehends that the apostle is speaking of that death which takes place with regard to all mankind, when the present life is extinguished; and that by judgment to condemnation, or a judicial act of condemnation, the apostle means the being adjudged to the fore-mentioned death. The words "as by one man's disobedience many were made sinners," are (says Dr. Taylor) of the same signification 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 idiom of the Hebrew language; and according to that language, "being made sinners" very well signify being adjudged or condemned to death. (See Exod. xxii. 9. Deut. xxv. 1. 1 Kings, viii. 32. Job, x. 20. x. 22. xxxii. 5. xxxiv. 17. x1. 8. Phil. xxxvii. 33. xxiv. 21. Prov. xvii. 15. 1. 1. 9. 1v. 17.) In the Greek text it is not ευγνωστ, became sinners, but εικαισον, were sinners, viz. by the will and appointment of the judge. Befides, 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 "as by one man's disobedience many were made sinners," means that by Adam's offence, the many, i.e. mankind, were made subject to death by the judgment of God. In this passage there is an evident contrast 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 affliction are supported 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 righteousness. He adds, that throughout the whole paragraph, the apostle says nothing of any federal relations or transactions either on the part of Adam or Christ, nor of our deriving a sinful nature from Adam.

5. The text 1 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 sin. We shall here select two or three of the principal, that our readers may be able to form a judgment for themselves; one is Eph. ii. 3. "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
whatever infirmities belong to it, is no other than God's own work or gift; and he thinks, that to affect that the nature which God gives us is the hateful object of his wrath, is little less than blasphemy against our good and bountiful Creator.

In his address to the 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 vicious course of life they had led among the Gentiles. Nature frequently signifies an appointed nature, which men bring upon themselves by contracting either good or bad habits. Besides, by nature may here signify really, properly, truly; for παιδία, children, strictly signify the genuine children of parents by natural generation; and figuratively the word denotes a 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 rejection or punishment. The Ephesians, as the apostle tells them, were παιδία σωτηρί, 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. ffood 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 confusions 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 sin in any way upon Adam, but upon themselves: and besides, Noah is exempted out of the number of the corrupt and prodigal; but this could not have been the case if the alleged text is a good proof that by Adam's transgression the nature of all mankind is corrupted.

Another text, which has been considered as of great importance in this controversy, is Pf. li. 5, 6. "I was flayed in iniquity, and in sin did my mother conceive me." The word יָלַד, which we translate fapen, signifies, says our author, to bring forth or bear. (If. li. 2. Prov. viii. 24, 25.) Again, the word יָלַד, conceived me, properly signifies warmed me; and the expression conveys the idea, not of his being conceived, but warmed, cherished, or nurtured by his mother, after he was born. Accordingly, the verse is thus translated, "Behold, I was born in iniquity, and in sin did my mother nurce me:" which has no reference to the original formation of his constitution, but is a periphrasis for his being a sinner from the womb, and as much as to say, in plain language, I am a great sinner; or I have contracted habits of sin. This, it is said, is a scriptural way of aggravating wickedness. (See Pf. lviii. 3. Iiaiah, xlvi. 8.) In the whole psalm there is not one word about Adam, or the effects of his transgression 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 asked, 1. Are we not in worse moral circumstances than Adam was? If by moral circumstances be meant the state of reason 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 transgression 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 suggests, 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 seems to be inconfident 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 creatures, 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 till 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 texts, viz. Rom. ii. 14, 15, and Ecclef. vii. 29, are cited 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 fulfill it, in opposition to their posterity, who want that righteousness in which they are supposed 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 corrupt 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 fulfill 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 infection, which we are said to have derived from Adam; and in consequence of which we have a natural propensity to sin. This taint or infection must exist either in the body or the soul. In the soul, which immediately proceeds from God, it cannot exist; nor in the body, which, in a state separate from the soul, is inactive matter, which in itself neither is nor can be the subject of moral good and evil. But such an infection, wherefoever it exists, or howsoever it is propagated, cannot be derived from Adam to every human being, independently of the will and operation of God; and to affect, that it is by his will and operation, is evidently to make him the author of the pollution. It is maintained, that by propagation it is not possible for parents to communicate vice; which is always the faulty choice of a person's own will, otherwise it is not vice. Children, it has been said, begin very soon to sin, and how can this fact be accounted for but upon the scheme of original sin; namely, that it is infused into their nature? To this objection it has been replied, that their early sin is owing to the early want of instruction and discipline. Another objection, which is strongly urged by the advocates of original sin, is this: Adam was a common or federal head and representative of all his posterity, and consequently all his offspring sinned in him, as their root; just as Levi is said to pay tithes in Abraham (Heb. vii. 9.) and as the branches must be morally corrupt, if the root be in that state. (Rom. xi. 16.) To the arguments deduced from the first of these passages it has been replied, that neither the cæfe of Abraham and Levi,
Levi, nor the apostle's argument grounded upon it, have any manner of relation to partaking in guilt, or contracting moral corruption: and it is alleged, that the inference deducible from the second passage would be very just, if the apostle were here speaking of moral holiness, of holiness, as it is a quality or principle in the mind: whereas the holiness here mentioned is said to be that external, relative holiness which is frequently attributed to the whole nation of the Jews, as they were God's peculiar church and people. The notion of a federal head or representative of moral conduct, a representative, the guilt of whose actions shall be imputed to us, and whose sin shall corrupt and debauch our minds, and this representative appointed by God himself, is, as its opponents maintain, not only without foundation in scripture, but in itself a great absurdity. Indeed, the external circumstances of holiness may be affected by the bad conduct of their ancestors. This is frequently affirmed in scripture, and certainly holds good in the case of Adam and his posterity; and may be a constitution, just, wise, and answerving very good purposes. But that any man should so represent me, that when he is guilty, I am to be reputed guilty, when he transgresseth, I shall be accountable and punishable for his transgression; and this before I am born, and consequently before I in any capacity of knowing, helping, or hindering what he doth; this, I say, every one who 1ses his understanding must clearly see is false, 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, xviii. 20, where he affirms, "that the soul that sinneth, it shall die. The fom, 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 sones of the righteous shall be upon him, and the wickedness of the wicked shall be upon him." And v. 20, "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 posterity 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 righteouness or sin. See Gen. xvi. 6. Lev. xvi. 3, 4. Numb. xviii. 26, 27. Sam. xi. 2. 1 Sam. xxii. 15. 2 Sam. xix. 19. Prov. xxvii. 14. Psa. xxxii. 2. Psa. cxl. 31. Rom. ii. 26. Rom. iv. 3, &c. Rom. v. 13. 1 Cor. xi. 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 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 infallible 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 indigotised, 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 opponents of this doctrine allege, that it is highly injurious to the God of our nature to believe that our nature is originally corrupted in the manner which this doctrine supposes. To disparage our nature, is, they say, to disparage the work and gifts of God. They also suggest, that the doctrine of original sin teaches men to transfer their sin to a wrong cause, to Adam rather than to themselves; and also that the doctrine, as it is commonly held, has a manifest tendency to propagate a notion that they must be necessarily vicious, and that it is thus destructive of virtue. They lay, that to reprent sin as natural, as altogether unavoidable, is to embolden men in sin, and to give not only an excuse, but a reason for sinning. They also intimate, that to charge Chritianity with teaching this doctrine, is to sink its credibility; and that it is injurious in another way, by perplexing the mind, and rendering all religious principles uncertain. We are made," as one of them expresses it, "sinners we know not how, and therefore must be sorry for, and repent of, we know not what. We are made sinners in an arbitrary way, and we are made fainis in an arbitrary way: but what is arbitrary can be brought under no rules." They think that it is not expedient or desirable to teach children, that they are born children of wrath, that they came into the world under God's curse, and that their being, as soon as given, is in the world and most deplorable state of corruption. Young people are exhorted to remember their creator; but how, it is said, can they remember him, without the utmost horror, who, it is supposed, hath given them life under such deplorable circumstances?

We shall close this article with a brief account of the "Fall of Man," and its consequences, as they have been flated by different divines. Adam was created, as the Assembly of Divines affirm, after God's own image, in knowledge, righteousness, and holiness, having the image of God written in his heart, and power to fulfill it; and for proof of this assertion, they refer to Gen. ii. 27. Col. iii. 10. Ephe. iv. 24. Rom. ii. 14, 15. Eccl. vii. 29. This state of moral rectitude, or original righteousness, in which he was created, is thus described by Dr. Watts. "His reason was clear, and sense, appetite, and passion were subject to it, his judgment uncorrupted, his will had an inward, constant, superior bias, bent, and propensity to holiness and virtue; he had an inward inclination to please and honour God, supreme love to his creator, a zeal and desire to serve him, a holy fear of offending him, with a readiness to do his will." When Adam sinned he lost this moral rectitude; and not only so, but his posterity became morally corrupt. We have already stated the opinion of the opponents to the doctrine of original sin, concerning the moral condition of Adam before his fall. By the advocates of this doctrine, it is further maintained, that a covenant was made with Adam, as a public perfon, not for himself only, but for his posterity; and therefore all mankind, descending from him by ordinary generation, sinned in him, and fell with him in that first transgression. (See Acts, xviii. 26. Gen. i. 6, 17. compared with Rom. v. 12—20. 1 Cor. xxv. 21, 22.) The Fall, it is said, brought mankind into a state of sin and misery. (Rom. v. 12. iii. 13.) And the sinfulness of that state into which man fell, consisteth in the guilt of Adam's first sin, the want of that righteousness in which he was created, and the corruption of his nature, &c. (See Rom. v. 12, 19. Rom. iii. 10, 20. Eph. ii. 1, 2, 3. Rom. v. 6. vii. 7, 9. Gen. vi. 5. James, i. 14, 15. Matt. xv. 19.) It is added, that the Fall brought upon mankind the loss of communion with God, his displeasure, and curse; so that we are by nature children of wrath, bond-slavcs to Satan, and justly liable to all punishments in this
this world, and in that which is to come. See Gen. iii. 8.  

On the other hand, it is alleged, that the language of  
man's sinfulness confiding in the guilt of Adam's first sin  
is unscriptural; nor, in the nature of things, can our  
sinfulness confide 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  
life by Adam's sin is so corrupted, that man, i.e. man, are  
utterly indisposed, disabled, and made opposite to  
all that is spiritually good; that is, to all 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  
agreed to be, as 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  
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;  
lib. iii. c. 4. § 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 Romans distinguished actual sins from mortal  
which are such as make us lose the grace of God; and  
venial, which are a party, as being only sins of  
futility, not of malice. See PEPER.  

Divines are not yet agreed what the sin against the Holy  
Ghost is. See BLASPHEMY against the Holy Ghost.  

SIN, Philosophical, according to the doctrine of the Jesuits,  
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 Aegina, in  
Margiana. Ptolemy.—Alfo, a town of Cappadocia, in the  
prefecture of Cilicia. 1d. Alfo, a place in the isle of Leblos,  
Strabo.  

Sina, or Juftiniopolis, a town of Aegina, in the Greater  
Armenia.  

SINAAB, in Geography, a town of Algiers, in the  
province of Transcen, on the E. side of the Shellif; 72 miles  
S.W. of Algiers.  

SINACA, in Ancient Geography, a town of Hyrcania.  

Ptolemy.  

SINADIZAVA, in Geography, a town of European  
Turkey, in Bulgaria, on the Ozma; 12 miles E. of  
Nicopolis.  

SINAE, in Ancient Geography, a people of India, according  
to Ptolemy. It appears that their country extended  
from Siam into a part of China.  

SINAI, Mount, in Geography, a famous mount of Arabia  
Petra, on which God gave the law to Mois. (Exod.  
xix. 1. xxiv. 16. xxxi. 18. xxxiv. 2. 4. &c. Levit.  
xxvi. 1. xxxvi. 46.) It is situate in a kind of peninsula,  
formed by the two arms of the Red sea, one extending  
N. called the gulf of Kollun; the other extending E. called  
the gulf of Elas. The Arabs call mount Sinai by the  
name of " Tor," i.e. the mountain, by way of  
excellence; or " Jebbel Mufa," the mountain of Mois;  
comprehending a range of mountains which rises at the  
interior extremity of the valley of Fazan, rechristing  
the name of Tor Sinai to that part of the range on which  
the convent of St. Catharine stands; and distant about 260  
miles from Cairo. The wildernefs of Sinai, where the  

Israelites continued encamped almost a year, and where  
Moses 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  
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 inaccessible, 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. Pococke 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. Catherine. 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 in a basket,  
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 Moses.  
But being molested by the infults and depredations of  
the Arabs, they petitioned the emperor Justinian 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 fruits. According to the account of the Arabs,  
the monks enter it by a subterraneous passage. These Greek  
edificates are not allowed to receive an European visitor,  
without an order from the bishop of mount Sinai, who refides  
or did not ordinarly at Cairo. When the bishop happens to be  
present, the gate is opened, and the convent muft 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 seize the monks  
whenever they find them without the walls of the monastery,  
and refuse to release them without a considerable ransom.  

Five hundred steps above the convent is found an  
excellent spring, which superfluous perfons have counted  
marvellous, as the mountain is to high and so barren. A thousand  
steps higher stands a chapel dedicated to the Bleffed Virgin;  
and 500 above this, are two other chapels, built in a plain,  
which the traveller enters by two small gates of mafon-work.  
Upon this plain are two trees, under which, at high festivals,  
the Arabs are regaled at the expence 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, interperfed with spots,  
which foil has been brought by human labour, or washed  
down by the rain, and in which grow almond-trees, figs, and  
vines. Mount Horeb stands W. of Sinai, so that at fun-  
rise the shadow of Sinai covers Horeb. Befide 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 thrown a fcone, four or five feet high,  
and three broad, from which, it is pretended, Moses caufed the  
water
SIN

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water to gush out; in this stone are twelve holes or channels, about a foot wide, from which, it is said, the water issued which the Israelites drank.

SINAI, Knights of. See Catharine.

SINALOA, in Geography. See CINALOA.

SI-NAN, a river of Algiers, which joins the Wed-el-Mailah, 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 banks of this river, Barbaroflo the Elder scattered his treasures when pursued by the victorious Spaniards, and here he made his last ineffectual effort to retard their progress.

SINANELLY, a town of Hindooftan, in Myfore; 22 miles S.W. of Bangalore.

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 Cathedi, according to Ptolemy.


Gen. Ch. Cat. Perianth inferior, spreading, divided into four, linear, concave, channelled leaves, forming a cros, deciduous. Cor. cruciform; of four, rounded, flat, spreading, undivided petals, with erect, linear claws scarcely the length of the calyx. Nectary composed of four ovate glands, one on each side between the shorter flamen and the pillif; and one on each side between the longer flamen and the calyx. Stam. Filaments six, awl-shaped, erect; the two shorter ones opposite; anthers erect, spreading, pointed. PIff. German superior, cylindrical; style the length of the germen, and height of the flamen; stigma capitate, undivided. Pet. Pod oblong, indated 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.

Obs. Sinapis differs principally from Brassica in having a spreading calyx, and the claws of the petals erect. Crantz unites this genus with Raphanus.

Eff. Ch. Calyx widely spreading. Claws of the petals straight. Nectariferous glands four. Pod more or less cylindrical, the partition longer than the valves.

1. S. arvensis. Wild Mustard or Charlock. Linn. Sp. Pl. 933. Fl. Brit. n. 1. Eng. Bot. t. 1748. Curt. Lond. fasc. 5. t. 47. Fl. Dan. t. 752.—Pods with many angles, rugged, longer 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 wattle 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, stiffened, hispid with slightly deflexed bristles, tinged with red. Leaves alternate, trilobate, ovate, rough, unequally toothed; lower ones somewhat lyrate; upper feathery. Flowers in a terminal, clustered corymbs, of a bright yellow colour. Seeds extremely pungent, well known under the name of Durham-Mustard.

2. S. orientalis. Oriental Mustard. Linn. Sp. Pl. 933. Amen. Acad. v. 2. 820. Ait. n. 2. "Schkuhr. Handb. v. 1. 264. t. 186." (Sinapi orientalis maxima, rapi foliis; Tourn. Cor. 17.)—Pods rough with reflexed bristles, and four blunt angles, compressed at the tip.—Native of the Levant, and introduced at Kew by M. Thouin in 1758, 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 peak only being smooth.

3. S. brasiieta. Cabbage Mustard. Wild. n. 3. Loureir. Cochinch. 399.—Leaves ovate, smooth, toothed in a diminutive manner.—Native of China, where it is much cultivated. This plant, we are informed by Loureiro, has the habit of Cabbage or Lettuce, but in the structure of its calyx it resembles Mustard. Stem a foot and half high, very smooth. Radical-leaves oblong, obtuse, white-veined, on channelled stalks; stem-leaves oblong, mottled with two auricled appendages at the base of the leaf, upper ones feathery, lanceolate, embracing the stem. Flowers like those of the Common Cabbage, bright yellow. Pod also resembling that of Brassica alere.


7. S. pubescens. Downy Mustard. Linn. Mutt. 95. Prodr. Fl. Grce. n. 1580. Arian Spec. v. 2. 21. t. 9—Pods downy, erect, with a compressed beak. Leaves lyrate, villous.—Native of Sicily, flowering in June and July. Stem perennial, shrubby. Leaves obtuse. Flowers yellow, with undivided petals. Pods erect, hairy, or very downy, as indeed are all the parts of the plant.

8. S.


16. S. fruticosa. Shrubby Mustard. Willd. n. 17. Alt. Hort. Kew. n. 11. — Pods linear, smooth. Lower-leaves oblong; toothed; upper lanceolate, undivided. Stem smooth, shrubby.—Native of Madeira, whence it was intro- duced at Kew by Mr. P. Maffon in 1777. It flowers from December to June. Figure and description wanting.


The Linnean S. hispida, a rare and little-known plant, Ait. n. 15, is removed to Desfontaines' new genus Cardi- lecarpus, in Prodr. Fl. Græc. v. 2. 33.

Mr. Brown, in Hort. Kew, has, after Tournfort's ex- ample, confedered Sisymbrium torvifolium and murale of Linneus as species of Sinapis. See Sisymbrium.

Sinapis, in Gardening, contains plants of the hardy, herbaceous, annual kind, of which the species cultivated are, the white mustard (S. alba); and the common or black mustard (S. nigra).

The first fort is generally cultivated in gardens as a fallad herb, with creoles, radishes, rape, &c. for winter and spring use; in which intention it is a highly valuable plant.

In the second fort, it is the flour of the seed that affords the common mustard for the table.

Method of Culture.—The first fort is sown along with other small fallad 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 use whilst in the seed-leaf, and but a few days old; other- wise they become too strong and rank-tafted for use. See Sallad Herbs, and Small Sallad Herbs.

But in order to have seed of this fort for garden use, it should be fown on an open spot of ground, in March or April, either thinly in drills a foot asunder, or broad-cast all over the surface, and the plants be left to run up to it, when they will furnish ripe seeds in August. And in order to raise the plants for the seed for mustard, the seeds should be fown in the spring, any time in March, in some open situation, either in the kitchen-garden, or in open fields. In either case, having dug or ploughed the ground, the seed should be fown broad-cast all over the surface, and raked or harrowed in lightly; or it may be fown in shallow drills a foot asunder, and be lightly covered in. The plants soon come up; and when they have four or more leaves an inch or two broad, if they stand very thick, those fown in the broad-cast way particularly should be hoed and thinned, leaving them six or eight inches asunder, cutting up all weeds; repeating the operation once or more, if nec- essary. After this the plants will soon spread and cover the ground, and shoot up to stalks for flowers and seed, which ripens in July or August, when the stalks should be cut or pulled up, and the feed, being properly hardened,
and dried in the pod, should either be thrashed out directly, or stacked up dry, and thrashed at occasional opportunities afterwards; but the first is the best method.

**Sinapis Nigra**, Common Black Mustard, in the *Materia Medica, &c.* is common in corn-fields and banks of ditches, but is cultivated for use, and flowers in June. (See **Sinapis** and **Mustard**). The feeds of this species of mustard, which are directed by the London College, and those of the *S. alba*, which are preferred by that of Edinburgh, are not different in taste or their general effects, and answer equally well for the table and for medical purposes. Their taste is acrid and pungent, and when bruised this pungency becomes volatile and affects the smell: they readily impart these qualities to aqueous liquors, and by distillation with water yield an essential oil of great acrimony; but to refined spirits they give out very little either of their smell or taste. When subjected to the press, they yield a considerable quantity of mild insipid oil, which is as free from acrimony as that of almonds. By writers on the materia medica, mustard is considered as promoting appetite, affording digestion, attenuating vitious juices, and by stimulating the fibres, proving a general remedy in paralytic and rheumatic affections. In considerable quantity, it opens the body and increases the urinary discharge, and hence has been found useful in tropical complaints. In these affections, perhaps, the best mode of exhibiting mustard, is in the form of whey, which is made by boiling 5½ of the bruised feeds in a quart of milk, and straining to separate the curd. A fourth part of this quantity may be taken for a dose three times a day. It has also been recommended as an antiscorbutic; though Haller says that the use of mustard pulls the humours to putrefy, to which opinion he was probably inclined by the supposition that it contained volatile alkali; but it has been found that vegetables reckoned among the alkali plants may be so directed by fermentation as to be of the acifcent kind, and the alkali obtained from them seems not to have existed in the vegetable in a separable state. The great pungency of these plants is therefore not to be ascribed to the volatile alkali, but to the essential oil which they contain. Bergius informs us, that he found mustard of great efficacy in curing venal intermitten; for which purpose he directed a spoonful of the whole seeds to be taken three or four times a day, during the apoplexy; and when the discharge is obstinate, he added flour of mustard to the bark. Externally these seeds are frequently used as a stimulant or rubefacient. The flour rubbed on the skin, or applied, in the form of a cataplasm, made into a paste with crumbs of bread and vinegar, soon excites a burning pain, considerable inflammation, and sometimes vesication. In these forms it has been found serviceable in paralysis, and applied to the soles of the feet in the delirium of typhus, and in cutaneous affections. It is observed by Cullen that the fresh powder of mustard shews little pungency and much bitterness; but when it has been moistened with vinegar, and kept for a day, the essential oil is evolved, and it becomes considerably more acrid, as is well known to those who prepare mustard for the table; a circumstance which should be attended to when designed for external use. Mustard-feed may be most conveniently given entire or unbruised, and to the quantity of a spoonful or half an ounce for a dose. The constituents of mustard-feed appear to be flax, mucus, a gland fixed oil, an acrid volatile oil, and an ammoniacal salt. The officinal preparations of mustard are "cataplasmum sinapis," L. D. and "emulsionem meloe compostum," E. See **Plaster**.

The cataplasm of mustard of the London Ph. is prepared by mixing mustard-feed and lint-feed, of each in powder half a pound, with a sufficient quantity of hot vinegar, to the thickness of a cataplasm. The mustard cataplasm of the Dub. Ph. is formed of mustard-feed in powder and crumbs of bread, of each half a pound, and a sufficient quantity of vinegar. This preparation may be rendered more acrid by adding two ounces of horse-radish finely scraped. These cataplasms are powerful local stimulants and rubefacient. They are to be spread on cloth to the thickness of about half an inch, and applied to the soles of the feet, in the low state of typhus fever, particularly when stupor or delirium is present, and in apoplexy, coma, and other cases in which there is a great determination to the head. Their rubefacient effects are very quickly produced, and often so powerfully as to raise blisters on the part. Cullen's Mat. Med. Woody. Med. Bot. Thompson's Lond. Disp.

**Sinapici Persicum**, Persian Mustard, a name by which some botanical authors have called the thalphi, or treacle mustard.

**Sinapis**, or **Sinapum**, formed from **Sinapi**, or **Sinapum**, mustard-feed, in Pharmacy, an external medicine, in form of a cataplasm. See **Sinapi**.

**Sinapistrum**, in Botany, Tourn. Inst. 231. t. 116, a name of Hermann's, alluding to the resemblance of the plant, or at least of its pods, to **Sinapis**, or Mustard. See **Cleome**.

**Sinarca**, 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 as human figures with the head of a horse, but we never saw them so represented. See **Sitanta** and **Sura**.

**Sinarum 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 *Hydnium*; or water-mint, common in all our ditches and watery places.

**Sinasse**, in Geography, a town of Abysinia; 40 miles N. E. of Addis Ababa.

**Sinay**, a small island near the W. coast of the island of Lucan. N. lat. 18° 11'. E. long. 120° 36'.

**Sibnach**, or Simpach, a town of Bavaria; 5 miles S. of Landau.

**Sinaeipura**, 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 "Strait of Sinaeipura." N. lat. 1° 10'. E. long. 103° 36'.

**Sin-Caripou**, a town of Chineef Tartary; 555 miles E. N. E. of Peking. N. lat. 41° 21'. E. long. 126° 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. Simplicity, called by the Greeks *aphrēstos*, is included in this virtue, but does not express the whole of it; so that it is necessary to add *aphrēstos*, truth; of which two the first stands 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 honestly
and opennefs 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 goodnefs are the principal objects of sacrefty. The extremes of this virtue are over-franknefs and hypocrisy. Grove's Syftem of Moral Philofophy, vol. ii. ch. 2.

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 rifle 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 Corgatha and Pagrafa.—Alfo, a town of Afa, in Phidia, on the confines of Caria. Strabo.—Alfo, a town of Afiatic Sarmatia, upon the Cimmerian Bofphorus, between the ports Sindicus and Bara, according to Ptolemy.

SINDA, in Geography, a town of Hindooftan, in Baghla; 20 miles N.W. of Nafnuck.

SINDAE, in Ancient Geography, the name of three iflands in the Indian sea, S. of the Baruffa, according to Ptolemy.

SINDAGUA, in Geography, a ridge of mountains in South America, between Popayán 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. 123° 5'.

SINDE. See ISDE.—Alfo, a river of Hindooftan, which rifes about 20 miles W. of Bilfah, and runs into the Jumnah, at Putterahee.

SINDEJUA, a town of Napaul; 40 miles W. of Mo- caumpur.

SINDELFINGEN, a town of Wurtemberg; 6 miles S.W. of Stuttgart. N. lat. 48° 41'. E. long. 8° 52'.

SINDER, a town of Hindooftan, in Baghla; 15 miles S.E. of Nafnuck.

SINDERINGEN, a town of Germany, in the county of Hohezlohe, on the Kocher; 12 miles N.E. of Heilbron. N. lat. 45° 16'. E. long. 9° 33'.


SINDI, a people of Afiatic Sarmatia, in the number of thofe who inhabited the Cimmerian Bofphorus. Strabo.


SINDIANI, a Scythian people who inhabited the vicinity of the Palus Mæotis, according to Lucian.

SINDICUS PORTUS, a port of Afiatic Sarmatia, on the coast of the Cimmerian Bofphorus, according to the Periplus of Scylax.

SINDINICES, a people of Germany, who formed a part of the nation of the Vandals.